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THE AMERICAN ENERGY INITIATIVE, PART 23: A FOCUS ON ALTERNATIVE FUELS AND VEHICLES, BOTH THE CHALLENGES AND THE OPPORTUNITIES

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

JULY 10, 2012

Serial No. 112–159

Printed for the use of the Committee on Energy and Commerce

energycommerce.house.gov

U.S. GOVERNMENT PRINTING OFFICE

81–616 PDF WASHINGTON : 2013

For sale by the Superintendent of Documents, U.S. Government Printing Office
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C O N T E N T S

	Page
Hon. John Sullivan, a Representative in Congress from the State of Oklahoma, opening statement	1
Prepared statement	3
Hon. John Shimkus, a Representative in Congress from the State of Illinois, opening statement	4
Hon. Bobby L. Rush, a Representative in Congress from the State of Illinois, opening statement	4
Hon. Mike Pompeo, a Representative in Congress from the State of Kansas, opening statement	6
Hon. Joe Barton, a Representative in Congress from the State of Texas, opening statement	6
Hon. Henry A. Waxman, a Representative in Congress from the State of California, opening statement	7
Prepared statement	9

WITNESSES

Joseph H. Petrowski, Chief Executive Officer, The Cumberland Gulf Group	11
Prepared statement	13
Jack N. Gerard, President and Chief Executive Officer, American Petroleum Institute	23
Prepared statement	25
Bob Dinneen, President and Chief Executive Officer, Renewable Fuels Association	33
Prepared statement	35
Tom Tanton, Executive Director and Director, Science and Technology Assessment, American Tradition Institute	41
Prepared statement	43
Richard A. Bajura, Director, National Research Center for Coal and Energy, West Virginia University	60
Prepared statement	62
Michael J. McAdams, President, Advanced Biofuels Association	71
Prepared statement	73
Mike Breen, Vice President, Truman National Security Project	78
Prepared statement	80
Felice Stadler, Director, Dirty Fuels Campaign, National Wildlife Federation	89
Prepared statement	91
Gregory A. Dolan, Acting Chief Executive Officer, Methanol Institute	129
Prepared statement	132
Don Althoff, Chief Executive Officer, Flex Fuel U.S.	140
Prepared statement	142
Shane Karr, Vice President, Federal Government Affairs, Alliance of Automobile Manufacturers	146
Prepared statement	148
Tom Hassenboehler, Vice President of Policy Development and Legislative Affairs, America's Natural Gas Alliance	157
Prepared statement	159
Mary Ann Wright, Vice President, Global Technology and Innovation, Power Solutions Division, Johnson Controls, Inc., and Chair, Electric Drive Transportation Association	166
Prepared statement	168

Page

SUBMITTED MATERIAL

Letter, dated July 10, 2012, from Tom Buis, CEO, and Jim Nussle, President and COO, Growth Energy, to Mr. Whitfield and Mr. Rush, submitted by Mr. Shimkus 198
Letter, dated July 9, 2012, from Charles T. Drevna, President, American Fuel & Petrochemical Manufacturers, to Mr. Whitfield and Mr. Rush, submitted by Mr. Shimkus 200
Statement, dated July 11, 2012, of Mark W. Oberle, Senior Vice President, Corporate Affairs, Celanese, submitted by Mr. Shimkus 203

THE AMERICAN ENERGY INITIATIVE, PART 23: A FOCUS ON ALTERNATIVE FUELS AND VEHICLES, BOTH THE CHALLENGES AND THE OPPORTUNITIES

TUESDAY, JULY 10, 2012

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND POWER,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 10:05 a.m., in room 2322 of the Rayburn House Office Building, Hon. John Sullivan (vice chairman of the subcommittee) presiding.

Members present: Representatives Sullivan, Shimkus, Burgess, Bilbray, Scalise, McMorris Rodgers, Olson, McKinley, Pompeo, Griffith, Cassidy, Barton, Rush, Castor, Sarbanes, Markey, Engel, Green, Gonzalez, and Waxman (ex officio).

Staff present: Anita Bradley, Senior Policy Advisor to Chairman Emeritus; Maryam Brown, Chief Counsel, Energy and Power; Allison Busbee, Legislative Clerk; Cory Hicks, Policy Coordinator, Energy and Power; Ben Lieberman, Counsel, Energy and Power; Chris Sarley, Policy Coordinator, Environment and Economy; Michael Aylward, Democratic Professional Staff Member; Greg Dotson, Democratic Energy and Environment Staff Director; and Caitlin Haberman, Democratic Policy Analyst.

Mr. SULLIVAN. I call this hearing to order, and I recognize myself for an opening statement.

OPENING STATEMENT OF HON. JOHN SULLIVAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OKLAHOMA

This is the 23rd day of our hearing on the American Energy Initiative. This morning we will be discussing alternative fuels and vehicles, both the challenges and the opportunities.

Gasoline and diesel fuel currently dominate the transportation sector, and that is not likely to change any time soon. For that reason, we need to take steps to ensure plentiful and affordable supplies of petroleum and the fuels that are made from it. That means expanding domestic oil production, approving the Keystone XL pipeline to allow more Canadian oil to come into the country, and reviewing the red tape that raises the cost of refining crude into gasoline and diesel fuel. That is why I strongly supported measures like the Domestic Energy and Jobs Act, and why I will continue to

fight for a commonsense, pro-consumer, pro-jobs, and pro-energy policy.

But in addition, we need to look at options other than petroleum derived fuels, and indeed we are doing so. We are well into the implementation of the Renewable Fuel Standard created in the 2005 energy bill and expanded in the 2007 bill. The RFS has achieved some successes such as increased ethanol production. However, some also see shortcomings with the RFS that need to be addressed.

Even beyond ethanol and other biofuels, there are many other alternative fuels and vehicles, including natural gas, electricity, coal-to-liquids, methanol, and flex-fuel vehicles. Each offers its own unique mix of advantages as well as disadvantages, and all offer the benefits of diversification.

I look forward to learning more about these options, and exploring the question of what role, if any, the Federal Government should play in shaping the fuels and vehicles markets of the future.

[The prepared statement of Mr. Sullivan follows:]

Opening Statement of the Honorable John Sullivan
Subcommittee on Energy and Power
Hearing on "The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities"
July 10, 2012
(As Prepared for Delivery)

This is the twenty-third day of our hearing on the American Energy Initiative. This morning we will be discussing alternative fuels and vehicles, both the challenges and the opportunities.

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I look forward to learning more about these options, and exploring the question of what role, if any, the federal government should play in shaping the fuels and vehicles markets of the future.

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Mr. SULLIVAN. Thank you, and I yield the balance of my time to Congressman Shimkus.

OPENING STATEMENT OF HON. JOHN SHIMKUS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. SHIMKUS. Thank you, Chairman Sullivan. I want to thank Chairman Upton also for allowing us to have the hearing.

Gasoline remains the primary source of fuel, and it will remain that for a long time. The Republican position on energy security is "all of the above," and so part of the RFS hearing today and other pieces of legislation that I have introduced are really to address that "all of the above" arena.

Ethanol has been a great success at this time. We will hear more about that from Mr. Dinneen, but a couple highlights I wanted to start with were ethanol produced 14 billion gallons in 2011. U.S. oil and imports dropped to just 45 percent of demand that same year. Ethanol represents 10 percent of our national gasoline pool. Last year, ethanol reduced wholesale gas prices by an average of $1.09 per gallon. And as I try to remind people, that is without a blender's credit, which has gone away. People still think that there is a tax credit with ethanol blending, and that is not the case.

So the question is, why not add a variety of alternative transportation fuels to the mix, which is the part of this debate, and I am glad we have a huge panel today. Our country must challenge our scientists and engineers towards that end. The bipartisan Open Fuel Standards, H.R. 1687, is intended to move this conversation forward, and I really want to thank my colleague and friend, Mr. Engel from New York, for really being a leader on that and Congresses before this one.

H.R. 1687 would have an increasing percent of new automobiles take on a variety of fuels like natural gas, electricity, biodiesel, hydrogen, flex fuel vehicles that can run on blends of methanol and ethanol, or other emerging technologies. This would create a marketplace where fuels can compete with each other for the consumer's dollars.

I look forward to hearing from our witnesses on the opportunities and challenges presented by having an open Fuel Standard. I also look forward to the panel talking about some of the challenges that are faced in EPA permitting a defined liquid transportation fuel, but then liability concerns and restrictions that is addressing some of the concerns in H.R. 4345.

I appreciate all the witnesses for being here, and particularly want to thank Don Althoff from the Flex Fuel U.S. for rescheduling from earlier in the year to testify today.

And with that, Mr. Chairman, I yield back my time.

Mr. SULLIVAN. Thank you, Mr. Shimkus, and I yield to Congressman Rush for 5 minutes.

OPENING STATEMENT OF HON. BOBBY L. RUSH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ILLINOIS

Mr. RUSH. I want to thank you, Mr. Chairman, for holding this hearing and I want to thank all of the witnesses for being here today.

Mr. Chairman, it is extremely important that both sides work together to identify short and long-term strategies and objectives for developing alternative fuels for vehicles. So 5 or 10 years from now, this country will not be subject to fluctuating global gas prices due to unrest in the Middle East or anyplace else in the world.

For too long now, we are seeing wildly fluctuating gas prices due to a lack of a comprehensive policy to move us away from imported oil and petroleum. Every year or two, we are back in the same exact position where we were a few months ago, discussing extremely high gas prices at the pump. We are no closer to permanently solving this issue which has such a devastating effect on the lower and middle income family's budget who must, too often, choose between putting food on the table or filling up their cars in order to go to work.

Mr. Chairman, we are willing to provide much-needed direction, much-needed funding to develop alternative fuel supplies. We can provide economical and practical benefits to Americans by deciding the amount of oil we import, while also permanently decreasing the price our families pay at the pump. However, we all understand that before we are able to enjoy the benefits that will also come from alternative fuels, we must first invest in the research and development of these supplies. Even if we are able to come together on a comprehensive policy to develop these fuels, we must also invest in the infrastructure to support these fuels as well.

So Mr. Chairman, I look forward to today's hearing to discuss both the opportunities and the challenges we face as we attempt to transition from alternative fuels to power our cars and trucks. The National Oceanic and Atmospheric Administration informs us that the first 6 months of 2012 were the warmest first half of any year on record in the lower 48 contiguous States, and more than 170 temperature records were tied or broken just in the month of June, according to the agency. Mr. Chairman, as a representative from a corn-growing State, my beloved Illinois, I look forward to hearing more about the impact that this record-breaking heat wave has had on corn crops and how it may impact the production of corn ethanol.

Mr. Chairman, I am very interested to hear from these experts today on not only the impact of corn ethanol, but also the opportunity for additional alternative fuel sources for transportation, including biofuels, electricity, natural gas, coal and liquids, and many others. That means if we are prudent and we work together on both sides of the aisle, we can develop a policy for alternative fuel production that would be to the benefit of all our constituents and to the American people in their homes.

Mr. Chairman, we have our work cut out for us, but I am pleased that today we are taking the first step toward understanding where we are and what we need to do in order for us to move forward.

With that, I yield back the balance of my time.

Mr. SULLIVAN. Thank you, Congressman Rush.

Now I recognize Congressman Pompeo from Kansas for 5 minutes.

OPENING STATEMENT OF HON. MIKE POMPEO, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF KANSAS

Mr. POMPEO. Thank you, Mr. Chairman. Thanks for holding this hearing today on alternative fuels, and thank you for inviting a panel with what I know will be a broad and diverse set of views with respect to this.

I have to say when I hear us talk in Washington about alternative fuels, I think you could sometimes substitute alternative for consumer rejected or unaffordable or imaginary, in normal, everyday, practical existence fuels. When we talk about alternative fuels here, we often talk about government mandate and subsidies. When we talk about coal and oil and natural gas, we talk about relieving Federal burdens from the EPA and others. We have very different views or very different policy principles when we talk about these very different potential energy sources. I, like no one, hope that we can find the next great energy source and we can have a broad and diverse array of those.

But when I hear us talk about alternative energies, it is always about if the mandates goes away, so will my business. If the subsidy goes away, so will my ability to make consumers happy. All of these things are interventions at the Federal that, in my judgment, often do enormous risk to consumers and I know to taxpayers as well.

I have my own views on what will be the best next energy source. I imagine most of the folks on this panel have their own idea of what this would be, too, but that is not my role. My role is not to decide which of these technologies is best and which one will be successful. It is all of the great innovators and engineers and technicians out there trying to find that great next energy source that we ought to free to do that without the Federal Government's intervention. I think things like Solyndra, which is just a simple, single example of where the government thought we had a good solution and we were smarter than the average bear and we could direct consumers to the right place. This demonstrates the absolute dangers of Federal intervention in energy markets.

Sooner or later on all these energies we have got to take the training wheels off and let all these energies compete in an open space. With that, I yield the balance of my time to Congressman Barton.

OPENING STATEMENT OF HON. JOE BARTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BARTON. Thank you, Mr. Pompeo. Do I yield time to somebody, too, or—OK.

Well first, I want to thank Chairman Whitfield and also Chairman Sullivan for holding this hearing. I think this is the 23rd in the series of hearings on this. Today we are going to look at alternative fuels. I would have to say that natural gas or LNG should be one of those that we take a serious look at. I have a company in my district called Green Energy Orefield Services that is beginning to outfit trucks to run on LNG to carry the various hydraulic fracturing products to and from the gas and oil wells. I think this is a win/win.

I know there is quite a bit of controversy over biofuel program in the Navy. I think it is appropriate for the Navy to be doing some pilot programs on biofuels, but at the expected cost of over $27 a gallon, I certainly think that we shouldn't forget, again, LNG and natural gas and even coal to liquids, for that matter, as alternative energy sources for our Navy. Biofuels should and can play an important role in a balanced energy portfolio, there is no question about that, but we shouldn't forget the fuels that have made it possible for us to have the greatest economy in the world, and that is our basic hydrocarbon fuels that we are so adept at right now in manufacturing and discovering and producing and transporting.

All in all, Mr. Chairman, I think this is a very good hearing, and I look forward to hearing from the witnesses.

I still have a minute, so I am willing to yield to somebody if there is another member that wishes—would like some time. If not, I yield back to the distinguished chairman.

Mr. SULLIVAN. Thank you, Congressman Barton. Next I yield 5 minutes to the gentleman from California, Congressman Waxman.

OPENING STATEMENT OF HON. HENRY A. WAXMAN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. WAXMAN. Thank you, Mr. Chairman. Today, the subcommittee examines the opportunities and challenges associated with the alternative fuels and vehicles. This topic is important for the Nation's environmental and economic health, and our national security.

Just a few years ago, nearly 60 percent of U.S. transportation fuels came from abroad, and projections were discouraging. Experts predicted higher oil consumption and more imports far into the future. Carbon pollution for the transportation sector was expected to grow and grow and grow. Under the leadership of President Obama, we have reversed this trend in a historic and fundamental shift.

In April of 2010, the administration finalized fuel efficiency and carbon pollution standards for model year 2012 to 2016 cars and trucks. These standards will save consumers on average more than $3,000 in fuel costs over the life of a new vehicle. This is the net savings after accounting for any increased vehicle costs. This is a good example of government intervention that has been very successful.

In November, 2011, the Obama administration proposed to expand this successful program to include model years 2017 to 2025. The benefits of this program to the Nation are profound. Families will save $8,000 in fuel costs over the life of a new vehicle. These savings will accumulate and consumers, as a group, will save $1.7 trillion over the life of the program. These standards will save 2.2 million barrels of oil a day by 2025. This will make our economy stronger and help ease our national security challenges. It will also reduce our carbon pollution by over 6 billion metric tons. That is as much as the whole country emits in a year. This reduction is an important step in our efforts to stabilize the climate.

These carbon pollution tailpipe standards are a win/win/win for the Nation, improving our environment, economy, and national se-

curity, but we have more work to do. American families are still getting rip-sawed when gasoline prices unexpectedly spike. The money we spend on oil abroad continues to conflict with our foreign policy goals and national security, and the wildfires, drought, heat waves, and extreme weather events tell us that we must do more to address climate change.

In March, the Intergovernmental Panel on Climate Change released a report concluding that climate change already has led to climate extremes and extreme weather events around the world. As carbon pollution climbs and as our climate continues to warm, these extreme weather events are likely to become more frequent and more severe. Last year, 14 weather-related disasters, each costing more than $1 billion, struck the United States, a record number. This year has seen even more bizarre weather, according to the National Oceanic and Atmospheric Administration. More than 40,000 hot temperature records have been set this year. The deadly combination of heat and drought has resulted in more than 2.1 million acres burned in wildfires so far. At the end of June, more than 113 million people in the U.S. were in areas under extreme heat advisories. Some of those are areas that vote Republican, as well as Democratic.

We are seeing the types of extreme events that scientists have been predicting who are common with climate change. For instance, Jonathan Overpeck with of the University of Arizona recently stated, "The extra heat increases the odds of worse heat waves, droughts, storms, and wildfire." We cannot afford to ignore climate change in the development of our energy policies. The two are inextricably linked.

The good news is that as we increase our efficiency and move towards alternative fuels, we not only reduce our dependence on fossil fuels, we also have the opportunity to reduce our carbon pollution. It is not a given that we will make the right choices. Some will advocate today that we abandon our efforts to cut carbon pollution. That would be a serious mistake. Progress will not be easy, but it is necessary. We need to continue our push toward alternative fuel vehicles, whether they are plug-in electric drive commuter vehicles, long haul natural gas trucks, or renewable fuels. The Obama administration has made real progress on a seemingly retractable problem. We are finally heading in the right direction.

I look forward to hearing from today's witnesses, reading their testimony, and I hope we can continue to build on this progress.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Waxman follows:]

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED TWELFTH CONGRESS

Congress of the United States
House of Representatives
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Opening Statement of Rep. Henry A. Waxman
Ranking Member, Committee on Energy and Commerce
Hearing on "The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities"
Subcommittee on Energy and Power
July 10, 2012

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Just a few years ago, nearly 60% of U.S. transportation fuels came from abroad. And projections were discouraging. Experts predicted higher oil consumption and more imports far into the future. Carbon pollution from the transportation sector was expected to grow and grow and grow.

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These carbon pollution tailpipe standards are a win-win-win for the nation, improving our environment, economy, and national security.

But we have more work to do. American families are still getting whipsawed when gasoline prices unexpectedly spike. The money we spend on oil abroad continues to conflict with our foreign policy goals and national security. And the wildfires, drought, heat waves, and extreme weather events tell us that we must do more to address climate change.

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We are seeing the types of extreme events that scientists have been predicting would come with climate change. For instance, Jonathan Overpeck of the University of Arizona, recently stated, "The extra heat increases the odds of worse heat waves, droughts, storms and wildfire. This is certainly what I and many other climate scientists have been warning about."

We cannot afford to ignore climate change in the development of our energy policies. The two are inextricably linked.

The good news is that as we increase our efficiency and move towards alternative fuels, we not only reduce our dependence on fossil fuels, we also have the opportunity to reduce our carbon pollution. It is not a given that we will make the right choices. Some will advocate today that we abandon our efforts to cut carbon pollution. That would be a serious mistake.

Progress will not be easy, but it is necessary.

We need to continue our push towards alternative fueled vehicles, whether they are plug-in electric drive commuter vehicles, long-haul natural gas trucks, or renewable fuels.

The Obama Administration has made real progress on a seemingly intractable problem. We're finally heading in the right direction.

I look forward to hearing from today's witnesses and hope we can continue to build upon this progress.

Mr. SULLIVAN. Thank you, Congressman Waxman.

Now we will move to our first panel, and I want to thank our eight witnesses for being here. Thank you so much for coming up to the Hill and presenting this. Each of you will have 5 minutes.

We are going to hear today from Mr. Joseph Petrowski, CEO of the Cumberland Gulf Group; Mr. Jack Gerard, President and CEO of the American Petroleum Institute; Bob Dinneen, President and CEO of the Renewable Fuels Association; Tom Tanton, Executive Director and Director of Science and Technology Assessment, American Tradition Institute; Richard Bajura, Professor, Mechanical and Aerospace Engineering, Director of National Research Center for Coal and Energy, West Virginia University; Michael McAdams, President, Advanced Biofuels Association; and Michael Breen, Vice President, Truman National Security Project; and Felice Stadler, Director, Dirty Fuels Campaign, National Wildlife Federation. First, we will go to Mr. Petrowski. You have 5 minutes, sir.

STATEMENTS OF JOSEPH H. PETROWSKI, CHIEF EXECUTIVE OFFICER, THE CUMBERLAND GULF GROUP; JACK N. GERARD, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN PETROLEUM INSTITUTE; BOB DINNEEN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, RENEWABLE FUELS ASSOCIATION; TOM TANTON, EXECUTIVE DIRECTOR AND DIRECTOR, SCIENCE AND TECHNOLOGY ASSESSMENT, AMERICAN TRADITION INSTITUTE; RICHARD A. BAJURA, DIRECTOR, NATIONAL RESEARCH CENTER FOR COAL AND ENERGY, WEST VIRGINIA UNIVERSITY; MICHAEL J. MCADAMS, PRESIDENT, ADVANCED BIOFUELS ASSOCIATION; MIKE BREEN, VICE PRESIDENT, TRUMAN NATIONAL SECURITY PROJECT; AND FELICE STADLER, DIRECTOR, DIRTY FUELS CAMPAIGN, NATIONAL WILDLIFE FEDERATION

STATEMENT OF JOSEPH H. PETROWSKI

Mr. PETROWSKI. [Inaudible.] Gulf Oil Group, and as part of background, we are the Nation's eighth largest convenience retailer of petroleum products and convenience items in Sover 13 States. Our wholesale oil division, Gulf Oil, carries and merchandises over 350,000 barrels of petroleum products and biofuels over 29 States, $13 billion revenue places us in the top 50 private companies in the country. We employ 8,000 employees, and I would like to report successfully that we are a growing company.

As part of, also, background, we like to say that our company is fuel agnostic. We do not drill, we do not refine petroleum products. What we care to sell are products that our customers want to buy that are most economic for them to achieve their desired transport, heating, and other energy uses in a lawful manner.

We blend—in addition to selling petroleum products, which is our primary product that we sell, we blend over 1 million gallons a day of biofuels across our system, and just recently, we have purchased 24 Class A trucks to begin to fuel on natural gas to deliver our fuel products to our stations and stores.

While I like to say we are fuel agnostic, we are not unbiased. We believe that a sound energy policy rests on four bedrocks. One is

that we have diverse fuel sources, and there are two reasons for that. The future is unknowable. The new shale technology that has taken over the industry in natural gas was unheard of more than 2 decades ago. Technology and events are beyond our abilities to understand where we are going, and so to bet any of our future on one single source of fuel would be a mistake. We believe diversity in all systems ensures health and stability. And so we look for diversity in fuel, not only by fuel type, but to make sure that we are not concentrated in taking it from one region, particularly the Middle East and unstable regions. So we do support that.

Number two, we have a bias. We want low costs and non-volatile fuel. A million and a half customers pass through our stores and stations every day. We see what the high prices do to our consumers. In the State of Massachusetts where we are headquartered, the per capita consumption is about $50,000 a year. The average resident in Massachusetts uses about 2,500 gallons of fuel, both in home heating oil and in gasoline. The average car uses about 600 gallons a year. A $1 rise in the price of fuel takes almost 50 percent of discretionary income away from that family. High fuel costs are the most regressive form of taxation possible.

Number three, we believe in secure and domestic sources. I think I heartened a few years ago, our net imports of BTU products was approaching $1 trillion. Today, because we have made advances in domestic drilling for oil from 4 million barrels to almost 6, shale gas has increased dramatically from 65 BCF a day to 100 BCF, and because of better consumption and conservation, we now use—our net imports are $400 billion, and we believe in the next 3 years that this country, with the right policies, can be a net exporter of BTUs, which will break our dependence on Mideast oil.

Finally, we think that in any policy, the fourth bedrock is that anything you put in place, we have to take into account costs and externalities. We think House Bill 4345 is a large step in the right direction. I do want to point out to all the members that we have billions, hundreds of billions of dollars invested in terminals, gas stations, barges, transportation, and we have to live with the realities of the marketplace and the particulars.

I have pointed out many times when people talked about the XL pipeline that it is seven times more expensive for us today to move petroleum product from Chicago to Philadelphia than it is from the east coast of India to Philadelphia. And so we think as we craft and design policy, understanding the external cost is important.

Thank you.

[The prepared statement of Mr. Petrowski follows:]

Statement Of

Joseph H. Petrowski,
Chief Executive Officer
The Cumberland Gulf Group
Framingham, MA

On behalf of the

Society of Independent Gasoline Marketers of America (SIGMA)

and the

National Association of Convenience Stores (NACS)

Before the

House Energy and Commerce Committee,
Subcommittee on Energy and Power

July 10, 2012

Hearing on

"The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities"

INTRODUCTION

Chairman Whitfield, Ranking Member Rush, members of the Subcommittee, thank you for the opportunity to present testimony before you today. My name is Joe Petrowski. I am CEO of the Cumberland Gulf Group headquartered in Framingham, Massachusetts. Gulf Oil is a premier gasoline brand supplying over 2500 stations in 29 states with a heavy concentration in the Northeast corridor. Lundberg Survey has sited us as one of the fastest growing brands in the United States. The company also supplies fuel to non-Gulf branded sites and premier non-branded marketers such as convenience retailer WAWA and big box retailer BJ's. We are also a supplier of over the road diesel and home heating oil. Overall we serve a wholesale customer base in excess of 1,000 and a retail base in the millions. Gulf remains a market leader in petroleum distribution as well as in the development of next-generation alternative fuels and other state-of-the-art solutions for our consumer's engine performance needs. We blend over 1 million gallons of biofuels daily. Our convenience store brand, Cumberland Farms, has almost 600 stores spanning 11 states across the northeast and Florida. All told, we employ approximately 7500 people, and 1.5 million customers transact at a Cumberland Farms convenience store, Gulf Branded station, or a third party branded outlet we supply every day.

In the interests of full disclosure, I am also a Board member of South Jersey Industries (NYSE ticker symbol "SJI"), a natural gas utility and diversified energy services company in Atlantic City, New Jersey. The company supplies natural gas, solar, electricity, and Central Power and Heating systems on a nationwide basis. I have also served in a number of capacities for diverse energy-related companies for the past 22 years including past Chairman of the New England Power Pool Board of Review and President of Consolidated Natural Gas Energy Services prior to its acquisition by Dominion Resources in 2000.

I am testifying today on behalf of both the Society of Independent Gasoline Marketers of American (SIGMA) and the National Association of Convenience Stores (NACS). SIGMA represents a diverse membership of approximately 260 independent chain retailers and marketers of motor fuel. Ninety-two percent of SIGMA's membership are involved in gasoline retailing, 66 percent are involved in wholesaling, 36 percent transport product, 25 percent have bulk plant operations, and 15 percent operate terminals. Member retail outlets come in many forms, including travel plazas, traditional "gas stations," convenience stores with gas pumps, cardlocks, and unattended public fueling locations. Some members sell gasoline over the Internet, many are involved in fleet cards, and a few are leaders in mobile refueling.

NACS is an international trade association composed of more than 2,200 retail member companies and more than 1,800 supplier companies doing business in nearly 50 countries. The convenience and petroleum retailing industry has become a fixture in American society and a critical component of the nation's economy. In 2011, the convenience store industry employed more than 1.8 million workers and generated $689.1 billion in total sales, representing approximately 4.5 percent of the United States' GDP – or one of every 22 dollars spent – in 2011.

America's love affair with the automobile is not going away. Neither is the need for transportation fuels that underpin the economy and create jobs. In a country as vast as ours with a density of 79 people per square mile (as opposed to the Netherlands with 1300 people per square mile), the cost of transport is central to economic health. Our industry is committed to facilitating this contribution to the American economy, and doing so in a manner that complies with all applicable laws and regulations. We devote vast resources to offering and adapting to new technologies and market opportunities. My company is constantly striving to identify the best new products and services we can bring to our stores and facilities. Consequently, we are not beholden to any specific product. While Gulf Oil has a long and accomplished history beginning in 1901, it is no longer a fully integrated oil company and neither explores nor refines. We are truly fuel agnostic.

Our sole objective is to sell what our customers want to buy and, as new fuels enter the market, we want to be able to sell them lawfully and with minimal volatility and risk. While agnostic on fuel we do have a bias: We believe it is best for the American consumer and our industrial position in the world marketplace to have reasonably low and stable priced energy. This can best be accomplished by focusing on developing diverse fuel sources from at the least secure, friendly regions and at best domestic sources for optimal results. It is a fact that when total national energy costs are less than 10% of GDP, economic growth is robust. When total national energy costs exceed 16% of GDP a recession or worse is almost always the result. The United States' current accounts trade balance for all energy products recently exceeded $1 trillion dollars, and while it has currently been reduced to one half that amount on an annualized basis we look forward to the day when the United States is a net energy exporter. Not only will that be positive to GDP and job growth, but it will position us to revitalize our industrial production, especially in energy-intensive industries with an eye toward value added product exports. And no policy would be more beneficial for the spread of world democracy and social justice than low energy prices driven by North American production. Decreasing the amount of energy the world buys from dictatorial, abhorrent and kleptocratic regimes guarantees the elimination of their importance on the world stage if not the end of these malevolent states.

My testimony today will focus on the current situation facing the retail marketplace, and present some recommendations for Congress as you consider options for increasing the use of alternative and renewable fuels as part of your strategy for improving America's economic outlook and creating jobs.

COMPOSITION OF THE RETAIL FUELS MARKET

To fully understand how fuels enter the market and are sold to consumers, it is important to know who is making decisions at the retail level of trade.

Our industry is dominated by small businesses. In fact, of the 120,950 convenience stores that sell fuel, almost sixty percent of them are single-store companies – true mom and pop operations.

Many of these companies sell fuel under the brand name of their fuel supplier. This has created a common misperception in the minds of many policymakers and consumers that the large integrated oil companies own these stations. The reality is that the majors are leaving the retail marketplace and today own and operate fewer than 2% of the retail locations. Although a store may sell a particular brand of fuel associated with a refiner, the vast majority are independently owned and operated like mine. When people pull into an Exxon or a BP station, the odds are good that they are in fact refueling at a small mom-and-pop operation.

We are in the customer service business. We have to make decisions each day regarding what products to sell and which services to offer to our customers, and we often take risks – you cannot be successful without doing so. But taking a chance by offering a new food product is very different from switching my fueling infrastructure to accommodate a new fuel. So when a new fuel product becomes available, our decision to offer it to our customers takes more time. We need to know that our customers want to buy it, that we can generate enough return to justify the investment, and that we can sell the fuel legally.

These are the fundamental issues that face the introduction of new renewable and alternative fuels today.

THE BLEND WALL AND THE NEED FOR A CONGRESSIONAL FIX

Since the enactment of the Energy Independence and Security Act (EISA) of 2007, we have heard much about the impending arrival of the so-called "blend wall" – the point at which the market cannot absorb any additional renewable fuels. Most of the fuel sold in the United States today is blended with 10% ethanol. If 10% ethanol were blended into every gallon of gasoline sold in the nation in 2011 (133.9 billion gallons), the market would reach a maximum of 13.39 billion gallons. However, the 2012 statutory mandate for the RFS is 15.2 billion gallons. Meanwhile, the market for higher blends of ethanol (E85) for flexible fuel vehicles (FFVs) has not developed as rapidly as some had hoped. Clearly, we have reached the blend wall.

As you are likely aware, EPA recently authorized the use of E15 in certain vehicles. However, this has so far done very little to expand the use of renewable fuels, due largely to retailers' liability and compatibility concerns, as well as state and local restrictions on selling E15. Congress can do something immediately to mitigate other obstacles preventing new fuels from entering the market. H.R. 4345, the Domestic Fuels Protection Act of 2012—currently before the subcommittee on Environment and the Economy—addresses three of these obstacles: infrastructure compatibility, liability for consumer misuse of fuels, and retroactive liability of the rules governing a fuel change in the future.

Before I discuss these issues in more detail, it is important to note that H.R. 4345 is not an E15 bill – it applies to *any* new fuel formulations or additives approved and registered by EPA. E15 is often used as the primary example to demonstrate how this legislation would affect the market because it is a fuel with which we are now very familiar. However, H.R. 4345 is designed to facilitate the introduction of *all* innovative new fuels.

H.R. 4345: THE DOMESTIC FUELS PROTECTION ACT OF 2012

Infrastructure Compatibility

The reason the retail market is unable to easily accommodate additional volumes of renewable fuels begins with the equipment found at retail stations. By law, all equipment used to store and dispense flammable and combustible liquids must be certified by a nationally recognized testing laboratory. These requirements are found in regulations of the Occupational Safety and Health Administration.[1]

Currently, there is essentially only one organization that certifies such equipment – Underwriters Laboratories (UL). UL establishes specifications for safety and compatibility and runs tests on equipment submitted by manufacturers for UL listing. Once satisfied, UL lists the equipment as meeting a certain standard for a certain fuel. Prior to 2010, UL had not listed a single motor fuel dispenser (aka a gas pump) as compatible with any fuel containing more than 10% ethanol. This means that any dispenser in the market prior to early 2010 is not legally permitted to sell E15, E85 or anything above 10% ethanol – even if it is able to do so safely.

If a retailer fails to use listed equipment, that retailer is violating OSHA regulations and may be violating tank insurance policies, state tank fund program requirements, bank loan covenants, and potentially other local regulations. In addition, the retailer could be found negligent per se based solely on the fact that his fuel dispensing system is not listed by UL.

This brings us to the primary challenge: if no dispenser prior to early 2010 was listed as compatible with fuels containing greater than ten percent ethanol, what options are available to retailers to sell these fuels?

In order to comply with the law, retailers wishing to sell E10+ fuels can only use equipment specifically listed by UL as compatible with such fuels. Because UL did list any equipment as compatible with E10+ fuels until 2010, only those units produced *after* that date can legally sell E10+ fuels. All previously manufactured devices, <u>even if they are the exact same model using the exact same materials</u>, are subject only to the UL listing available at the time of manufacture. (UL policy prevents retroactive certification of equipment.)

Practically speaking, this means that a vast majority of retailers wishing to sell E10+ fuels must replace their dispensers. This costs an average of $20,000 *per dispenser.* It is less clear how many underground storage tanks and associated pipes and lines would require replacement. Many of these units are *manufactured* to be compatible with high concentrations of ethanol, but they may not be *listed* as such. Further, if there are concerns with gaskets and seals in dispensers, care must be given to ensure the underground gaskets and seals do not pose a threat to the environment. Once a retailer begins to replace underground equipment, the cost can escalate rapidly and can easily exceed $100,000 per location.

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[1] 29 CFR 1926.152(a)(1) "Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids." "Approved" is defined at 29 CFR 1910.106 (35) ("Approved unless otherwise indicated, approved, or listed by a nationally recognized testing laboratory.")

Last year, EPA issued guidelines for determining the compatibility of underground storage tank equipment with new fuels. Those guidelines, which are now being incorporated into legally binding regulations, stipulate that compatibility can be demonstrated either with a listing from a nationally recognized testing laboratory, written documentation by the equipment manufacturer, or another standard to be adopted by the states. NACS and SIGMA support these regulations, but they offer retailers very limited certainty.

First, the regulations do not establish a minimum standard of care to govern the self-certification procedures of the equipment manufacturer.

Second, the regulations apply only to underground storage tank systems – they do not cover the fuel dispenser itself.

Finally, these regulations do not protect a retailer from his legal obligations for using compatible equipment enforced by other jurisdictions. It is unclear whether the regulations will satisfy OSHA regulations, tank insurance, or other requirements.

H.R. 4345 seeks to fix these problems. The legislation directs the EPA to revise these regulations to establish a minimum standard of care for manufacturer self-certification to ensure there is no backsliding in protecting the environment; it establishes that the compatibility regulations will apply to the fuel dispenser; and it provides the equipment owner with regulatory and legal certainty by stipulating that equipment which satisfies the EPA compatibility requirements will be considered to satisfy all compatibility-related requirements that may be applied to the retailer.

It is important to note that H.R. 4345 does not in any way relieve a tank owner from any responsibilities regarding a fuel release. The retailer will remain responsible for preventing a fuel release and for cleaning up any contamination that may occur as a result of a release. However, the retailer will not be per se negligent provided that his equipment satisfies the requirements established by the EPA. NACS and SIGMA members take very seriously their responsibility to protect the environment and prevent releases from their systems. Their support for this legislation is based upon the realization that some of their equipment is perfectly compatible and can safely store and dispense new fuels, yet the law precludes them from doing so. If their equipment is safe and compatible, they see no reason why they should be required to incur significant expense to replace it.

Misfueling

The second major issue facing retailers is the potential liability associated with improperly fueling an engine with a non-approved fuel. The EPA decision concerning E15 puts this issue into sharp focus for retailers. Under EPA's partial waiver, only vehicles manufactured in model year 2001 or more recently are authorized to fuel with E15. Older vehicles, motorcycles, boats, and small engines are not authorized to use E15.

For the retailer, bifurcating the market in this way presents serious challenges. For instance, how does the retailer prevent the consumer from buying the wrong fuel? Typically,

when new fuels are authorized they are backwards compatible so this is not a problem. In other words, older vehicles can use the new fuel. When EPA phased lead out of gasoline in the late 1970s and early 1980s, for example, older vehicles were capable of running on unleaded fuel – newer vehicles, however, were required to run only on unleaded. These newer vehicle gasoline tanks were equipped with smaller fill pipes into which a leaded nozzle could not fit – likewise, unleaded dispensers were equipped with smaller nozzles.

E15 is very different: legacy engines are not permitted to use the new fuel. Doing so will violate Clean Air Act standards and could cause engine performance or safety issues. Yet there are no viable options to retroactively install physical countermeasures to prevent misfueling. Further, the risk to retailers of a customer using E15 in the wrong engine – whether accidentally or intentionally –are significant.

First of all, retailers could be subject to penalties under the Clean Air Act for not preventing a customer from misfueling with E15. This concern is not without justification. In the past, retailers have been held accountable for the actions of their customers. For example, because unleaded fuel was more expensive than leaded fuel, some consumers physically altered their vehicle fill pipes to accommodate the larger leaded nozzles either by using can openers or by using a funnel while fueling. We may see similar behavior in the future given the high price of gasoline relative to ethanol. As in the past, the retailer will not be able to prevent such practices, but in the case of leaded gasoline the EPA levied fines against the retailer for not physically preventing the consumer from bypassing the misfueling countermeasures.

To EPA's credit, they have asserted in meetings with NACS and SIGMA that they would not be targeting retailers for consumer misfueling. But that provides little comfort to retailers – EPA policy can change in the absence of specific legal safeguards. Additionally, the Clean Air Act includes a private right of action and any citizen can file a lawsuit against a retailer that does not prevent misfueling. Whether the retailer is found guilty does not change the fact that defending against such claims is very expensive.

Further, the consumer may seek to hold the retailer liable for their own actions. Using the wrong fuel could void an engine's warranty, cause engine performance problems or even compromise the safety of some equipment. In all situations, some consumers may seek to hold the retailer accountable even when the retailer was not responsible for the improper use of the fuel. Once again, defending such claims is expensive.

H.R. 4345 addresses this challenge directly. It requires the EPA to issue misfueling regulations whenever the agency approves a fuel for only a subset of engines. EPA has already taken such steps with regards to E15 and has issued regulations requiring E15 retailers to affix a specific label to their dispensers to inform consumers of the authorized and prohibited uses of the fuel. In addition, certain inventory management procedures are required.

H.R. 4345 provides that neither a retailer, nor a retailer's supplier, can be held responsible for violating the Clean Air Act in the event a self-service customer introduces a registered fuel into an engine for which that fuel has not been approved provided the retailer complies with the Agency's misfueling regulations.

H.R. 4345 also addresses another potential liability associated with an engine warranty. The EPA decision to approve E15 for 2001 and newer vehicles is not consistent with the terms of most warranty policies issued with these affected vehicles. Consequently, while using E15 in a 2009 vehicle might be lawful under the Clean Air Act, it may in fact void the warranty of the consumer's vehicle. Retailers have no mechanism for ensuring that consumers abide by their vehicle warranties – it is the consumer's responsibility to comply with the terms of their contract with their vehicle manufacturer. Therefore, H.R. 4345 stipulates that no person shall be held liable in the event a self-service customer introduces a fuel into their vehicle that is not covered by their vehicle warranty. The notable exception also applies here – the retailer can be held liable if they fail to comply with the misfueling regulations issued by the EPA or if they are otherwise negligent.

H.R. 4345 does not stipulate what constitutes an appropriate misfueling regulation, and the retail community is prepared to comply with whatever is mandated. The current regulations affecting E15 include labeling and inventory management provisions. If EPA requires a certain fuel be sold from a locked cage, retailers who wish to sell that fuel will comply. We simply need some legal certainty with respect to our business operations. If we abide by the rules, we should be protected from liability.

General Liability Exposure

Finally, there are widespread concerns throughout the retail community and with our product suppliers that the rules of the game may change and we could be left exposed to significant liability. For example, E15 is approved only for certain engines and its use in other engines is prohibited by the EPA due to associated emissions and performance issues.

What if E15 does indeed cause problems in non-approved engines or even in approved engines? What if in the future the product is determined defective, the rules are changed and E15 is no longer approved for use in commerce?

There is significant concern that such a change in the law would be retroactively applied to anyone who manufactured, distributed, blended or sold the product in question.

Retailers are understandably hesitant to enter new fuel markets without some assurance that their compliance with the law today will protect them from retroactive liability should the law change in the future. It seems reasonable that law abiding citizens should not be held accountable if the law changes in the future. And that is what H.R. 4345 does. It helps overcome significant resistance to new fuels by providing assurances that market participants will only be held to account for the laws as they exist at the time and not subject to liability for violating a future law or regulation. If the rules change, retailers will adjust and comply, but they cannot be expected to comply with laws that do not yet exist.

CAFE AND RFS COMPATIBILITY

In addition to legal and logistical issues impeding new fuels' entry to the market, proposed fuel economy standards might unintentionally impede our retailers' ability to comply with other EPA regulations. In particular, there is concern that the proposed standards may render it extremely difficult and expensive to satisfy the requirements of the RFS.

As indicated, under the RFS, a minimum of 36 billion gallons of qualified renewable fuels must be integrated into the motor fuels supply by 2022. This objective was expected to represent approximately 21-25% of the overall gasoline market. However, the proposed CAFE revisions could dramatically reduce the amount of motor fuel consumed in 2022 and beyond, creating a situation in which renewable fuels will be required to represent a significantly greater share of the market than originally anticipated.

NACS and SIGMA support efforts to enhance the nation's energy security, and do not oppose improving the fuel efficiency of the nation's vehicle fleet. However, we are concerned that the policies being enacted and proposed are not being effectively coordinated. The proposed CAFE standards will serve to exacerbate the difficulties associated with implementing the RFS, and make H.R. 4345 even more crucial to reaching our objectives with regards to alternative fuels.

Improved efficiency, enhanced sustainability, national energy security, and economic growth are not mutually exclusive goals. However, if they are not pursued in a strategic, coordinated effort, they can lead to unintended consequences that can derail progress towards all of the objectives.

SUPPLY

Contrary to popular misconception, fuel marketers prefer cheap gasoline. The less the consumer pays at the pump, the more money the consumer has to spend in our stores, where our profit margins are significantly greater. Additionally, high prices at the pump tend to weaken America's macro-economic standing, which harms our industry just as it does most other sectors of the economy. But like our customers, we are beholden to world oil markets and associated price fluctuations. Along those lines, I want to share with you our industry's views on how Congress can help create a reliable, steady supply of fuel so that prices remain as low and stable as possible.

For instance, the Keystone XL pipeline would deliver much-needed access to crude oil supplies from neighboring, friendly nations. We support swift action on the pipeline. With the uncertainty surrounding the Middle East region, approving this pipeline is the right energy policy for America. Canada is already our largest supplier of imported oil, responsible for 25% of our oil imports. With the proposed pipeline, that would reach 4 million barrels a day by 2020, twice what we currently import from the Persian Gulf.

Keep in mind that we are not refiners and we are not manufacturers. We do not support Keystone because it will lead to more direct profits for our businesses through oil sands

development or related refinery projects. Instead, we recognize the benefit this pipeline can have on our industry and the economy in general. This means a more reliable domestic supply of motor fuel, which leads to lower, more stable prices and an enhanced business environment for fuel marketers and our customers.

Another way Congress can help lower the price of gasoline is by ensuring regulators understand the impact their actions will have on prices at the pump. For example, EPA has publicly announced plans to have a final rule on Tier 3 gasoline standards, dramatically lowering the sulfur content in gasoline, completed by the end of this year. The Agency maintains these changes are needed to improve fuel economy and air quality, though I fear that regulators are not adequately considering the costs and consequences such regulations entail. Not only will the price at the pump go up due to higher fuel manufacturing costs, but product imports will inevitably increase, which is in no one's interests – except perhaps OPEC countries.

Of course, if the purported benefits of Tier 3 and other regulations in fact outweigh the costs, we would support them. NACS' and SIGMA's members do not believe they do. Again, we have not reached this conclusion because these regulations will have a *direct* impact on us – we do not manufacture gasoline so there are no direct costs on us. However, we recognize the cumulative impact these actions have on the markets in which we operate. I was happy to see that the House's recent passage of the Domestic Energy Jobs Act included language drafted by Chairman Whitfield requiring an interagency committee to conduct a cumulative analysis of the impact that certain EPA rules—including Tier 3—would have on the price of gasoline. That legislation would delay implementation of such rules until Congress had a chance to study the analysis.

This makes sense to me. Before we begin implementing potentially harmful regulations in this fragile economy, Congress should ensure that everyone understands what the consequences of EPA's regulations will be.

CONCLUSION

If Congress is serious about new and alternative fuels energy entering the marketplace, it must take action to lower the cost of entry and remove the threat of unreasonable liability. Only then will more retailers be willing to take a risk and offer a new renewable fuel. By lowering the barriers to entry, Congress will give the market an opportunity to express its will and allow retailers to offer consumers more choice. This is what retailers want – consumer choice. If consumers reject the new fuel, the retailer can reverse the decision without sacrificing a significant investment, but new fuels will be given a better opportunity to successfully penetrate the market.

The nation's fuel retailers are ready to assist Congress in its consideration of policies that will promote a stable and efficient market for transportation fuels.

I hope my comments have been constructive. I thank you for the opportunity to testify today and I look forward to answering any questions you may have.

Mr. SULLIVAN. Mr. Gerard, you have 5 minutes. Sorry.

STATEMENT OF JACK N. GERARD

Mr. GERARD. Thank you, Vice Chairman Sullivan and members of the committee. It is a pleasure to be with you today. As mentioned, I am Jack Gerard, President and CEO of the American Petroleum Institute. We appreciate the opportunity to present our views on the Renewable Fuel Standard today. We represent all sectors of America's oil and natural gas industry. We employ 9.2 million Americans, responsible for 7.7 percent of all the gross domestic product in the United States, and contribute $86 million a day to the Federal Treasury.

API's more than 500 member companies include many of our Nation's refiners, who are critical to our U.S. national and economic security. U.S. refiners support over half a million jobs, provide the vital products that Americans rely on daily. It is these refiners who shoulder the principal responsibilities for meeting the RFS requirements.

Over the past 7 years, the two RFS laws passed in 2005 and in 2007 have substantially expanded the role of renewables in America. Biofuels are now in almost all gasoline. While API supports the continued appropriate use of ethanol and other renewable fuels, the RFS law has become increasingly unrealistic, unworkable, and a threat to consumers. It needs an overhaul.

Most of the problems relate to the law's volume requirements. These mandates call for blending increasing amounts of renewable fuels into gasoline and diesel. Although we are already close to blending an amount that would result in a 10 percent concentration level of ethanol in every gallon of gasoline sold in America, that which is the maximum known safe level, the volumes required will more than double over the next 10 years. The E10, or 10 percent ethanol blend that we consume today could, by virtue of RFS volume requirements, become at least an E20 blend in the future. This would present an unacceptable risk to billions of dollars in consumer investment in vehicles, a vast majority of which were designed, built, and warranted to operate on a maximum blend of E10. It also would put at risk billions of dollars of gasoline station equipment in thousands of retail outlets across America, most owned by small independent businesses. I believe well over 60 percent of retail establishments in this area are Ma and Pa operations.

The research on higher ethanol blends, including testing performed by DOE's National Renewable Energy Laboratory, shown an estimated half of existing service station pumping equipment may not be compatible with just a 15 percent ethanol blend, or E15. Vehicle research conducted by the Auto Oil Coordinated Research Council shows that E15 could also damage the engines of millions of cars and light trucks, estimates exceeding five million vehicles on the road today. E20 blends may have similar, if not worse, compatibility issues with engines and service station attendants.

Automobile manufacturers, who I believe you will hear from in the second panel, now advise car owners not to exceed the 10 percent blend amount. They say damage to an engine caused by higher concentrations may not be covered by warranties. EPA's pre-

mature approval of E15 thus raises substantial product liability issues that we would like to thank Mr. Shimkus for his leadership, as mentioned by Mr. Petrowski, in looking at that liability question to help make it more feasible to introduce these products into the market.

Despite the warning signs, EPA has already approved the sale of E15. Apparently EPA finds it acceptable to let the market, including consumers, sort out any problems that may arise, whatever the cost.

The RFS law also requires increasing use of cellulosic ethanol, an advanced form of ethanol that can be made from a broader range of feed stocks. The problem is, you can't buy the fuel yet because no one is making it commercially. While EPA could waive that provision, it has decided to require refiners to purchase credits for this nonexistent fuel, which will drive up costs and potentially hurt consumers. Mandating the use of fuels that do not exist is absurd on its face and is inexcusably bad public policy.

Another problem with implementation of RFS is how EPA is handling fraudulent renewable Federal credits, known as RINs, that some refiners have purchased in good faith under a program that the EPA created.

We believe that there is a solution and a resolution of this challenge. We are working closely with EPA to fix it at this time.

Thank you for the opportunity to share our views. As mentioned, we believe biofuels are an important part of our Nation's energy mix, but the current law and its implementation is increasingly problematic and can hurt consumers. We need to fix it.

Thank you.

[The prepared statement of Mr. Gerard follows:]

Written Statement of

Jack Gerard
President and CEO
American Petroleum Institute (API)

Before the

House Committee on Energy and Commerce
Subcommittee on Energy and Power

On

"The American Energy Initiative"

July 10, 2012

Good morning Chairman Whitfield, Ranking Member Rush, and members of the committee.

Thank you for the opportunity to present API's views on the Renewable Fuels Standard (RFS). API represents all sectors of America's oil and natural gas industry, which provides most of our economy's energy, supports 9.2 million American jobs and 7.7% of the U.S. economy, and delivers more than $86 million a day in revenue to the federal government.

API's more than 500 member companies include many of our nation's refiners, who are critical to US national and economic security. US refiners support over half a million jobs and provide the vital products that Americans rely on daily. It is these refiners who shoulder the principal responsibility for meeting the RFS requirements.

Given current and projected worldwide energy demand, America needs all sources of commercially viable energy, as well as a greater commitment to energy efficiency and energy conservation. Renewables are a part of this equation. API supports the continued, appropriate use of ethanol, biodiesel, and other biofuels as blending components in transportation fuels.

Over the past seven years, the two RFS laws (passed in 2005 and 2007) have substantially expanded the role of renewables in America. Today, almost 15 billion gallons of ethanol are blended annually in gasoline. Almost all gasoline sold is now a 10% ethanol blend by volume. This amount of ethanol requires no modifications to vehicles, no major changes to service station pumps and storage tanks, and has a long history of successful use by consumers. The RFS requires that 36 billion gallons of renewable fuels be sold by 2022.

EPA has allowed the RFS law's volume requirements to drive decisions that are inappropriate and unwise. The law has become increasingly unrealistic, unworkable, and a threat to consumers. It needs an overhaul, especially with respect to the volume requirements. The problems with the current RFS are detailed below.

The Impending E10 "Blend Wall"

Based on what we know today, a 10% ethanol blend is the maximum safe level. Automobile manufacturers advise car owners not to exceed the 10% blend amount. They say damage to an engine caused by higher concentrations may not be covered by warranties.

Unfortunately, as the RFS law's volume requirements continue to increase, the ethanol volume required for blending into gasoline will soon exceed 10%, a

situation known as the E10 "blend wall." Depending on US gasoline demand and individual company operations, refiners may face the E10 blend wall as early as 2013. The recent decline in US gasoline demand due to the recession, as well as the impacts associated with tighter Corporate Average Fuel Economy standards, has accelerated this timing.

Refiners will be faced with difficult decisions when the blend wall is reached. They will have only two options for blending higher ethanol content into gasoline: E15 and flexfuel. The problems with E15 are detailed below. Flexfuel (more popularly known as "E85," a motor fuel blend containing 51 to 83% ethanol by volume) can only be used in "flexible fuel vehicles" (FFVs), which comprise only about 5% of the US vehicle fleet today. To date, E85 has faced low consumer acceptance as FFV owners use E85 less than 1% of the time. The fuel economy of an FFV operated on E85 is approximately 25-30% lower than when fueled with gasoline due to ethanol's lower energy content. Also, less than 2% of retail gasoline stations offer E85, which has high installation costs.

Ultimately, the RFS if fully implemented will require more than doubling the volume of ethanol in the gasoline pool. As a result, the E10 blend that you consume today could become at least an E20 blend in the future.

EPA's E15 Partial Waiver is Premature and Risks Consumer Safety

In 2010 and 2011, EPA approved the use of E15 for a portion of the motor vehicle fleet in order to accommodate the RFS law's volume increases. We believe these actions were premature and unlawful, and present an unacceptable risk to billions of dollars in consumer investments in vehicles. They also put at risk billions of dollars of gasoline station pump equipment in scores of thousands of retail outlets across America, most owned by small independent businesses.

E15 is a different transportation fuel, well outside the range for which the vast majority of U.S. vehicles and engines have been designed and warranted. E15 is also outside the range for which service station pumping equipment has been listed and proven to be safe and compatible and conflicts with existing worker and public safety laws outlined in OSHA and Fire Codes.

EPA should not have proceeded with E15, especially before a thorough evaluation was conducted to assess the full range of short- and long-term impacts of increasing the amount of ethanol in gasoline on the environment, on engine and vehicle performance, and on consumer safety.

Research on higher blends was already underway when EPA approved E15 in 2010 and 2011. In response to the passage of EISA in 2007, the oil and natural gas industry, the auto industry, and other stakeholders, including EPA and DOE,

recognized in early 2008 that substantial research was needed in order to assess the impact of higher ethanol blends including the compatibility of ethanol blends above 10% (E10+) with the existing fleet of vehicles and small engines. Through the Coordinating Research Council (CRC), the oil and auto industries developed and funded a comprehensive multi-year testing program prior to the biofuels industry's E15 waiver application. API worked closely with the auto and off-road engine industries and with EPA and DOE to share and coordinate research plans. Yet, EPA approved the E15 waiver request before this research effort was finished and the results thoroughly evaluated.

The potential for harm from that decision is substantial, as suggested by the results of various research studies, including testing performed by DOE's National Renewal Energy Laboratory and by the CRC, have been completed to date. The DOE research shows an estimated half of existing service station pumping equipment may not be compatible with a 15% ethanol blend. The CRC research shows that E15 could also damage the engines of millions of cars and light trucks. E20 may have similar, if not worse, compatibility issues with engines and service station equipment.

EPA Mandates Cellulosic Fuels That Don't Exist

The EISA 2007 law requires increasing use of cellulosic ethanol – an advanced form of ethanol that theoretically can be made from a broader range of feedstocks. The problem is, you can't buy the fuel yet because no one is making it commercially. We now know that no cellulosic biofuels were produced in 2010, 2011, or in the first half of 2012. Yet EPA continues to assert that aggressive mandates that aren't based on actual production will somehow stimulate production of these fuels.

While EPA could waive the provision, it has decided to require refiners to purchase credits for a non-existent fuel, which will drive up costs and potentially hurt consumers.

At some point technological advances will lead to the commercial production of such fuels. In fact, the refining industry is investing billions attempting to develop such fuels from feedstocks like algae and switch grass. But as the National Research Council concluded last fall, "Currently no commercially viable biorefineries exist for converting cellulosic biomass to fuel."

EPA's Approach to RIN Credits Needs to be Overhauled

Another problem with implementation of the RFS is how EPA is handling fraudulent renewable fuel credits that some refiners have purchased under a

program EPA created. EPA initially told refiners the bad credits were the companies' problem and they'd have to purchase more RINs, adding more costs to making gasoline. In effect, refiners that were the victims of fraud were being penalized for purchasing invalid credits in good faith. We are now having discussions with the Agency to address this problem, and we're strongly urging them to resolve the issue this year.

Conclusion

The RFS law needs to be altered to fix what isn't working and take into account the ability of the vehicle fleet and fueling infrastructure to safely use renewable blends. Mandates must have periodic technology/feasibility reviews to allow for appropriate adjustments.

Biofuels are an important part of the nation's energy mix. But current law and how it is implemented have become increasingly problematic. This could eventually hurt consumers and erode support for the RFS program.

Mr. SULLIVAN. Thank you, Mr. Gerard. Mr. Dinneen?

STATEMENT OF BOB DINNEEN

Mr. DINNEEN. Thank you, Mr. Chairman and members of the committee.

This is a timely hearing. Continued volatility in crude oil markets, last spring's near-record gasoline prices, threats by hostile nations to shut down key oil shipping routes, new concerns about the environmental impacts of hydraulic fracking and tar sands, these issues and others underscore our Nation's desperate need to recommit to an energy future that embraces alternative transportation fuels and vehicles, an energy future that is truly "all of the above," not just finite resources from below.

One important alternative fuel, ethanol, is already helping to address these national concerns. America's ethanol industry, buttressed by a visionary Renewable Fuel Standard, is already decreasing our reliance on foreign oil, already exerting downward pressure on gasoline prices, already employing tens of thousands of American workers, and already cleaning up our air. As a result of the forward-looking nature of the RFS, the industry is poised to make even more significant contributions to our Nation's economic and environmental security in the future. Simply put, the RFS is among the most successful energy policies this Nation has ever adopted. It is working exactly as intended. It most certainly does not need an overhaul.

As Congressman Shimkus had noted in his opening, from an energy security standpoint, the RFS is most definitely demonstrating its success. As he noted, when the bill passed in 2005, our Nation was 60 percent dependent on imported oil for liquid transportation fuels. Today, as a consequence in the growth in ethanol, as a consequence in ethanol now represents 10 percent of our Nation's motor fuel supply. As a consequence of the RFS, we are now just 45 percent dependent on foreign oil for our liquid transportation fuels.

Now, some at this table would suggest to you that that is because we have increased the production of oil in this country, and that is true. Over the last couple of years, that is true. But 80 percent of the increased domestic production of liquid transportation fuels has been ethanol since 2005. It is absolutely ethanol that has driven those numbers to where they are today.

I will tell you that I absolutely agree with many of you, that we need to have an all of the above, all energy sources energy policy in this country, but I will also tell you that we cannot frack our way to energy independence. A study that EIA produced a short while ago said that if you take the two largest shale places in this country, the Bakken fields and Eagle Ford in Texas, that that would get you 7 billion barrels of oil, a big amount, absolutely. But when put in context of our oil needs in this country, that represents 1 year and 4 months of supply. I will tell you that the need for domestic renewable fuels will outlive the current fracking frenzy.

Ethanol today is already having a tremendous impact driving down the price of gasoline. Mr. Shimkus noted a study that had been done by Iowa State and University of Wisconsin that con-

cluded ethanol is helping to reduce gasoline prices by $1.09 a gallon when you look at last year's prices. If you don't like the Iowa State study, how about a Louisiana State study in the home of oil country that concluded ethanol was helping to drive down the price of gasoline by some 84 cents a gallon, when you look at 2011. Without a doubt, because ethanol is less expensive than gasoline today, because ethanol is displacing the need for 10 percent of our Nation's imports, we are having a tremendous impact on gasoline prices.

Let me just say as well, one of the principle objectives of the RFS was to drive investment in new technologies. It is also doing that. Not as quickly as anyone would like, but I will tell you that nobody anticipated the economic collapse of 2008 and the consequent freeze on lending that occurred. But the next generation of biofuels facilities is happening today. There are four cellulosic plants that are under construction today in States like Florida, in Kansas, in Iowa, and elsewhere. There are other biofuels operations that are moving forward as well.

I look forward to working with this committee to talking about some more of the issues that have arisen already, perhaps in questions, and I appreciate the continued interest of this committee to move this Nation's energy policy forward, but I do trust that that means all energy sources, because we need them all.

Thank you.

[The prepared statement of Mr. Dinneen follows:]

RFA RENEWABLE FUELS ASSOCIATION

House Energy and Commerce Committee
Subcommittee on Energy and Power
United States House of Representatives

Hearing on
The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and Opportunities

Testimony of

Bob Dinneen
President & CEO, Renewable Fuels Association

July 10, 2012

Good morning Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee. My name is Bob Dinneen and I am president and CEO of the Renewable Fuels Association (RFA).

RFA is the leading national trade association for America's ethanol industry. Its mission is to drive expanded production and use of American-made ethanol and co-products by raising awareness about the benefits of renewable fuels. Founded in 1981, RFA's 300-plus members are working to help America become cleaner, safer, more energy secure and more economically vibrant.

This is a timely hearing about important issues. Continued volatility in crude oil markets, last spring's near-record gasoline prices, threats by hostile nations to shut down key oil shipping routes, new concerns about the environmental impacts of hydraulic fracking and tar sands — these issues and others underscore our nation's desperate need to re-commit to an energy future that embraces alternative transportation fuels and vehicles.

One important alternative fuel — ethanol — is already helping to address these national concerns. America's ethanol industry — buttressed by a visionary Renewable Fuel Standard (RFS) — is already decreasing our reliance on foreign oil, already exerting downward pressure on gasoline prices, already employing tens of thousands of American workers, and already cleaning up our air. As a result of the forward-looking nature of the RFS, the industry is poised to make even more significant contributions to our nation's economic and environmental security in the future.

The Energy Policy Act of 2005, originally introduced by Representative Joe Barton (R-TX), established the first-ever RFS requiring the use of increasing volumes of domestically produced renewable fuels. Recognizing the multiple benefits of renewable fuels, the 110th Congress passed the Energy Independence and Security Act of 2007 (EISA), which modified and expanded the RFS to 36 billion gallons per year by 2022. The manifold purposes of both the original RFS and the expanded program were to bolster energy security, decrease fuel prices by diversifying our energy portfolio, create jobs and stimulate the U.S. economy, and improve the environment. Without question, the RFS is achieving those goals and providing meaningful benefits to the American public each and every day.

The RFS is among the most successful energy policies this nation has ever adopted; it is working exactly as intended. However, a continued commitment to the production of alternative fuel vehicles, and specifically flexible fuel vehicles (FFVs), is absolutely critical to the long-term success of the RFS.

The RFS is Reducing U.S. Dependence on Oil Imports

U.S. oil import dependency has fallen considerably since peaking in 2005, the year the original RFS was adopted. Net imports of crude oil and petroleum products accounted for more than 60 percent of total demand in 2005, a year in which ethanol production totaled 3.9 billion gallons. Last year, however, as ethanol production neared 14 billion gallons, U.S. oil import dependence had fallen to just over 45 percent of total demand.[1] This marked the lowest oil import dependence rate since 1995. Moreover, oil imports from OPEC nations have fallen nearly 20 percent since 2005 and were at their lowest level in 16 years in 2011.[2]

The oil and gas industry has been quick to claim credit for the recent trend toward lower import dependence and enhanced domestic energy security. They point to the emergence of hydraulic fracking, which has led to increased oil production in the shale formations of North Dakota and Texas, as the driver of the recent American energy renaissance. Certainly, increased oil production from fracking has played a role, but a little context is needed. At the same time new fracking wells are ramping up in North Dakota and Texas, old conventional oil wells are running dry in Alaska, California, and Louisiana. So, while total U.S. oil production has been on the upswing the last three years, it is still well below the levels from the 1990s and even below the levels from the first several years of the new millennium.

Let's not forget that the oil boom enabled by fracking is only a recent phenomenon with an uncertain future. The sustained trend toward reduced oil import dependence began in 2005, even as U.S. oil production was on a downward slide through 2008. Why? Because U.S. ethanol production has grown each and every year since 1996, with an average annual growth rate of 24 percent since 2005. In fact, since 2005, ethanol has accounted for eight out of every 10 barrels of newly produced liquid fuel from U.S. sources on a cumulative basis (i.e., taking into account both production gains and losses relative to 2005 levels).

Indeed, today ethanol represents 10 percent of the nation's gasoline pool by volume, compared to 2.8 percent in 2005. In 2011, ethanol displaced the need for an amount of gasoline refined from 477 million barrels of crude oil — that's more oil than the U.S. imported from Saudi Arabia. Without ethanol and without the RFS, our 2011 rate of oil import dependence would have been 52 percent, rather than the actual rate of 45 percent. When the facts are on the table, it becomes crystal clear that increased ethanol production has been a key driver of the recent trend toward greater energy self-sufficiency in the United States.

In any case, we need to be mindful of just how long hydraulic fracking can sustain our nation's insatiable appetite for crude oil. After all, the "tight oil" in the Bakken and Eagle Ford shale formations is a finite resource, just like the oil sitting under the deserts of Saudi Arabia, the jungles of Venezuela and Nigeria, and the deep waters of the Gulf of Mexico. A 2011 report by the Energy

[1] Energy Information Administration. May 2, 2012. "Energy in Brief: How Dependent are we on Foreign Oil?" http://www.eia.gov/cfapps/energy_in_brief/foreign_oil_dependence.cfm?featureclicked=3/
[2] Energy Information Administration. U.S. Imports by Country of Origin. http://205.254.135.7/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mbbl_m.htm

Information Administration (EIA) estimates that 7 billion barrels of oil are technically recoverable from the Bakken and Eagle Ford formations, the two largest active shale plays in North America.[3] That may sound like a lot of oil — and it is. But the U.S. oil refining industry processed 5.4 billion barrels of crude oil in 2011.[4] That means if near-term oil demand is consistent with 2011 levels, our nation's two largest shale plays have enough technically recoverable crude oil combined to last us about *one year and four months*. Fortunately, by reducing demand for crude oil, renewable fuels like ethanol are helping to extend the longevity of our domestic petroleum resources. Unlike crude oil from shale, tar sands, or conventional sources, biofuels are renewable because they are made from feedstocks — such as row crops, agricultural residues, and forestry waste — that are quickly replenished as part of active biological cycles.

The RFS is Reducing U.S. Gas Prices

While gasoline prices have retreated from the near-record highs experienced this spring, they remain at historically high levels and we are perpetually one geopolitical event away from the next crude oil and gasoline price spiral. Fortunately, increased ethanol consumption, as required by the RFS, is helping to hold pump prices lower than they would be otherwise. Because ethanol is regularly priced at a discount to gasoline at the wholesale level, and because ethanol reduces aggregate demand for crude oil, increased use of ethanol is significantly lowering gasoline prices. In May, economists from Iowa State University and the University of Wisconsin released a paper showing that the increased use of ethanol reduced wholesale gasoline prices by an *average of $1.09 per gallon* in 2011.[5] The new analysis, an update to a 2009 Energy Policy paper authored by economics professors Dermot Hayes and Xiaodong Du, also found that the growth in ethanol production reduced gasoline prices by an average of $0.29 per gallon, or 17 percent, over the entire period of 2000-2011. This means ethanol has reduced the typical American household's gasoline bill by an *average of $340 per year* over the last decade.

A recent study by economists at Louisiana State University — an institution in the heart of oil refining country — came to a similar conclusion. The authors found that "...the growth in ethanol production kept gasoline prices lower than would otherwise have been the case...", and that ethanol reduced gas prices by $0.78 per gallon in 2010.[6] Based on the LSU study's methodology, the 2011 impact would have been $0.84 per gallon. Economic analyses from Merrill Lynch, DOE's National Renewable Energy Laboratory, and others have also concluded that increased ethanol consumption substantially reduces retail gas prices.

Further, a 2010 study by economists at the Center for Rural and Agricultural Development (CARD) examined what would happen to U.S. gasoline prices if ethanol production came to an immediate halt — something that is unlikely to occur, but also something that has been advocated by some misguided opponents of biofuels. The authors found that, "Under a very wide range of parameters, the estimated

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[3] Energy Information Administration. July 2011. Review of Emerging Resources: U.S. Shale Gas and Shale Oil Plays. http://205.254.135.7/analysis/studies/usshalegas/pdf/usshaleplays.pdf

[4] Energy Information Administration. Refiner & Blender Net Input. http://www.eia.gov/dnav/pet/pet_pnp_inpt_dc_nus_mbbl_a.htm

[5] Du, Xiaodong; Hayes, Dermot J. May 2012. The Impact of Ethanol Production on U.S. and Regional Gasoline Markets: An Update to 2012. http://www.card.iastate.edu/publications/synopsis.aspx?id=1166

[6] *Marzoughi, Hassan* and *Kennedy, P. Lynn. February 2012.* The Impact of Ethanol Production on the U.S. Gasoline Market . http://ageconsearch.umn.edu/bitstream/119752/2/Kennedy%20Marzoughi%20SAEA%20-%202012.pdf

gasoline price increase would be of historic proportions, ranging from 41 percent to 92 percent."[7] At today's prices, that means gasoline prices would increase from roughly $3.40 per gallon to $4.80-$6.50. That finding should serve as a wake-up call to those who are seeking to reduce or eliminate the RFS or minimize the role of ethanol in the U.S. energy market at a time when oil markets are increasingly volatile. As the economic recovery is fragile and oil markets are unstable, policymakers should be embracing -- not shunning -- ethanol's ability to add to domestic fuel supplies and hold prices in check. If we woke up tomorrow morning and the 10 percent of our gasoline supply that comes from ethanol was gone, it is easy to see how gasoline prices could nearly double. That type of increase would be absolutely crippling to the American economy.

The RFS RIN Credit Fraud Situation Has Been Significantly Overblown

We absolutely agree with obligated parties under the RFS that the integrity of the renewable identification number (RIN) credit trading platform is critical to the overall success of the RFS program. For the program to work efficiently and cost-effectively, obligated parties must have confidence in the validity of the RINs they are acquiring for compliance. Unfortunately, a few isolated cases of RIN fraud in the biodiesel industry have given opponents of the RFS more fodder for their campaign to reform or repeal the program.

Biodiesel RIN fraud has been described by some biofuel critics as "rampant," "systemic," and "widespread." However, a closer look reveals that such descriptions of the situation are nothing more than salacious hyperbole. In truth, the fraudulent activity was very isolated and resulted from the actions of just three bad actors in the biodiesel space. The U.S. Environmental Protection Agency (EPA) effectively identified those bad actors, investigated the fraud, and pursued appropriate enforcement action. In other words, the bad apples were quickly rooted out of the barrel. Meanwhile, the vast majority of other participants in the RFS program were properly generating RINs without any problems whatsoever.

Here are a few statistics for context. Since the RFS2 program began in July of 2010, nearly 29 billion RINs have been generated (this includes all RINs for all types of biofuels).[8] Of that amount, 140 million RINs have been shown or alleged to be fraudulent. That means *less than 0.5 percent* of total RINs generated have been fraudulent or alleged to be fraudulent. Further, all of the alleged fraudulent RINs have occurred within the biodiesel space of the RFS, which constitutes a relatively smaller share of the program. "Renewable fuel" RINs — the type associated with corn ethanol — have comprised the overwhelming majority of RINs generated under the RFS, accounting for 26 billion RINs (nearly 90 percent of the total). Those 26 billion ethanol RINs have been generated without *a single one* of them being purposely fraudulent. That's an excellent track record by any measure.

Our intent in providing these statistics is not to minimize the importance of preventing RIN fraud; rather, it is to bring context and reality to an issue that is being blown out of proportion by those seeking to undermine the RFS. We are actively engaged in conversations with EPA, the biodiesel industry, and obligated parties to contemplate market-based solutions and possible regulatory actions to minimize the risk of RIN fraud. Our position in these discussions is that any private-sector or regulatory approaches to due diligence and minimizing the risk of fraud should focus on the isolated areas of the program where fraud has occurred. That is, any approach should not burden all RFS program participants (the majority of whom operate in the "renewable fuel" RIN pool where no fraud

[7]Du, Xiaodong; Hayes, Dermot J. April 2011. The Impact of Ethanol Production on U.S. and Regional Gasoline Markets: An Update to 2009. http://www.card.iastate.edu/publications/synopsis.aspx?id=1160
[8] See EPA RFS2 EMTS Informational Data. http://www.epa.gov/otaq/fuels/rfsdata/index.htm

issues have been experienced) with onerous reporting, recordkeeping, or audit provisions that offer no additional benefit to the fidelity of the RFS RIN credit trading program.

A Lasting Commitment to FFVs is Needed to Ensure the Long-Term Goals of the RFS are Achieved

As discussed, the RFS has resulted in numerous economic benefits for the American people. The magnitude of those benefits is expected to increase as larger volumes of renewable fuels are required under the RFS moving forward. However, meeting the long-term goals of the policy will require a lasting commitment to flexible fuel vehicle (FFV) production by automakers, Congress, and the Administration.

The RFS requires the consumption of 36 billion gallons of renewable fuel by 2022. In the Regulatory Impact Analysis that accompanied the RFS2 final rule, EPA suggested ethanol could account for as much as 33.2 billion gallons of the 2022 requirement. This level of ethanol would represent 25.4 percent of projected gasoline demand in 2022, according to data from the EIA. This means the average gallon of gasoline in 2022 would need to contain 25 percent ethanol in order to comply with the RFS2. However, only FFVs are currently approved to consume gasoline blends containing more than 15 percent ethanol by volume.

The U.S. automakers have made good progress toward increasing their production of FFVs, and the "Detroit Three" have stated their commitment to provide one-half of their sales of model year 2012 and later vehicles as FFVs. Today, an estimated 11 million FFVs are on American roadways. While that's a good start, it represents just 5 percent of the light-duty automotive fleet. Without a doubt, a larger population of FFVs will be needed to consume the volumes of ethanol likely to be produced to meet the RFS's long-term requirements.

Unfortunately, the current EPA/ National Highway Traffic Safety Administration (NHTSA) proposal for 2017-2025 fuel economy and tailpipe greenhouse gas (GHG) standards significantly discourage the production of FFVs beyond 2016 by treating FFVs differently than other dual-fueled vehicles in terms of corporate average fuel economy (CAFE) credits and GHG compliance values. The proposed creation of incentives for certain dedicated (i.e., single-fueled) alternative fuel vehicles also disadvantages FFVs. If implemented as proposed, the CAFE/GHG rule would frustrate the goals of the RFS and significantly complicate compliance. In our regulatory comments to EPA and NHTSA, we strongly encouraged the agencies to ensure that the final rules are consistent in the treatment of all dual-fueled alternative vehicles and that continued production of FFVs is encouraged through the CAFE/GHG program.

Additionally, the RFA has joined with leaders from other alternative fuel industries to press Congress to enact the Open Fuel Standard (OFS), a visionary piece of legislation introduced by Representatives John Shimkus (R-IL) and Eliot Engel (D-NY). The OFS would require that a certain portion of passenger vehicles sold in the U.S. be alternative fueled vehicles capable of running on something other than just petroleum-derived gasoline. The OFS does not dictate what types of vehicles are to be sold, only that an increasing percentage of the passenger car fleet sold in the U.S. be capable of running on non-petroleum sources, such as electricity, ethanol blends, hydrogen, biodiesel, natural gas, or other sources. Not only would the OFS greatly enable fuel competition and reduce the strategic importance of oil to the United States, but it would also facilitate compliance with the long-term goals of the RFS2.

EPA Has Ample Flexibility in Administering the RFS Program

As part of their ongoing effort to undermine the RFS, opponents of biofuels have highlighted the lack of cellulosic and advanced ethanol commercially available in recent years. They have suggested that the slower-than-expected commercialization of cellulosic and advanced ethanol is evidence that Congress should step in and reform the RFS.

While scale-up is occurring more slowly than anticipated, the advanced and cellulosic biofuels industry is now in the process of building new plants, modifying existing production facilities with emerging "bolt-on" technologies, and introducing new product streams that will allow the renewable fuels sector to become more profitable, diversified and efficient. These are not "phantom fuels," as some would have us believe. In fact, it was reported just last week that the first cellulosic biofuel RINs were generated by an ethanol facility in Upton, Wyoming, a small town in the heart of the state's oil patch.[9] Several billion dollars have been invested in advanced biofuels development with the expectation that Congress and the Administration will stay the course with regard to its commitment to the RFS.

It is important to remember Congress gave EPA substantial flexibility in administering the RFS program, specifically to address some of the uncertainty around the commercialization of advanced biofuel technologies. The agency has the authority to make annual adjustments to the cellulosic biofuel requirements based on likely availability and other factors. Further, in EISA, Congress required EPA to craft a credit waiver system to account for possible shortfalls from the established schedule for cellulosic biofuels. These provisions are working effectively and the important forward-looking element of the RFS, which sends critical market signals to obligated parties and investors, is being retained. Given the administrative flexibility of the program, Congressional intervention regarding the credit waiver provision or the setting of future cellulosic and advanced biofuels requirements is not prudent or necessary.

Conclusion

The ethanol industry greatly appreciates the continued commitment of the 112th Congress and this Subcommittee to the RFS and to the further development of a robust and dynamic domestic renewable fuels industry. Chairman Whitfield and Ranking Member Rush, you have made clear your commitment to the hardworking men and woman across America who are today's newest energy producers. The RFA looks forward to working with you to further develop and implement sound policies that provide the proper incentives to grow the U.S. ethanol industry.

[9] Schill, Susanne Retka. July 3, 2012. "Blue Sugars claims first cellulosic RIN, extends Petrobras deal." Ethanol ProducerMagazine. http://www.ethanolproducer.com/articles/8919/blue-sugars-claims-first-cellulosic-rin-extends-petrobras-deal.

Mr. SULLIVAN. Thank you, Mr. Dinneen. Mr. Tanton?

STATEMENT OF TOM TANTON

Mr. TANTON. Thank you, Mr. Chairman, members of the committee. I am here to testify today about the strategic importance of energy for transportation fuels. I am from California, and I am here to help. But I am not here to help in the way you might expect. I am here to give you a cautionary tale.

In California, we have had almost 4 decades of energy policies, many of which have been suggested to you today, many of which you have considered. It hasn't worked. We remain second highest per capita petroleum consumption in the country. Our economy is worse than the rest of the country. Our unemployment is worse than the rest of the country. Our rate of foreclosures is worse than the rest of the country. These are inextricably linked to our energy policies over the last 4 decades. Truckers are leaving California on one-way trips. They are taking manufacturing away from us. They are taking agricultural production away from us. It is unfortunate that our energy policies have driven us to this point.

I have a few remarks to make with respect to the Open Fuel Standard, H.R. 1687, but my comments should be viewed more generally. What we have missed consistently in California, and I think in the Nation, is as Mr. Pompeo mentioned, a consumer perspective. When alternative fuels are more expensive, the natural reaction is to subsidize the price differential, but that doesn't take into account the fact that most alternative fuels require more frequent refueling, and the time value of that extra refueling is a consideration for most consumers.

The stated purpose of the Open Fuel Standard is to ensure that new vehicles enable fuel competition so as to reduce the strategic importance of oil to the United States, and it has in it a ramp-up provision of mandated percentages of cars that can use the variety of different fuels. I would suggest to the Republican caucus that it not be all of the above, but in fact be any of the above. Any of the above that satisfies consumer's needs, desires, opportunities, and challenges.

In my view, the Open Fuel Standard replicates, in many regards, California's failed Zero Emission Vehicle Standard, which also had a ramp-up schedule, but in which was basically just an electric vehicle mandate. In each case, they have failed due to the lack of the consumer's acceptance of the alternative subsidized or mandated by the government.

H.R. 1687 also fails or falls short in enabling real competition. There is nothing today that precludes auto manufacturers from selling alternative fuel vehicles, except for one thing, and that is the consumer's acceptance of them. Such vehicles are offered for sale. They are not sold in numbers. Many of them have other strategic and important strategic considerations. Electric vehicles require rare earths. We are more dependent on rare earths from one country, China, than we are on petroleum from a variety of countries. There is not adequate time for the markets to evolve and bring with them the technologies.

There is also no flexibility to account for changes in the future. For example, the EIA estimates that our level of imports will drop

by 13 percentage points between now and 2035. That in itself improves the strategic importance of petroleum to this country. XL pipeline would as well.

We need more informed consumers, not informed with myths, but informed with facts. They need to know that many of these alternative fuels have with them indirect costs that are not reflected in either the initial cost of the car or the price differential of the alternative fuels. Electric vehicles, for example, and plug-in electric vehicles are more expensive to insure, reflecting the higher cost of replacement.

Bottom line is that government efforts must acknowledge consumer perspectives, needs, and opportunities, not try and overwhelm them. My recommendation is don't mention any fuel in legislation or in standards. Base the standards, base the legislation on performance and protocols and principles, and rely on the free market wherever possible, which is everywhere.

Thank you for the opportunity to testify.

[The prepared statement of Mr. Tanton follows:]

Testimony Before the United States House
Subcommittee on Energy and Power
Honorable Fred Whitfield, Chair
By Tom Tanton
Executive Director, American Tradition Institute[1]
President T^2 and Associates
July 10, 2012

Thank you, Chairman Whitfield and members of the subcommittee for inviting me to testify today on California's nearly four-decade experience with alternative transportation fuels and vehicles. I intend this testimony to inform deliberation on "The American Energy Initiative." My comments reflect professional experiences over nearly four decades in California with programs to reduce petroleum fuels use in transportation. I attach a short bio for your convenience. I also attach excerpts from a paper published in 2006 that discusses various myths regarding petroleum, energy security and alternative fuels.

While my comments use the "Open Fuel Standard" (HR1687) for some initial points, the experience of California provides lessons more generally applicable to programs that attempt to mandate, encourage and subsidize alternative fuels and vehicles.

For example, the stated purpose of the "Open Fuel Standard" is "to ensure that new vehicles enable fuel competition so as to reduce the strategic importance of oil to the United States." It would require that each manufacturer's fleet be comprised of minimum levels of qualifying vehicles, defined as capable of using an alternative to petroleum fuels or multiple fuels (so called flex-fueled.) The requirements ramp up according to the following schedule:

- not less than 50 percent qualified vehicles beginning in model year 2014;
- not less than 80 percent qualified vehicles beginning in model year 2016; and
- not less than 95 percent qualified vehicles beginning in model year 2017 and each subsequent year.

California energy policy in transportation provides the Committee with a cautionary tale. California has had numerous programs similar in implementation (albeit often for air quality purposes, not strategic energy concerns.) In each case, they have failed due to lack of consumer acceptance of the "alternative" subsidized or mandated by the government. Based on my review of the provisions in HR 1687, and real world experiences in California the bill falls short in enabling:

- *Real competition.* In fact by mandating certain percentages, the bill stifles competition on a level playing field. There is nothing that precludes manufacturers, other than consumer resistance, from making available such vehicles for purchase absent a government mandate. Such vehicles are offered for sale by many manufacturers yet are not being bought in numbers by consumers.
- *Adequate time for markets to evolve.* Specifying time frames for market evolution will likely lead to market disruptions and rent seeking.
- *Flexibility to accommodate or account for future changes in the petroleum market.* For example, EIA predicts a 13% reduction in imports of petroleum by 2035, reducing the strategic

[1] Mr. Tanton's affiliation with ATI and with T^2 & Associates is provided for identification purposes only. He may be contacted at ttanton@fastkat.com.

importance of petroleum.[2] The Keystone pipeline would also significantly reduce the strategic importance of petroleum, depending on its ultimate construction and operation. Various vehicle types, such as electric vehicles, pose their own strategic concerns, such as Rare Earth metals needed for batteries and catalysts.

• *Informed consumers.* Consumers will face additional, unquantified, costs from purchase of qualified vehicles in addition to higher first costs, further compounded by conflicting policies. With respect to electric vehicles, for example, EPA's promulgation of revisions to Maximum Achievable Control Technologies (MACT) and various states' renewable portfolio standards increase the cost of electricity (necessary for recharging EV) by up to 40%, making the consumer's going forward cost to own an EV even more prohibitive and less competitive. Extension of the Production Tax Credit (for electricity from renewable sources) will further distance consumers from an electric vehicle market. Electric vehicles and hybrids are also more expensive to insure.

The bottom line is government efforts must acknowledge consumer perspectives, needs and opportunities, not try and overwhelm them. Unintended and unanticipated consequences make consumer resistance even worse by conflicting companion regulations and standards.[3] Finally, circumstances change and legislation must allow the flexibility to account for future knowledge and circumstances. I offer the following recommended principles to aid the Subcommittee in their deliberations.

1. Standards and Legislation should be technology neutral. It is best to not even refer to specific fuels in legislation, to accommodate technology, resource and market changes that will occur, but that are unforeseen,
2. Enabling true consumer choice should be paramount and recognize that consumers have very diverse—and expanding—needs and opportunities, and
3. Recognize that transportation is a critical infrastructure dependent on and depended upon by all other critical infrastructures…it is interconnected.

In other words, focus on free market mechanisms and consumer choice, principles and process rather than the technology or fuel of the moment.

Background

California is home to more than 37 million people and has the world's eighth largest economy, although it previously was number six. The population has grown from just under 24 million since 1980, an increase of almost 60 percent. Much of the growth in absolute numbers has occurred in large cities like Los Angeles, as would be expected, but less densely populated areas have grown much more rapidly in percentage terms. During this 26-year period, Los Angeles County increased by 50 percent, while Placer County, just east of Sacramento, more than doubled with a 173 percent increase. Other less populated counties are also growing rapidly.

[2] http://www.eia.gov/forecasts/aeo/chapter_executive_summary.cfm

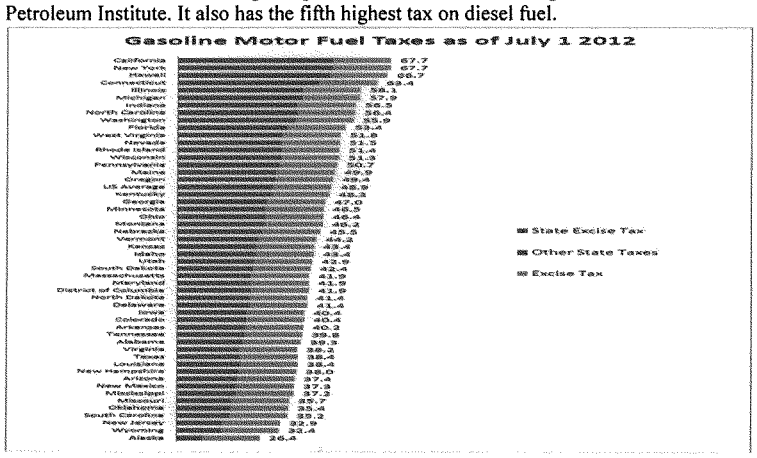
[3] For example, many air quality regulations limit fuel's "Reid Vapor Pressure" to control evaporative emissions, which have conflicted with specific alternative fuels' physical properties. Similarly, unintended consequences can perhaps best be illustrated by the need for specialized training for first responders to account for neat methanol's invisible flame.

In the 2000 U.S. Census, 15.7 million California residents aged five years and over reported changing their place of residence between 1995 and 2000. About an equal number of residents reported staying in the same house. Depending on their previous place of residence, the movers can be divided into four major groups: those who moved within the same county (62 percent), to a different county within California (20 percent), from a different state (9 percent), and from a different country (9 percent). Approximately 2.2 million Californians moved to other states, compared to 1.4 million who moved to California from other states and 1.4 million who moved to California from other countries[4].

The most recent published data from Bureau of Labor Statistics show that Nevada had the highest unemployment rate among the states at 11.6 percent while California was close behind at 10.8 percent, well ahead of the U.S. figure of 8.2 percent[5].

California consumers suffer with the nation's highest number of home foreclosures, as of May 2012[6]. California's economy as measured by gross state product (GSP) by the Bureau of Economic Analysis shows the recession has had a deeper and more prolonged affect on California, with losses of 4.7 percent in 2009 continuing to overwhelm modest gains of 1.7 and 2.0 for 2010 and '11. These compare with national loss in GDP of 3.8 for 2009 and gains of 3.1 and 1.5 percent for 2010 and '11.[7] These demographic changes have changed the commute and transportation patterns of Californians.

California has the nation's highest gasoline taxes as shown in Figure 1, from the American Petroleum Institute. It also has the fifth highest tax on diesel fuel.



[4] Source: Derived from California Department of Finance, Demographic Research Unit at http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/FS_Misc.htm, and U.S. Bureau of Economic Analysis at http://www.bea.gov/regional/index.htm#gsp

[5] http://www.bls.gov/news.release/laus.nr0.htm

[6] http://www.realtytrac.com/trendcenter/trend.html downloaded 7/5/2012

[7] http://www.bea.gov/newsreleases/regional/gdp_state/2012/xls/gsp0612.xls

California consumes 44 to 45 million gallons of gasoline and 10 million gallons of diesel fuel per day. The demand for transportation fuels increased nearly 50% in last 20 years. The number of refineries producing gasoline in California dropped from 32 in mid-1980s to 14 today. California imports 3.5+ million gallons of gasoline and components per day. Transportation fuel infrastructure is at capacity and not keeping up with rapidly growing population and demand. Future energy needs will be addressed through growing levels of imports. Local and regional congestion and air quality programs will influence future energy supplies. Permitting issues impact future energy supplies, including renewable fuels. Total gasoline, diesel, and jet fuel demand is forecast to grow by 13.5% to 42.8% by 2030, depending on economic vitality. By 2025, imports of crude oil into CA rise 37% to 65.2% (151 million to 266 million barrels per year) while transportation fuel imports increase by 199.7 million barrels per year by 2025 in high fuel demand case. Pipeline exports from CA to NV grow by 28.7 to 36.3 million barrels per year by 2025, an increase of 50.4% to 63.7%. Exports from CA to AZ increase by 29 million barrels per year (59 percent) by 2025.

Brief History of California Efforts to Encourage Alternatives

Since 1976, California has had numerous programs—incentives and mandates—to broaden the use of

- Methanol
- Ethanol (twice), including as an oxygenate replacement for MTBE
- Natural gas
- Electricity
- 'flexible fuel' vehicles, and
- Transportation Demand Reduction

As of 2009, California had just over 136,000 alternative fuel vehicles, out of 826,000 nationwide. The 136,000 represents less than one-half of one percent of the state's vehicles, even after 30 years of incentives, mandates and other programs. Programs were initially predicated on petroleum security, but more recently have focused on either air quality and/or greenhouse gas emissions. The mechanisms have changed little, other than becoming more complex.

Methanol: California led the search for petroleum fuel alternatives with initial interest focused on methanol. Ford Motor Company and other automakers responded to California's request for vehicles that run on methanol. In 1981, Ford delivered 40 dedicated neat methanol fuel (M100) *Escorts* to Los Angeles County, but only four refueling stations were installed. The biggest technical challenge in the development of alcohol vehicle technology was getting all of the fuel system materials compatible with the higher chemical reactivity of the methanol, and avoiding corrosion stemming from water absorption. Methanol was even more of a challenge than ethanol but some of the early experience gained with neat ethanol vehicle production in Brazil was transferred. The success of this small experimental fleet of M100s led California to request more of these vehicles, mainly for government fleets. However, longer-developing problems combined with high cost ultimately killed the program. At the time, almost all methanol was produced using natural gas as a feedstock, with an approximate 25% loss in energy content in the conversion from gas to methanol. Natural gas prices had increased and supplies decreased, leading to non-

competitive prices and short supplies. Ligno-cellulose based methanol (i.e. "wood alcohol") was only available in limited quantities as is true today.

Ethanol: The earliest ethanol program in California followed the initial methanol program, and began in the mid-1980s, but suffered from anemic consumer demand and little availability of ethanol fuel. The demand and supply for ethanol fuel (produced from corn) was stimulated by the discovery in the late 90s that methyl tertiary butyl ether (MTBE), a mandated oxygenate additive in gasoline, was contaminating groundwater. Due to the risks of widespread and costly litigation, and because MTBE use in gasoline was banned in almost 20 states by 2006, the substitution of MTBE opened a larger market for ethanol fuel. This demand shift for ethanol as an oxygenate additive took place at a time when oil prices were rising. By 2006, about 50 percent of the gasoline used contained ethanol at different proportions (generally about 5-10%), and ethanol production grew so fast that the US became the world's top ethanol producer, overtaking Brazil in 2005. This shift also contributed to a sharp increase in the price of corn-dependent foods including beef and dairy.

In 2008, Governor Schwarzenegger proposed and the California Air Resources Board is now implementing, a Low Carbon Fuel Standard (LCFS) to reduce the carbon content of transportation fuels by 10 percent[8]. Though purportedly a market-based mechanism, the LCFS is anything but, because consumers are not *willing* buyers of the mandated product. It is an alternative fuels plan.

Under the plan, transportation fuel sold in California would be subject to a ceiling on the amount of carbon it can emit per unit of energy. The limit takes into account the carbon produced throughout the fuel's entire life cycle, from production through consumption, albeit imperfectly.

One anticipated beneficiary of the new standard was ethanol, which has several major downsides:

- **Fuel will be less efficient.** Ethanol contains about 34 percent less energy per gallon than gasoline[9], which greatly reduces the number of miles traveled per gallon.
- **Fuel will be more expensive.** The reduced efficiency mentioned above increases the effective price per gallon. In addition, ethanol must be transported by truck or rail because it is too corrosive for pipelines[10]. These increased transportation costs contribute to higher prices at the pump.
- **Food will be more expensive.** Skyrocketing corn prices, driven by the clamor for ethanol, are squeezing California milk producers because of the increased cost of cattle feed, reported the California Farm Bureau[11]. In addition to increasing the costs of animal feed, the high price of corn has encouraged farmers to switch from other grains, such as wheat, to corn, thus raising the costs of other grains because of reduced supply.
- **Energy savings will be illusory.** When transportation, refining, and farming costs are factored into the production of ethanol for fuel, the energy savings is negligible. In fact, ethanol often requires more energy to produce than it yields.

[8] Executive Order S-01-07 by the Governor of the State of California, January 18, 2007.
[9] http://factsonenergy.com/?page_id=60
[10] http://www.api.org/aboutoilgas/sectors/pipeline/upload/pipelineethanolshipmentfinal.doc
[11] http://www.cfbf.com/news/FoodAndFarmNews.cfm?FFNID=822#1

The Boston Consulting Group (BCG) undertook an analysis of the Low Carbon Fuel Standard for the Western States Petroleum Association[12]. They found that implementation of the Low Carbon Fuel Standard will likely further reduce California's petroleum refining capacity by up to 30% (California is currently the third largest refiner of petroleum products[13]), lose 28-51,000 jobs, and result in a loss of tax revenue of more than $4 billion. This latter figure is about equal to 25% of the state's budget deficit.

Consumers have recognized ethanol's limitations. Ethanol has lower energy content than gasoline so the miles traveled per gallon is reduced. This increases the effective price per gallon, and increases the inconvenience of refueling. The more frequent refueling can add over twenty cents per gallon to the effective cost, to account for the additional refueling time. For a vehicle with an 18 gallon tank, that is filled up once every two weeks with gasoline, it would have to be refilled every nine days if using pure ethanol. Ethanol at $2.00 per gallon has the work capability of gasoline costing $3.03 per gallon. Mixtures of gasoline and ethanol (such as the 10% or 85% ethanol noted above) have intermediate mileage, vehicle range, and price affects.

Table 1 summarizes mileage and fill-up requirements for various mixtures of ethanol and gasoline, based upon the assumptions noted.

	100% Gasoline (base figures)	10% Ethanol	85% Ethanol
Mileage @ 26 mpg estimate	26 mpg	25 mpg	20.6 mpg
Range @ 18 gallon tank	468 miles	450 miles	372 miles
Range @ 13 gallon tank	338 miles	325 miles	269 miles

Consumers readily recognize this limitation and reflect that recognition in the preferential choice to purchase gasoline unless there is a large price differential.

Further, California does not have an adequate fuel supply infrastructure for bio-fuels such as ethanol, methanol or biodiesel and must rely on imports, typically from other countries. While bio-fuels may provide for some air quality benefit, they do little for energy security if demand expands greatly.

Electric Vehicles: California's Zero-Emission Vehicle mandate, first enacted in 1990, required that by 1998, 2% of the vehicles sold in the state by large automakers had to be zero-emission (i.e. electric) vehicles. That mandate was set to increase to 5% of vehicle sales by 2001, and 10% by 2003. But it was obvious that the technology to satisfy the ZEV mandate and consumer needs was not forthcoming. In 1996, the mandate was modified to allow automakers to sell more conventional (but "super-low-emitting") vehicles in order to get credit for meeting their ZEV mandate targets. In 2001, the mandate was further modified, to allow large automakers to satisfy their obligations if they sold just 2% "pure" zero-emission vehicles, 2% "advanced technology partial zero emission

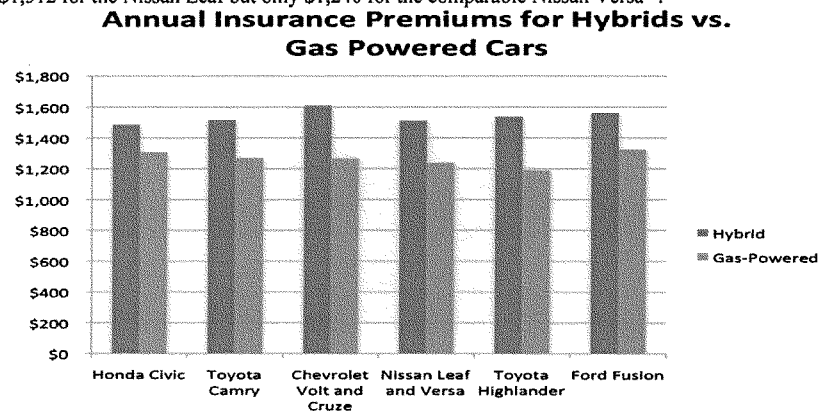
[12] *Understanding The Impact Of AB 32*; Boston Consulting Group for WSPA; 6/19/2012
[13] http://205.254.135.7/state/state-energy-profiles.cfm?sid=CA

vehicles PZEVs (aka, natural gas or hybrid-electric vehicles), and 6% conventional PZEVs, which are internal combustion vehicles that meet a "super ultra low emission vehicle standard."

Most recently, the ZEV mandate was further modified, and now mandates that "at least 15.4 percent of all cars sold by any major automaker doing business in California will have to be either fully electric, a plug-in hybrid or be powered by a hydrogen fuel cell by 2025."

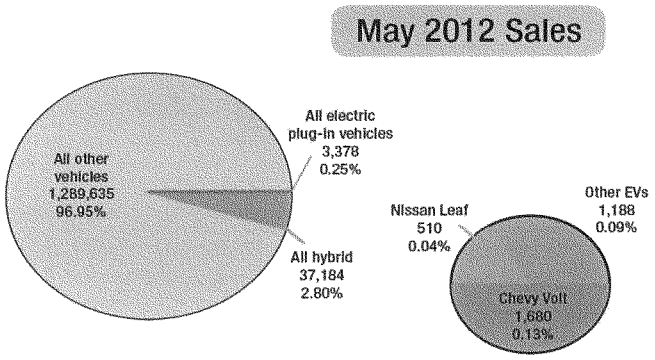
Electric-vehicle technology is still unable to satisfy the demands of consumers. The all-electric Nissan Leaf, with a limited range of about 73 miles per charge sells for about $35,000. Further compounding the initial cost is battery replacement, which can occur after about five years and represent 30 to 35% of the initial cost.

Electric hybrids are also more expensive to insure. Online insurance broker Insure.com shows that it costs $1,308 to insure a Honda Civic but $1,486 to insure a Honda Civic Hybrid. Similarly, it costs $1,270 to insure a Toyota Camry but $1,517 to insure a Toyota Camry Hybrid; $1,619 to insure a Chevrolet Volt but only $1,267 for the same-size gas-powered Chevrolet Cruze; and $1,512 for the Nissan Leaf but only $1,240 for the comparable Nissan Versa[14].



Consumer purchases reflect the higher costs. The figure below shows the volume of sales of the GM Volt and Nissan Leaf in perspective[15].

[14] California's EV Fetish; Kenneth P. Green; June 2012.
[15] Ibid.



Californians are likely to purchase fewer new cars and to continue driving their old cars longer, partly due to the continuing economic malaise. A recent CARB staff analysis suggests that the ZEV program will only very modestly reduce emissions (and petroleum use) from the vehicle fleet, not including likely slower fleet turnover. The emissions and petroleum use resulting from longer use of older cars will overwhelm the reductions from new ZEVs.

The ARB's Zero Emission Bus (ZEB) regulation was adopted in 2000 as part of the Transit Fleet Rule. It affects only large transit agencies with more than 200 buses and includes a 15 percent fleet ZEB purchase requirement. Two compliance paths are offered: the diesel path (2011-2026 time frame for purchase requirement) and the alternative fuel path (2012-2026 time frame for purchase requirement), which includes fuel cell buses and battery-operated buses.

Natural Gas Vehicles Compressed natural gas (CNG) and liquefied natural gas (LNG) vehicle and fueling infrastructure technologies are relatively well developed and there is negligible risk associated with technical feasibility. Natural gas vehicles (NGVs) have been proven to be commercially viable, albeit marginally in the U.S., where there are about 130,000 NGVs. Private companies are engaged in natural gas engine, vehicle, fueling station, and fuel supply businesses. In California, approximately 125 million gasoline gallons equivalent (gge) of CNG and LNG were consumed in 2006, and consumption has increased at an average rate of about 14% annually over the past five years. Two broad classes of NGVs are light-duty vehicles (LDVs, e.g., passenger cars, light trucks and vans) and heavy-duty vehicles (HDVs, e.g., transit and school buses, large trucks). The technologies, economics, and markets for these two NGV classes are significantly different. Natural gas is either compressed or liquefied and stored on vehicles as CNG or LNG, respectively. The vehicle and infrastructure technologies are quite different for CNG and LNG. Initially in California, safety concerns associated with compressed natural gas led to new standards for tankage and tankage placement.

In California, most natural gas transportation fuel is consumed by transit buses and garbage trucks. Both of these applications are partially driven by fleet rules (such as the CARB Transit Rule and SCAQMD Fleet Rules 1192 and 1193), and they also benefit from financial incentives (such as the

Carl Moyer Program, and Energy Policy Act, and Federal Highway Bill provisions). Other common heavy-duty natural gas applications include Class 8 tractor-trailer operations such as warehouse-to-retail distribution of grocery and other products.

As of 2006, there were about 5,000 natural gas transit buses operating in California. Roughly 90% of these were CNG fueled and 10% were LNG fueled. In addition to these buses operated by transit agencies, other natural gas buses of various sizes are operated as school buses, airport shuttle buses, and similar applications. The most recent count of natural gas garbage trucks indicates that, in 2005, there were approximately 1,300 natural gas garbage trucks in California.[16] Most of these (approximately 85%) were reported to be LNG fueled.

As recent as a decade ago, nearly all major domestic and foreign OEMs offered dedicated and/or bi-fuel CNG vehicles as part of their product line. All but Honda have dropped their NGVs from the U.S. market. Interestingly, almost all OEMs manufacture NGVs for non-U.S. markets. Consumers are not looking to buy light-duty natural gas vehicles.

Early California programs encouraged school bus operators, for example, to convert fleets to natural gas. School districts were paid subsidies to purchase new busses. However, the busses that were replaced (typically diesel fueled) were not retired, but sold to other school districts unable to participate in buying "new" busses. While these 'middle age' busses were more efficient compared to their same-size older busses, many school districts ended up with larger, and more fuel intensive, busses negating any net savings of emissions or petroleum.

Flexible Fuel Vehicles As an answer to the early lack of refueling infrastructure, Ford began development of a flexible-fuel vehicle in 1982, and between 1985 and 1992, 705 experimental FFVs were built and delivered to California and Canada, including the 1.6L Ford Escort, the 3.0L Taurus, and the 5.0L LTD Crown Victoria. These vehicles could operate on either gasoline or methanol with only one fuel system. Legislation was passed to encourage the US auto industry to begin production, which started in 1993 for the M85 FFVs at Ford. In 1996, a new FFV Ford Taurus was developed, with models fully capable of running on either methanol or ethanol blended with gasoline.

Today, the vast majority of alternative fuel vehicles, and a large percentage of all vehicles, are flexible fuel capable. Most consumers continue to preferentially fill with gasoline[17], even when given free choice.

Transportation Demand Reduction Transportation demand reduction programs have taken numerous approaches in California. Some require land use changes to drive higher density housing and co-location with employment, such as California's SB375. Some require higher vehicle mileage (such as CAFÉ) driven to the national level at California's insistence. Most recently, California committed $68 billion of borrowed money to build a high-speed rail system whose final cost is sure to escalate and whose ridership in uncertain at best.

[16] Cannon, J., "Greening Garbage Trucks: Trends in Alternative Fuel Use, 2002-2005," Inform, Inc. report, ISBN #0-918780-84-5, 2006.
[17] Here, blended gasoline is referred to, with the inclusion of ethanol as part of the RFS.

Even with long aggressive demand reduction programs, California remains second highest nationally in per capita consumption of petroleum.[18]

Conclusion

As of 2009, California had just over 136,000 alternative fuel vehicles, out of 826,000 nationwide. The state with perhaps the longest and most aggressive programs to encourage alternative fuels is not much further along than the rest of the nation. The 136,000 represents less than one-half of one percent of the state's vehicles, even after 30 years of incentives, mandates and other programs. Programs were initially predicated on petroleum security, but more recently have focused on either air quality and/or greenhouse gas emissions. The mechanisms have changed little, and remain mandates and subsidies. Neither has consumer demand changed appreciably, even with today's relatively high gasoline price. Consumer demand has not changed appreciably primarily because available alternatives are second best options, costly at best and with negative performance. Conflicting standards and regulations, such as recent Maximum Achievable Control Technology (MACT) revisions, state RPS and production tax credits, make certain alternatives even less attractive to consumers. Other interdependencies negatively affect the remaining alternatives. California's history illustrates that mandates and subsidies are not simple or even appropriate solutions to petroleum security.

[18] http://205.254.135.7/state/seds/hf.jsp?incfile=sep_sum/plain_html/rank_use_per_cap.html

Attachment 1

Thomas Tanton

Mr. Tanton is President of T^2 & Associates, a firm providing consulting services to the energy and technology industries. T^2 & Associates are active primarily in the area of renewable energy and interconnected infrastructures, analyzing and providing advice on their impacts on energy prices, environmental quality and regional economic development. Mr. Tanton is also Executive Director and Director of Science and Technology Assessment with American Tradition Institute. Mr. Tanton has 40 years direct and responsible experience in energy technology and legislative interface, having been central to many of the critical legislative changes that enable technology choice and economic development at the state and federal level. Mr. Tanton is a strong proponent of free market environmentalism and consumer choice, and frequently publishes and speaks against alarmist and reactionary policies and government failures.

As the General Manager at EPRI, from 2000 to 2003, Mr. Tanton was responsible for the overall management and direction of collaborative research and development programs in electric generation technologies, integrating technology, market infrastructure, and public policy. From 2003 through 2007, Mr. Tanton was Senior Fellow and Vice President of the Houston based Institute for Energy Research. Mr. Tanton was also a Senior Fellow in Energy Studies with the Pacific Research Institute until 2010.Until 2000, Mr. Tanton was the Principal Policy Advisor with the California Energy Commission (CEC) in Sacramento, California. He began his career there in 1976. He developed and implemented policies and legislation on energy issues of importance to California, and U.S. and International markets, including electric restructuring, gasoline and natural gas supply and pricing, energy facility siting and permitting, environmental issues, power plant siting, technology development, and transportation. Mr. Tanton completed the first assessment of environmental externalities used in regulatory settings. Mr. Tanton held primary responsibility for comparative economic analysis, environmental assessment of new technologies, and the evaluation of alternatives under state and federal environmental law. Mr. Tanton had oversight responsibilities for electricity and transportation technology development. Mr. Tanton served as Guest Lecturer for the Master in Environmental Science program at California State University Sacramento (CSUS), lecturing on power plant and electric grid technologies and their comparative environmental impacts.

Attachment 2
Excerpts from Proposition 87[19]: All Pain, No Gain

Tom Tanton & Amy Kaleita

Clean energy is an admirable goal. But a close analysis of Proposition 87 reveals that not only would there be minimal benefits to California's environment and energy picture, there would be a number of harmful effects.

Myth: We need alternatives to replace petroleum for energy security.

Reality: Energy security is an important goal. Energy security however, does not mean trading one set of risks for another. Heavy emphasis on reducing petroleum usage is as likely as not to create a less secure energy system for three simple reasons:

•Feedstocks for alternative fuels are weather dependent and subject to weather conditions. Much of the corn and other crops grown in the U.S. are grown with natural rainfall, and without irrigation. This subjects the crop supply to annual variability due to natural weather patterns. Further, devastating hurricanes and tornadoes have pummeled crops in several of the past few years. Moving our energy security to a system that includes crop-dependency on weather simply trades one form of insecurity for another. Energy security should come from shifting to a system of manageable risks, not the weather.

•Fuel will be competing with food demands for the major feedstock of alternative fuel production in the near to mid term. According to the US Department of Agriculture, farmers will need to plant 90 million acres of corn by 2010 in order to keep up with the already rising demand for ethanol fuel while maintaining current demands for livestock and exports. Speaking to the Senate Environment and Public Works Committee, the Agriculture Department's chief economist, Keith Collins, said the explosive growth in demand for corn for ethanol may have dangerous side effects. He said the thirst for ethanol may lead to high food prices and reduce soybean supplies. He also said land set aside for conservation may have to be utilized for ethanol production, estimating up to 7 million acres of land -- most in the Midwestern states -- now idled under the Conservation Reserve Program would need to be planted to grow corn and soybeans.

[19] Proposition 87, the "Clean Alternative Energy Act," on the statewide ballot in 2006 would have placed a tax on oil production in California, to fund a new bureaucracy charged with encouraging the development and adoption of alternative fuels. Voters resoundingly rejected the initiative.

•Energy 'independence' is not the same as energy security. Consumer activists expect independence to bring down the high price of gas and heating oil. Environmentalists hope it will promote "renewable" sources of energy. And global strategists think it will weaken anti-American oil-producing regimes.

But energy independence itself is not a desirable goal. It merely brings to the field of energy the stagnant isolationism of North Korea and the nationalistic mindset that destroyed the recent Doha round of world trade talks. What the U.S. needs is a greater reliance on free markets in energy, at home and abroad.

In America, "independence" has a positive sound because the country was born of an independence movement. But America's Founding Fathers were internationalists, not protectionists. Adam Smith's Wealth of Nations taught them that economic cooperation among nations is far more efficient than national isolation. Thus, the Founders would have seen that it is a good thing that one-third of all the energy consumed in the United States now comes from the international market, beginning with Canada. After all, when we buy from the world market, we buy the cheapest crude oil and petroleum products available from dozens of nations. We benefit by saving both our money and our resources; they benefit by obtaining dollars with which to buy our products and services, including food grown to feed their poor.

That is not to say foreign oil markets are without problems. They aren't. But those problems are not inherent in the commodity we call oil. They come from an inefficient and corrupt economic system: socialism. The nationalization of oil from Venezuela to Russia, and government activism in other forms, have diminished entrepreneurship, competition, and innovation in the energy field. As a result, demand has outpaced supply, and oil prices have risen in America and around the globe.

First, we should begin by shunning the punitive taxes that some want to slap on domestic oil companies. Higher taxes would raise prices at the pump. Over the long term, such taxes would deplete the capital needed to increase production.

Moreover, burdening California companies with more taxes will increase California dependence on oil from socialist regimes. National Oil Companies (NOCs) manage over 90% of the world's oil. And 16 of the 20 biggest oil firms (ranked by reserves) are government owned. According to The Economist, 'those with misgivings about oil--that its price is too high, that reserves are running out, that it damages the environment, that it is more a curse than an asset for countries that produce it"--

must focus on NOCs, and not so-called "Big Oil" companies like Exxon Mobil, Chevron, BP, and Royal Dutch Shell.

Myth: The government should choose those alternatives.

Reality: There are two realities that show that free markets are better at providing alternatives to the status quo. The first reality is the less-than-stellar performance of past government programs in developing 'clean, reliable, renewable' sources of energy. The state's renewable portfolio standard is mired in a regulatory morass, four years after enactment, with essentially zero new projects or production as a result. Another classic example was the dismal failure of the California Air Resources Board's *ZEV* program that initially mandated electric vehicles make up a certain percentage of all new vehicles in California. And, of course, the ill fated methanol program of the early 1990s that tried to "force fit a fuel" into a vibrant consumer oriented market spent millions of taxpayer dollars before being all-but-abandoned.

The second reality is that 35 plus million creative, innovative and incented Californians (plus their counterparts elsewhere) acting in virtual harmony will more likely create and develop efficient, effective and consumer friendly alternatives than 50 or 500 or 5000 government bureaucrats. The bureaucrats have no direct incentive to succeed, whilst the many do have an incentive to succeed—they can directly capture market share of the billions paid for energy every year. Further the many have direct knowledge of what it is they want to pay for—comfort, convenience, performance, efficiency, etc.

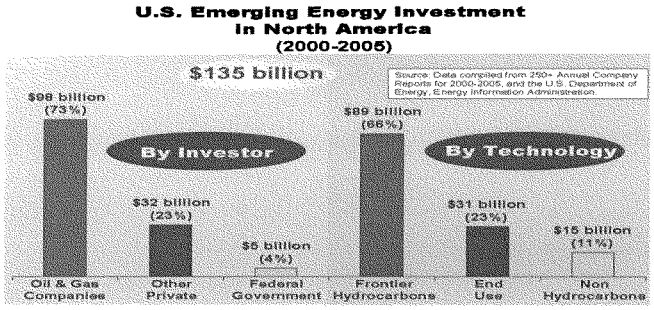
Myth: Oil companies are blocking access to cleaner, more reliable energy.

Reality: The reality is that oil companies, along with others, are leading the development of expanded supply types and sources of fuel. The energy challenge over the next several decades and beyond is to meet ever-growing demand with affordable, reliable supply, while ensuring environmental protection and quality. Recent years have witnessed historically high energy prices, a consequence of which has been a slate of new investments in alternative energy, frontier hydrocarbons and advanced end-use technologies that portend greater diversity of supply and environmentally friendly energy use in the future.

According to the Institute for Energy Research[20] (a non profit 501c3), U.S. oil and gas companies invested $98 billion from 2000 through 2005 on emerging energy technologies in the North American market[21] (***Figure 1***). This expenditure is 73% of the estimated total of $135 billion spent by U.S. companies and the Federal government.

In addition, the industry invested $11 billion (or 11% of the $98 billion total) for advanced end-use technologies, mostly for efficiency improvements through combined heat and power (cogeneration) and for advanced-technology vehicles using fuel-cell technology. Significantly, this $11 billion investment in end-use technologies represents 35% of the estimated total amount ($31 billion) spent by U.S. companies and the Federal government in this area.

Figure 1



In addition to the U.S. oil and gas industry, the motor-vehicle industry, agricultural industry, electric utilities, renewable-fuel industry, and the Federal government made other significant investments. These other private industries have invested $32 billion (or 23% of the $135 billion total) from 2000 to 2005. Of the $32 billion, $20 billion (62%) is associated with end-use technologies, $12 billion (37%) with non-hydrocarbons, and $0.3 billion (1%) with frontier hydrocarbons.

Myth: Oil companies are making too much money.

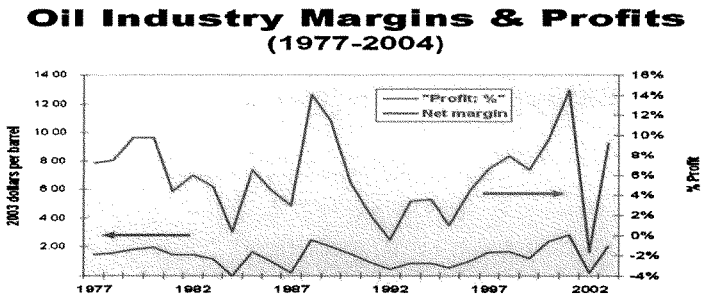
Reality: Petroleum production and refining experiences a business cycle, with both "good" years

[20] http://www.energyrealism.org/ier/studies/emerging/
[21] "North American market" is used herein to include Canada and the U.S.

and "bad" years. Capacity utilization and profit margins vary over time, as do profit margins. From 1985 to 2005, the average utilization factor for refineries increased from about 77% to more than 94%[22]. Utilization also varies month-to-month in response to the demands from summer driving and winter heating. Refinery utilization has been at or near peak capacity in recent years, lowering per-unit non-crude costs and increasing both overall resource efficiency and conversion. Similar fluctuations also are evident in other sectors of the well-to-use production cycle.

There are several ways to measure financial margins—gross operating margin per barrel processed, net margin, and profit margin. The volatility over the years suggests that focusing on profits in only one or two particular year is misleading. Figure 2 illustrates average financial margins for refineries from 1977 through 2004. Net margins should be viewed with the left Y-axis; profits with the right Y-axis. In a few years, profits were negative—i.e. companies lost money. Similar volatility is evident in other parts of the petroleum industry.

Figure 2[23]



Also, who is really making the money? A significant portion of oil company investors are average citizens, and those acting on behalf of individual investors and retirees. For example, the California Public Employee Retirement System (CalPERS) that provides retirement planning and investments for state and local public employees, holds several billions of dollars in oil company stocks, with over $655 million in Chevron and almost $2 billion in ExxonMobil, for the latest reporting period

[22] U.S. Department of Energy, Energy Information Administration
[23] Ibid.

ending June 2005.[24] Most individuals with mutual fund investments, 401k retirement plans or company administered retirement accounts, own oil company stocks.

[24] https://www.calpers.ca.gov/mss-pub/SearchController?viewpackage=action&PageId=SearchCatalog&package_code=797

Mr. SULLIVAN. Thank you, Mr. Tanton. Next, Dr. Bajura, you are recognized for 5 minutes.

STATEMENT OF RICHARD A. BAJURA

Mr. BAJURA. Thank you, Mr. Chairman.

In my activities at West Virginia University, I have had the benefit of working with the University of Kentucky on the Consortium for Fossil Fuels Science. We believe that there are more things you can do with coal than just simply generate electricity.

We can generate alternative fuels such as jet, diesel, and gasoline that are almost sulfur-free, have very few carcinogenic compounds. They out-perform petroleum, and have fewer particulate emissions. We do this by a process called gasification, where we take coal and turn it into carbon monoxide and hydrogen. These are very simple building blocks on which we can construct anything chemically, aspirin, for example, urea, and chemicals and gasoline. The other aspect is a Fischer-Tropsch process, which converts this fuel—this gas into a liquid fuel. These are known technologies. They are fairly expensive, but in the age of high oil prices, we think we can be competitive. We are now also faced with the challenge of sequestering the carbon dioxide that comes out of these processes. We do this by injecting CO2 into geologic formations, or we use biomass, which in effect is using CO2 from the atmosphere instead of liberating new CO2 from the ground. These processes are very effective. We can capture the CO2 from these processes for as little as 15 cents a gallon.

We know that projections for the future are that costs for petroleum will be in excess of $100, perhaps even up to $200 by 2035. With the technologies I described, we can reduce liquid fuels at about $94 a barrel with carbon storage capability, and $104 a barrel with 15 percent biomass in carbon storage. These estimates are based on today's technology. They can be even more improved by advanced research. We would also emit 25 percent less CO2 over the life cycle compared to regular petroleum fuels.

The other aspect I would like you to consider is using the CO2 that is captured. In an oil reservoir, we punch a hole in the ground and the oil comes up by the pressure underground. That is called primary. Next, we use water to flood the reservoir and produce additional oil. That is called secondary. We might leave as much as 70 percent of the oil in place. If we do a tertiary process with CO2 injection, we can produce additional oil, perhaps getting as much as 50 percent now of the oil in place.

I would like to introduce you to a concept called CCUS with EOR. This stands for using the carbon dioxide that is captured from a process to produce oil through this EOR recovery process. A study conducted by the National Coal Council last month, which I chaired, showed that we have about $4 million barrel per day capacity of oil that we could get with enhanced EOR applications.

Consider this example. For example, if we said we wanted to have a national program to produce 2.5 million barrels a day of synthetic fuels, we would capture that CO2 and we would also capture the CO2 from 100 gigawatts of advanced coal plants. With this CO2, we can produce 4 million barrels a day in enhanced oil recovery. That, coupled with 2.5 million barrels a day that we are pro-

ducing from the coal plants get us 6.5. By 2035, we are anticipating an import of about 7.4 million barrels a day. That leaves us less than a million that we have to import. In 2011, 61 percent of our trade balance was due to imported oil. You can see the impact this would have on our economy.

This case I described would yield benefits by 2030 of $200 billion in industry sales annually, $60 billion in taxes to Federal, State, and local jurisdictions, and would create one million jobs.

This CTL industry that we are discussing would also give us some sense of security from things like hurricanes. If you remember, we were knocked out of oil production with the hurricanes that hit the Gulf several years ago. We can deploy these plants into other regions, taking advantage of the oil in place in States like Ohio, and bringing additional jobs to those jurisdictions.

I focus today here on the benefits of this technology. We need additional research that would improve our ability to capture the carbon, to deploy these enhanced oil recovery technologies better, and to buy down the cost of putting these plants in place. It is very expensive to put a Fischer-Tropsch plant in place to produce liquid fuels.

We know that we are going to depend upon petroleum and the internal combustion engine for many years to come. I recommend that we do these kinds of technologies that will help reduce our costs of production and reduce the need to employ—import foreign oil. Financial risks need to be brought down. We need new technologies to recover oil more effectively, and we need to encourage early movers to build these first-of-their-kind plants.

I view that H.R. 2036, which Congressman Griffith has introduced and three other members of this committee have introduced, would be a very good place for us to use the CO2 technologies as a way to accomplish these goals.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Bajura follows:]

Testimony

Submitted to the

United States House of Representatives
Committee on Energy & Commerce, Subcommittee on Energy and Power

On the Topic of

The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities

By

Richard A. Bajura
Director, National Research Center for Coal and Energy
West Virginia University

Tuesday, July 10, 2012

Summary of Testimony

Recent studies have shown that coal-to-liquids (CTL) technologies can produce super clean synthetic gasoline, diesel, and jet fuels devoid of sulfur, nitrogen, and other polluting compounds that would be commercially competitive with oil at $100 per barrel. Advanced concepts that integrate CTL with electric power production and enhanced oil recovery (EOR) could produce 6.5 million barrels of liquid fuels per day by 2030, thereby reducing oil imports, creating jobs, and enhancing our environment through carbon management technologies that result in fewer emissions than regular petroleum based fuels. The National Coal Council reported in June 2012 on an "Aspirational Case" study that projected annual benefits of $200 billion in industry sales and $60 billion in earned federal, state, and local tax revenues, along with the creation of almost one million new jobs. However, we will need next-generation technologies to continue competing successfully with oil. Minimizing carbon emissions will continue to be important. Therefore, federal investments are recommended for advanced research in fuels development and deployment, for next-generation EOR technologies, and for buying down the first-of-a-kind costs for pioneer plants. These investments will keep CTL alternative fuels viable in our national energy mix for transportation by beating oil both on price and on carbon. Deploying a national CTL program would help meet the goals of H. R. 2036, which four of the members of this Subcommittee have co-sponsored. A similar bill, S.937, has been introduced in the Senate. The goals of these bills are to decrease risks to national security, lower domestic energy prices, reduce trade deficits, and create jobs in the U.S. Advanced CTL with EOR will help us attain these goals.

Main Text of Testimony

Chairman Whitfield and Members of the Subcommittee:

Mr. Chairman, I thank you and members of your subcommittee for the opportunity to offer testimony on the topic of coal-to-liquids, commonly abbreviated as CTL.

Background

In my role as director of a university-wide energy and environmental center, I have enjoyed an opportunity to work with a research team of five universities called the Consortium for Fossil Fuel Science led by the University of Kentucky. Our consortium focused on finding ways to produce liquid fuels and chemicals from coal and other feedstocks such as biomass and recyclables such as plastics and rubber. I welcomed this opportunity to work with the University of Kentucky's Dr. Jerry Huffman. Since very early in my 30-year career as a research administrator, it seemed to me that we could do more with our abundant coal resource than only making electricity. Our consortium's research focused on applied technology development. My personal involvements have also been in the area of advocating for polygeneration. Polygeneration is a technology that includes a combination of coal-based electricity generation and liquid fuels production to satisfy our nation's need for power and petroleum.

We know that industrial deployment of technologies like coal gasification and Fischer-Tropsch, or F-T, processes can produce super clean synthetic gasoline, diesel,

and jet fuels that are almost sulfur free, have almost no carcinogenic compounds compared to petroleum, produce fewer particulate emissions, and outperform petroleum fuels. The gasification process results in a mixture of carbon monoxide and hydrogen gases, which are the simple chemical compounds that serve as building blocks for multiple plastics and polymers used in products ranging from household goods to industrial-grade materials. Through F-T we not only can make liquid fuels, but also chemicals and other useful products such as fertilizer or ammonia, and even some commonly used over-the-counter medicines such as aspirin.

Gasification and Fischer-Tropsch are well known technologies that can be cost-competitive with conventional petroleum fuels production when the price of oil is high. Our challenge is to make coal-derived products competitive with the price of oil in present and future markets. A more recent challenge is to make these products with reduced CO2 emissions. We can make coal-to-liquids with reduced carbon emissions through carbon storage – capturing the CO2 generated in making the fuels or chemicals and storing it in geologic formations. Or, we can reduce CO2 emissions by adding biomass to the feedstock mix, which is a way of naturally reusing atmospheric CO2 since biofuels are produced from the existing inventory of CO2 in the atmosphere rather than by adding additional carbon from mined coal or other fossil fuels. The F-T process inherently requires CO2 extraction to produce the fuels, so the cost to capture the CO2 is incorporated into the process and is very low, perhaps only 15 cents per gallon.

Opportunities for CTL Technologies

The International Energy Agency (IEA) and the Energy Information Agency (EIA) and similar organizations predict petroleum prices to be in excess of $100 per barrel, and as much as $200 per barrel in twenty years, depending on the economies of developing nations such as China. China is aggressively pursuing its own CTL strategies out of necessity because they have insufficient petroleum reserves. We believe that we can produce super clean fuels and chemicals in the U.S. at costs of $94 per barrel for CTL with carbon storage and $104 per barrel with carbon storage and 15% biomass in the feed. [1] These estimates are based on using today's technology; next-generation technologies would be even more cost competitive. Fuels produced with combinations of coal and biomass feedstocks would emit 25% less CO2 than is emitted by today's petroleum fuel-based system over its life-cycle. [2]

Another benefit of CTL fuels would be using the CO2 captured in the production process to stimulate new petroleum production through enhanced oil recovery, or EOR operations. After primary and secondary production technologies are used on an oil reservoir, as much as 60% of the original oil in place remains behind. Here, the CO2 would be used to liberate stranded oil. The CO2 would remain behind in the reservoir after doing its job to make the oil flow more freely.

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[1] Production of Zero Sulfur Diesel Fuel from Domestic Coal: Configurational Options to Reduce Environmental Impact, DOE/NETL-2012/1542 December, 2011

[2] Affordable, Low-Carbon Diesel Fuel from Domestic Coal and Biomass, January 14, 2009, US DOE – NETL Report

I want to share with you the results of a study conducted by the National Coal Council that were presented to Secretary of Energy Steven Chu last month. [3] I served as the Chair of the Study Group that developed the report. The U.S. has a four million barrel per day CO2 / EOR potential to produce stranded oil using tertiary recovery processes like CO2 injection. Suppose our nation were to undertake a plan to produce 2.5 million barrels per day of F-T fuels from coal and biomass. If we used the CO2 from these CTL plants plus the CO2 from one hundred gigawatts of advanced coal-based electricity plants with carbon capture capability, we could liberate 4 million barrels per day of stranded petroleum through EOR. Overall, we would produce 6.5 million barrels of liquid fuels per day. Considering our nation's goal of importing no more than 7.4 million barrels of petroleum per day by 2035, we would reduce our imports to only one million barrels per day. Incidentally, 61% of our trade deficit in 2011 was due to imported oil, so you can see what a large impact this plan could have on our trade deficit.

If we embark on this goal, or Aspirational Case as described by the National Coal Council, by 2030 we would see nearly $200 billion in industry sales and $60 billion in federal, state, and local government taxes annually, and be employing about one million people in new jobs in coal mining, fuels production, oil production, and the associated spin-off industries. This Aspirational Case "Company" would rank fifth on the Fortune 500. The jobs would be high paying, and we would need to train and expand our workforce. Oil prices would be stabilized, and by 2035 we would produce

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[3] Harnessing Coal's Carbon Content to Advance the Economy, Environment, and Energy Security, June 2012

what would be 6% of the world's oil supply of 110 million barrels per day here in the U.S. instead of competing for it in a demanding global marketplace. For example, the large amount of stranded oil in the Midwest could be recovered with the CO2, thereby bringing jobs to the Rust Belt states.

A CTL industry also would allow the U.S.' transportation sector to be more resilient to climate impacts as well. CTL plants could be located in many regions of the country. A powerful hurricane hitting the Gulf Coast right now could devastate our refinery capacity whereas widely distributed CTL plants would give us a measure of security from such natural catastrophic events.

Other Considerations

In my testimony today, I have focused on the benefits of employing CTL technology rather than the technical details of how it works. While gasification and F-T processes are known technologies, much new research remains to be done in improving these processes to stay ahead of the oil price curve. CO2 EOR tests need to be conducted in strategic areas of the U.S. to validate next-generation technologies to reduce the amount of oil we leave behind in a reservoir. We also need to demonstrate the feasibility of operating highly interconnected power and fuels production facilities with EOR operational systems in the field. Gasification and F-T plants must be built at large scale to operate economically. Large scale means high capital costs for such plants. If we don't reduce risk and uncertainty in costly systems such as CTL – EOR operations, bankers will not provide the financing. The increased taxes earned from

this enhanced oil industry would repay federal investments in launching the Aspirational program.

Recommendations

Analysts have concluded that both the U.S. and the global community will depend on petroleum and the internal combustion engine well into the future. The United States should use cost effective technologies to produce our needed liquid fuels domestically. Development of a U.S. CTL industry coupled with power generation and the recovery of stranded U.S.-based petroleum is a business model that has the added benefits of improving the environment and job creation.

Federal support is needed to reduce the financial risks of deploying these integrated technologies. Investments in developmental research would bring about both evolutionary and revolutionary changes in technology that would reduce costs. Incentive programs to help buy down the technology deployment risks are needed to encourage first-of-a-kind plants. We need to be attentive to the global marketplace where other countries such as China are making large investments in CTL production. We will be buying our technology from overseas if the U.S. falls behind in advanced research or demonstration in advanced coal technologies.

Closing Comments

I believe that deploying a national CTL program would help meet the goals of H. R. 2036, which four of the members of this Subcommittee have co-sponsored. A similar

bill, S.937, has been introduced in the Senate. The goals of these bills are to decrease risks to national security, lower domestic energy prices, reduce trade deficits, and create jobs in the U.S. CTL will help us attain these goals.

Mr. Chairman, this concludes my testimony. I would be pleased to answer any questions you may have.

Mr. SULLIVAN. Thank you, Mr. Bajura. Next, Mr. McAdams, you are recognized for 5 minutes.

STATEMENT OF MICHAEL J. MCADAMS

Mr. MCADAMS. Thank you, Mr. Chairman. Vice Chairman Sullivan, Ranking Member Rush, members of the committee, I am delighted to be here with you today on behalf of the Advanced Biofuels Association. Since our inception, we believed strongly in technology neutrality. It has been our driving force.

The Advanced Biofuels Association represents over 45 companies deploying advanced renewable technologies that are helping to create jobs and reduce dependence on foreign oil by adding to our domestic fuels production capacity. The Advanced Biofuels Association supports an all of the above energy approach for the United States.

Today, I want to leave you with two points. First, the Renewable Fuels Standard is the bedrock of our Nation's renewable transportation fuels policy, and it is directly responsible for the progress that has been made to date in the advanced biofuels sector.

Second, as a result of this policy, a number of companies have made significant investments in R&D, pilot and demonstration phases, as well as commercial deployment. Currently, a number of sophisticated manufacturing companies have over a billion dollars of private capital ready to build their first commercial facilities.

As you well know, uncertainty chills investment, and uncertainty about whether the Congress might change the rules at this critical time by changing the RFS would have negative implications for those who have already invested in the future of this country. This past has brought significant—the past year has brought significant progress for our industry. We have seen the top fighter planes in the Air Force, Navy, and Marines fly using drop in jet fuels produced from a wide range of feed stocks and technologies. We have seen U.S. major airlines fly U.S. transcontinental flights—I was on it—and last year alone, Lufthansa operated more than 1,000 flights in Europe on a 50/50 blend of biofuels. Last week, the Air Force flew an A–10 warthog on the first alcohol-to-jet fuel produced by U.S.—in the U.S. by Gevo, a Colorado company.

As I look down the list of those testifying today, I doubt a single witness would disagree that adopting a portfolio approach to energy is in the Nation's best interest. Energy is not a partisan issue. It is an issue of economic and national security. Energy policy is a key driver in the future prosperity of this Nation, and I applaud the chairman and the committee members for holding a truly fact-finding hearing today.

Biofuels, as you heard from my colleague, Mr. Dinneen, have already made a significant contribution to our Nation's transportation supply. America began our journey in renewable fuels policy with ethanol in 1978. It took 20 years to deliver the first 2 billion gallons of fuel. Since the adoption by this committee of the Renewable Fuels Standard in 2005, we have seen an explosion in gallons of U.S. renewable fuels. As a result, the BP Statistical Review of 2012 released on June 15 now shows the United States having 48 percent of the production of biofuels worldwide.

It was only 5 years ago that this committee extended the government's commitment to renewable transportation fuels by passing the Energy Independence and Security Act. As you know, the legislation challenged the industry to produce 36 million gallons of fuel by 2022. In less than 5 years, we already have new operating plants turning out hundreds of millions of gallons of advanced biofuels. If you consider that it generally requires 18 months to 2 years to site, permit, and build a plant, that is simply a remarkable achievement, and many more are on the way.

In speaking with members of Congress this year, I have been asked where are the gallons? Is this another technology that is always 5 years away? The answer is emphatically no. We are putting steel in the ground and creating jobs for Americans all over this country today.

So let me share with you a few examples. In my testimony, I included a picture of the new Dynamic Fuels facility located in Geismar, Louisiana. That has a name plate capacity of 75 million gallons. It is making 1 million gallons a week without a tax credit in place, and it is selling it in a competitive basis. Additionally, Neste Oil has built over 650 million gallons worldwide, and expects to deliver 30 million gallons of renewable diesel to the United States this year. With a name plate capacity of 27 million gallons, last year my small family-owned company, Triton, employed 15 people and used corn oil as its base feed stock, and the list goes on. This year, we will see Texas-based KiOR bring an 11 million gallon facility in Mississippi, Gevo a 22 million gallon facility in Minnesota, and additionally, companies like BP and DuPont have demonstrated their technologies, purchased the land, and are deep into engineering a design for the first cellulosic ethanol plants.

My message is simple, that it has only been 5 years since you passed the RFS. Too, the RFS is fundamentally working, and we are just getting started.

Let me conclude by observing this new industry is helping make America steadily more energy and economically secure. We all watched the price of oil spike earlier this year and felt its impacts. You have the ability to send a signal to industry and markets that you stand behind the RFS. That signal, like this hearing of a balanced portfolio approach, would be greatly appreciated and we appreciate being here.

[The prepared statement of Mr. McAdams follows:]

Subcommittee on Energy and Power
Energy and Commerce Committee
U.S. House of Representatives

The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities

Testimony
Michael J. McAdams
President, Advanced Biofuels Association

July 10, 2012

Chairman Whitfield, Ranking Member Rush, Members of the Committee, I am delighted to be with you here today to discuss what is happening in the advanced biofuels industry.

As a leading voice for America's domestic biofuels industry, the Advanced Biofuels Association (ABFA) represents over 45 companies deploying advanced and renewable technologies that are helping to drive America's new economy by creating jobs and reducing our dependence on foreign oil by adding to our domestic fuels production capacity. These American made fuels are contributing to U.S. economic and energy security, and are posed to expand their role. The ABFA supports public policies that help contribute to a truly "all of the above" energy portfolio for the United States.

Unique to our Association is the fact that a significant number of our companies are making fuels referred to as "drop in," which do not require changes to existing infrastructure, as well as cellulosic fuels including ethanol. As this Committee considers the "Open Fuel" policy, we would urge you to be mindful and not pick a winner as you balance the competing strengths of the various technologies and molecules.

Today I want to leave you with two points. First, the Renewable Fuels Standard (RFS) is the bedrock of our nations' renewable transportation fuels policy and is directly responsible for the progress that has been made to date in the advanced biofuels sector. Second, as a result of this policy a number of companies have already made significant investments in R&D, pilot and demonstration phases as well as commercial deployment. A number of sophisticated manufacturing companies are poised to build the first generation of commercial scale advanced biofuels plants in the US, with over a billion dollars of private capital poised to enter the market. As you well know, uncertainty chills investment – and uncertainty about whether the Congress might change the rules at this critical time by changing the RFS would have serious negative implications for those who have already invested to build this industry.

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This past year has brought significant progress for the advanced biofuels industry. We have seen the top fighter planes in the Air Force, Navy and Marines fly using these "drop in" jet fuels produced from a wide range of feedstocks and technologies. We have seen major U.S. airlines complete commercial trans-continental flights, and last year alone Lufthansa operated more than 1,000 flights in Europe with 50/50 biofuel blends. In another major achievement just last week, the Air Force flew an A-10 on the first alcohol-to-jet fuel produced in the U.S. by Gevo, a Colorado company.

As I look down the list of those testifying today, I doubt a single witness would disagree that in order to secure America's energy and economic security, we need a wide portfolio approach to our nation's energy policy. Energy is not a partisan issue. It is an issue of economic and national security. It is the lifeblood of an active, vibrant economy that provides plentiful employment for its people and ultimately leads to a high gross national product and sustainable middle class. Energy policy is a key driver in the future prosperity of this nation, and I applaud the Chairman and the Committee members for holding this hearing today.

Biofuels, as you will hear from my colleague Mr. Dinneen, have already made a significant contribution to our nation's transportation fuel supply. We began our journey in renewable fuels policy with ethanol in 1978. It took twenty years to deliver the first 2 billion gallons of fuel. Since the adoption by this Committee of the Renewable Fuels Standard in The Energy Policy Act of 2005, we have seen an explosion of gallons in the U.S. renewable fuels pool. Today the ethanol industry produces over 14 billion gallons of fuel annually, and last year exported over a billion gallons, with over a half a billion gallons going to Brazil. As the BP Statistical Review of World Energy, 2012 reports, the United States now boasts 48 percent of the worlds' total renewable fuels production.[1] This represents 10 percent of our domestic gasoline consumption – a significant proportion. Combined with increased domestic oil production and decreasing U.S. fuel consumption, we are becoming steadily less reliant on imported oil – and with advanced biofuels about to reach scale this will only continue.

It was only five years ago that this Committee further extended the government's commitment to renewable transportation fuels by passing and sending the Energy Independence and Security Act of 2007 to President Bush for his signature. As you know, that legislation challenged the industry to produce 36 billion gallons of renewable fuels by 2022. In less than five years we already have new operating plants churning out hundreds of millions of gallons of advanced biofuels. If you consider that it generally requires at least eighteen months to two years to site, permit and build a plant--this is simply a remarkable achievement of innovation, development and investment to deliver these gallons so rapidly.

And many more are on the way. In speaking with many Members of Congress this year I have been asked where are the gallons? Is this another technology sector that is always five years away? The answer is no. We are putting steel in the ground and creating jobs for American all over this country today. So let me share with you examples of facilities that have been built and are currently operating today. It is also important to note that with the exception of the cellulosic production tax credit, which we would urge you extend, all the other biofuels-related tax provisions have now expired and we are not receiving a penny of subsidy.

[1] "Statistical Review of World Energy, 2012." Pg 39. June, 2012. http://goo.gl/1oiee

In your testimony I have included a picture of the new Dynamic Fuels facility located in Geismar, Louisiana that has a name plate capacity of 75 million gallons a year of renewable diesel. That is a fuel that has the quality and performance of diesel exactly as if it were made from a barrel of oil in a traditional refinery. Additionally, Neste Oil expects to deliver 30 million gallons of renewable diesel to the market this year. I have also included a family-owned facility in Indiana built by Triton Energy last year with a name plate capacity of 27 million gallons. Last year they produced over 11 million gallons and employed fifteen people utilizing corn oil from the ethanol industry.

And the list goes on, this year we will see Texas-based KiOR bring an 11 million gallon facility in Mississippi on line, and Gevo has begun production of butanol in their 22 million gallon Minnesota facility (see appendix of current facilities). Additionally, companies like BP and DuPont have demonstrated their technologies, purchased land and are deep into engineering design for their first cellulosic ethanol plants.

My message is simply that it has only been five years. The RFS is fundamentally working, and we are just getting started. Uncertainty in the RFS today would have a chilling effect on these investments.

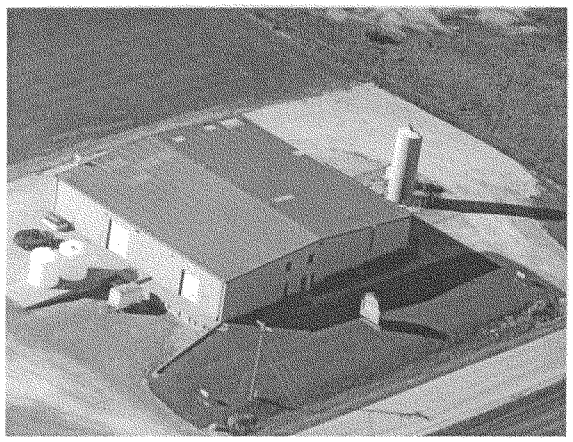
Let me conclude by observing this new industry is helping to make America steadily more energy secure and keeping more of our energy spending here for American produced fuels. The industry is managing three principle risks: the scale up of technology, the volatility of commodities, and the certainty of regulatory policy. We all watched the price of oil spike earlier this year. But the policy governing that is in your hands. You have the ability to send a signal to the industry and the markets that you stand behind the RFS. You need to send that signal as it will continue to drive the progress which I have reported to you this morning. Thank you for the opportunity to testify before you this morning. I look forward to answering any questions you may have.

Appendix

Fig 1. Dynamic Fuels facility, Geismar, Louisiana

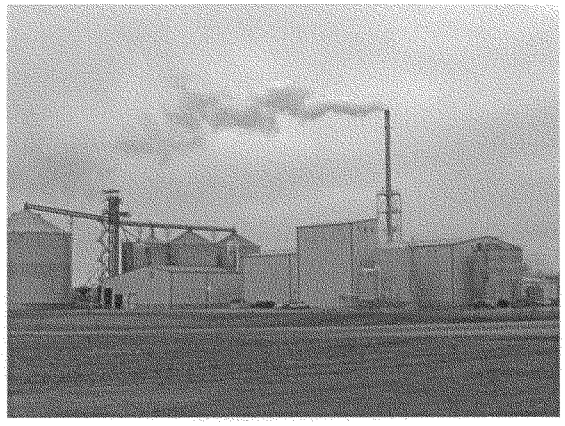
This plant, with a nameplate capacity of 75 million gallons of renewable diesel per year, will be the first North American plant to produce renewable diesel from animal byproducts such as beef tallow and pork and chicken fat.

Fig 2. Triton Energy facility, Waterloo, Indiana



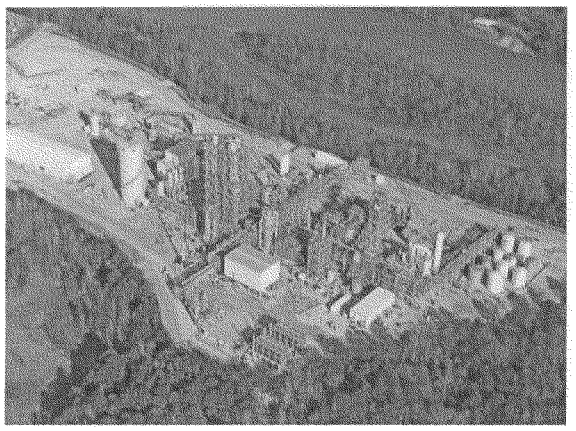
This facility has a name plate capacity of 27 million gallons per year of renewable diesel produced from feedstocks such as soybean oil.

Fig 3. Gevo facility, Luverne, Minnesota



This plant, which has a capacity of 22 million gallons per year of ethanol and 18 million gallons per year of isobutanol, utilizes a traditional corn feedstock.

Fig 4. KiOR facility, Columbus, Mississippi



KiOR's facility will be on line by the end of the year with an estimated capacity of 11 milion gallons per year of gasoline, diesel, and fuel oil blendstocks. The facility uses local a locally available feedstock, Southern Yellow Pine woody biomass.

Mr. SULLIVAN. Thank you, Mr. McAdams. Next, Mr. Breen, you are recognized for 5 minutes, sir.

STATEMENT OF MIKE BREEN

Mr. BREEN. Thank you, Chairman Sullivan, Ranking Member Rush, ladies and gentlemen. I serve as the Vice President of the Truman National Security Project, and I am also proud to be one of the leaders of Operation Free, a fiercely nonpartisan coalition of over 1,000 patriotic veterans across the country, who stand together in the common belief that our dependence on oil as a single source of fuel poses a clear national security threat to the United States.

To be clear, oil is an immensely important substance to our economy and will remain so for the foreseeable future. Its value goes far beyond its utility as a liquid fuel. Petroleum is a key input in advanced manufacturing, pharmaceuticals, agricultural products, and a host of other applications. Unfortunately, however, a near total dependence on oil as a fuel has eclipsed petroleum's other contributions. Our dependence on oil as a single source of transportation fuel poses a clear national security threat to the Nation.

Oil is a fungible, globally traded commodity with prices set on a world market. In other words, global supply and global demand set the market and drive the price, not American supply and American demand alone. This has crucial implications for policy. Since any potential increase in U.S. supply must be considered in light of global demand.

Some claim that recent technological advancements will solve our oil-related national security problems, eliminating the need to develop alternatives, but this is a fallacy for at least three reasons.

First, it is highly unlikely that we can drill enough here in the United States to meet our needs, at least for any appreciable length of time. Second, American families will remain vulnerable to swings in gasoline prices, even if U.S. oil imports drop dramatically. In 2000, truck drivers in the United Kingdom went on strike over rising gas prices. The United Kingdom was a net oil exporter at the time, but that didn't protect British truckers from rising world oil prices. The tough reality is that when it comes to the price we pay at the pump, there is simply no such thing as foreign oil. Third, global demand for oil is rising at a breathtaking pace, with no sign of slowing. According to the EIA, America's oil consumption is expected to grow by 11 percent over the next 2 decades. Meanwhile, China's oil consumption is expected to grow by 80 percent, India's by 96 percent.

This is a market with clear winners and losers. The winners, by and large, are non-free market countries, with nationalized oil companies, many of whom are openly opposed to the United States. According to the CIA, over 50 percent of Iran's entire budget comes from the oil sector. As the price of oil climbs, Iran's nuclear program and support for global terrorist organizations are among the biggest winners. Meanwhile, the losers are American service members facing oil fueled uncertainties, Syrian revolutionaries facing Russian supplied weapons, and American families at the gas pump.

Small wonder that Secretary of the Navy Ray Mabus recently called the Navy's reliance on oil a "strategic vulnerability."

Today, oil is a strategic commodity, but 2 centuries ago, the world's top strategic commodity was not oil, it was salt. Salt was the world's preeminent way of preserving food, especially on long voyages. Wars were fought over salt, kingdoms were built on it, and then salt was out-innovated by an alternative technology, the ice box. Every one of us still uses salt, but it no longer dictates the fate of nations.

When government sets aggressive yet maintainable standards for private industry while providing real incentives for innovation, there is nothing American businesses can't achieve. That is the real strength of technology neutral standards, like CAFE standards and the Open Fuels Standards Act, legislation sponsored by two members of this committee, Congressman Shimkus and Congressman Engel. There is nothing new or radical about this, it has worked countless times before.

Next week, over 25,000 American sailors and Marines will embark on one of the largest Naval war games ever conducted. The exercise will be an opportunity to test a wide range of new technologies produced by American companies, including submarine-launched unmanned aerial vehicles, "blue laser" underwater communications technology, and the fuel for the exercise itself, a 50/50 biofuel blend based on advanced algae oils and recycled cooking oil. Navy pilots will fly the world's most advanced combat aircraft at over twice the speed of sound, powered by renewable American fuel.

We can and must follow the military's example. The credible debate on oil dependence and national security is all but over. There is simply no question at this point that single source dependence threatens our future security and our prosperity. It is time for Congress to act and to lead.

Thank you.

[The prepared statement of Mr. Breen follows:]

Testimony of Mike Breen

Vice-President, Truman National Security Project

House Energy & Commerce Committee

Subcommittee on Energy & Power

July 10th, 2012

Mr. Chairman, members of the Committee, Ladies and Gentlemen: thank you for inviting me to appear before this Committee today to discuss the critical importance of alternative fuels to America's national security.

I come before you first and foremost as a fellow citizen, deeply concerned about the future prosperity and security of our great nation. I serve as the Vice-President of the Truman National Security Project, a leadership institute dedicated to forging strong, smart and principled national security policy for America. As a former Army Captain and an Iraq & Afghanistan combat veteran, I am also proud to be one of the leaders of Operation Free, a non-partisan nationwide coalition of over one thousand patriotic veterans who stand together in the common belief that our national addiction to oil poses a clear national security threat to the United States.

To be clear, oil is immensely important to our economy and will remain so for the foreseeable future. Its value goes far beyond its utility as a liquid fuel. Petroleum is a key input in advanced manufacturing, pharmaceuticals, agricultural products, and a host of other applications. Unfortunately, however, our near-total dependence on oil as a fuel has eclipsed petroleum's other contributions, threatening our prosperity and security.

Our dependence on oil as a single source of transportation fuel poses a clear national security threat to the nation. As things now stand, our modern military cannot operate without access to vast quantities of oil. Our economy is equally dependent, with over 95% of our transportation sector reliant on oil. This lack of alternatives means that oil has ceased to be a mere commodity. Oil is a vital strategic commodity, a substance without which our national security and prosperity cannot be sustained. Until and unless we develop alternatives, the United States has no choice but to do whatever it takes in order to obtain a sufficient supply of oil. We share that sad and dangerous predicament with virtually every other nation on earth.

Oil is a fungible product, traded globally, with prices set on a world market. In other words, global supply and global demand set the market and drive the price – not American supply and American demand alone. This has crucial implications for policy, since any potential increase in US supply must be considered in light of global demand.

Recent technological advancements such as horizontal drilling and advanced hydraulic fracturing promise to increase domestic production, allowing us to reach supplies of oil that were

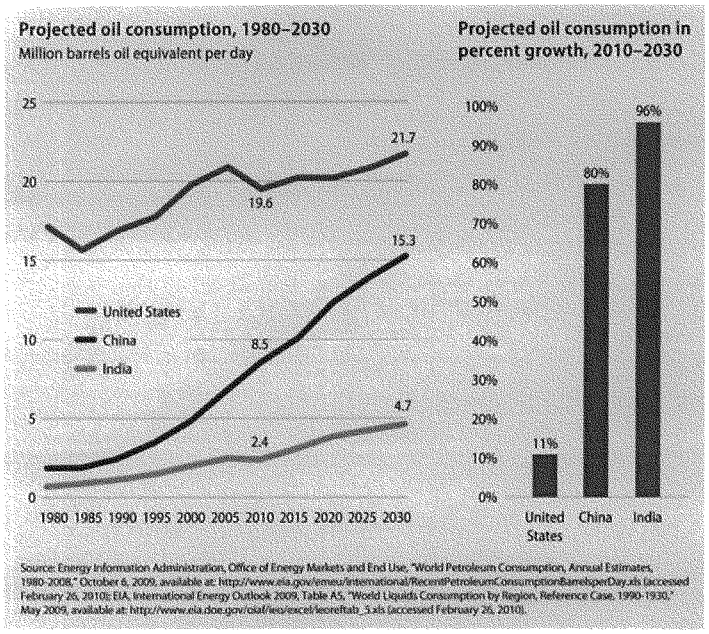
until recently prohibitively remote or impossible to obtain. These advances have led some to claim that the United States is suddenly capable of producing enough oil domestically to meet our needs, and that this will solve our oil-related economic and national security problems, eliminating the need to develop alternatives.

This is a fallacy, for at least three reasons. First, it is highly unlikely that we can drill enough here in the United States to meet our needs, especially for any appreciable length of time. The US consumes over 20% of the world's oil, but has about 3% of the world's reserves. The American economy consumes 18.8 million barrels of petroleum per day, while producing about 5.6 million barrels of crude per day.[i] Simply put, we cannot drill our way out this problem.

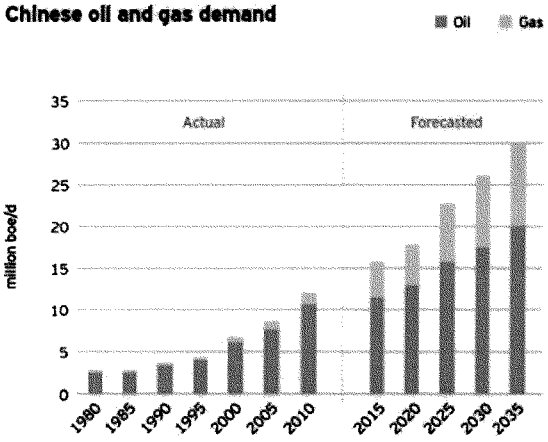
Second, American families would remain vulnerable to swings in gasoline prices even if U.S. oil imports dropped dramatically. The percentage of imports has little impact on prices paid by U.S. consumers. In the United Kingdom in 2000, truck drivers went on strike over rising gas prices. The United Kingdom was a net oil *exporter* at the time, but that didn't protect British truckers from rising world oil prices.[ii] When it comes to the price we pay at the pump, there's simply no such thing as "foreign" oil.

Third, global demand for oil is rising at a breathtaking pace, with no sign of slowing down in the foreseeable future. While American demand has been very high but relatively static for some time, demand in China, India and the rest of the developing world is skyrocketing. According to the Energy Information Administration, America's oil consumption is expected to grow by 11% over the next two decades.[iii] Meanwhile, in that same timespan, China's oil consumption is expected to grow by 80%, and India's by 96%.[iv] It is unrealistic at best to imagine that increasing production can somehow keep up with such dramatically rising demand. Even if it somehow can, there is every reason to believe that OPEC and other producers will stay true to historical form, and keep their own production artificially low in order to profit from higher prices.

The long-term reality is stark: as demand outpaces supply by greater and greater margins, the price of oil will climb ever higher. Without alternatives, we will have no choice but to pay whatever price this ironclad market demands.



Chinese oil and gas demand

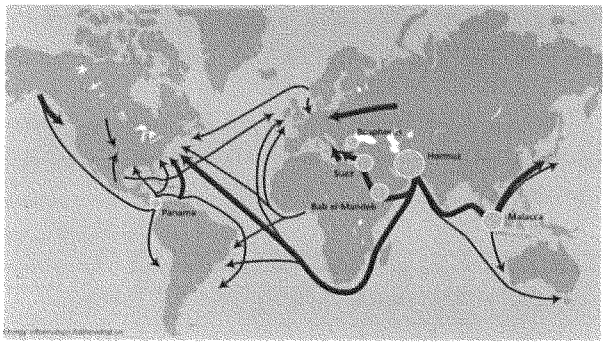


Source: Ernst & Young calculations using data from the International Energy Agency and BP plc.[2]

This is a market with clear winners and losers. The winners, by and large, are non-free market countries with nationalized oil companies, many of whom are openly opposed to the United States. For every $5 rise in the price of a barrel of crude oil, Putin's Russia receives more than $18 billion annually, Chavez's Venezuela an additional $4.9 billion annually, and Ahmadinejad's Iran an additional $7.9 billion annually.[v] Indeed, according to the CIA, over 50% of the Iran's entire budget comes from the oil sector.[vi] As the price of oil climbs, Iran's nuclear program and support for global terrorist organizations are among the biggest winners.

The losers in this game are equally clear. They are the Syrian resistance movement, being gunned down as we speak with bullets supplied by Putin's oil-rich Russia. They are the American Soldiers and Marines who have spent the last decade confronting terrorists in Iraq and Afghanistan armed with Iranian weapons, purchased with oil money. They are everyday Americans, who struggle to pay at the pump even as our nation sends about $1 billion dollars a day overseas for oil.[vii] Small wonder, then, that oil is the single largest contributor to our foreign debt, outpacing even our trade deficit with China. In every case just mentioned, American national security is significantly threatened.

It should be no surprise that the US military spends tremendous time and resources safeguarding global oil supplies. Given the tremendous vulnerabilities in the global oil supply chain, this is no easy task. So great is the effort expended by our military on securing the supply of Middle East oil, a RAND study estimated that removing the mission to defend oil supplies and sea routes from the Persian Gulf to the US would save between 12 and 15 percent of the entire defense budget – over $90 billion dollars annually.[viii]



Of course, even as the military expends tremendous resources defending oil supplies, our forces rely on oil to operate. Even as the dynamics of the global oil market drain American coffers and empower the enemies of democracy and the free market, they also serve to undermine our military's ability to confront those same enemies. Virtually every major weapons system in the US military arsenal relies on oil to operate, from fighter aircraft to ground combat vehicles to the Navy's surface fleet. Without it, even our most advanced fifth-generation fighter aircraft and fearsome main battle tanks are rendered useless.

Recently, Secretary of the Navy Ray Mabus called the Navy's reliance on oil a "strategic vulnerability."[ix] And, in testimony to the Senate Armed Services Committee, he stated, "We all know the reality of a volatile global oil market. Every time the cost of a barrel of oil goes up a dollar, it costs the Department of the Navy $31 million in extra fuel costs. These price bites have to be paid for out of our operational funds. That means that our sailors and Marines are forced to steam less, fly less, and train less."[x]

A $10 dollar increase in the price of a barrel of oil costs the Department of Defense an estimated $1.3 billion—almost equal to the entire procurement budget for the Marine Corps. [xi] In fiscal year 2011 alone, the Department of Defense was left with a $3 billion budget shortfall because of rising fuel prices.

Fortunately, our military leadership has not been idle in the face of this challenge. The U.S. Navy is committed to reducing petroleum use by 50% by 2015, with the goal of 40% of total energy consumption from alternative sources by 2020. In 2010, the Navy conducted the first flight test of the "Green Hornet" – an F/A-18 strike fighter powered by a 50% biofuel blend derived from the Camelina plant. This week, the Navy will evaluate a similar 50% blend under combat conditions during large-scale exercises in the Pacific. Advanced biofuels are performing well in the field, and costs are coming down. In fact, the Deputy Chief of Naval Operations predicts that advanced biofuels will be cost competitive with conventional fuels no later than 2020.[xii]

The military's success with renewable fuels points the way toward a more secure and prosperous future, free from our paralyzing addiction to oil. We must find a way to transition from total dependence on petroleum to a world in which oil plays a major role in our economy, but does not determine our national destiny. Fortunately, similar victories have been won before.

Today, oil is a strategic commodity – its supply dictates the march of armies and the fate of nations. But two centuries ago, the world's top strategic commodity wasn't oil. It was salt. Salt was the world's preeminent way of preserving foods, especially for long voyages. Without salt, Christopher Columbus would not have made it to America. Wars were fought over salt; kingdoms were built on it. And then, salt—the world's key strategic commodity—was out-innovated by an alternative technology: the icebox.

As R. James Woolsey, former Director of Central Intelligence, wrote, "Today, no nation sways history because it has salt mines. Salt is still a useful commodity for a range of purposes...But to most of us there is no 'salt dependence' problem at all — because electricity and refrigeration decisively ended salt's monopoly of meat preservation, and thus its strategic importance. We can and must do the same thing to oil." [xiii]

Some say that government has no role to play in making this possible. But when government sets aggressive—yet attainable—standards for private industry, while providing real incentives for innovation, there's nothing that American businesses can't achieve. That is the real strength of technology-neutral standards, including the recent 54.5 MPG CAFÉ standards embraced by the automotive industry. The Low-Carbon Fuel Standard California has recently enacted is a similar example. There's nothing new or radical about this approach, and it's worked countless times before.

The story of the electronic fuel injector helps drive this point home. In the 1970's and 80's, gas prices were skyrocketing. Congress knew it had to push automakers to produce more fuel-efficient cars, which would save Americans money at the pump and spur innovation for the industry. Congress led the way, raising fuel emissions standards and miles-per-gallon requirements.

In response, the Bendix Corporation, a small manufacturing outfit in South Bend, Indiana, developed the first electronic fuel injector. It was designed to improve upon the carburetor—a troublesome part, to say the least. The fuel injector was much more efficient by comparison; it saved gallons and gallons of fuel, while preserving the car's torque and speed. Bendix began selling the part to Chrysler, and soon after, auto manufacturers around the world were rushing to buy.

By moving from the bulky carburetor to the precise fuel injector, Congress saved people hundreds of millions of dollars at the pump, raised the auto industry's average miles-per-gallon, and put money back in people's pockets by making parts that required fewer repairs.

It's a lesson worth revisiting. Just as foreign competitors were catching up to us, we developed a new technology—kick-started by Congress' incentives—that soon led the world. Today, almost all gasoline passenger cars sold in markets like Europe, Canada and the U.S. have the fuel injection systems. And, because the fuel injector is so precise, most are manufactured here at home. The fuel injector—that tiny piece of metal—sent ripples through the global economy and boosted American manufacturing jobs for decades to come.

We're at that point again. The story of the fuel injector gives us an essential lesson. When Congress leads the way, it can spur American innovation and break our dependence on oil as a single source of fuel. With the technology we have today, the viability of alternative fuels is improving rapidly.

Next week, over 25,000 American sailors and Marines will embark on one of the largest naval wargame simulations ever conducted in the Pacific Ocean. Along with our allies in the region, they will test themselves and their equipment to the breaking point in scenarios ranging from disaster response to full-scale war. The exercise will be an opportunity to test a range of new technologies produced by American companies, including submarine-launched Unmanned Arial Vehicles, "blue laser" underwater communications technology, and the fuel for the exercise itself, a 50/50 biofuel blend based on advanced algae oils and recycled cooking oil. Navy pilots will fly the world's most advanced combat aircraft up to twice the speed of sound, powered by renewable American fuel.

We can and must follow the military's example. The credible debate on oil dependence and national security is over – there is simply no question at this point that single-source dependence threatens our future security and prosperity. It is time for Congress to act, and to lead.

[i] U.S. Energy Information Agency. "United States Analysis Brief." (July, 2010) http://205.254.135.7/countries/country-data.cfm?fips=US&trk=p1#pet

[ii] Report from Brookings. Sandalow, David. "*Ending Oil Dependence: Protecting National Security, the Environment and the Economy*." (February, 2007) http://www.brookings.edu/~/media/research/files/papers/2007/2/28globalenvironment sandalow opp08/pb_energy_sandalow.pdf

[iii] Energy Information Administration, Office of Energy Markets and End Use, "World Petroleum Consumption, Annual Estimates, 1980-2008"

[iv] Ibid.

[v] Powers, Jonathan. "Oil Addiction: Fueling Our Enemies." Truman National Security Project, February 17th, 2010. http://www.trumanproject.org/files/papers/Oil_Addiction_-_Fueling_Our_Enemies_FINAL.pdf

[vi] CIA World Factbook. "Iran." CIA, February 21st, 2012. https://www.cia.gov/library/publications/the-world-factbook/geos/ir.html

[vii] Powers, Jonathan. "Oil Addiction: Fueling Our Enemies." Truman National Security Project, February 17th, 2010. http://www.trumanproject.org/files/papers/Oil_Addiction_-_Fueling_Our_Enemies_FINAL.pdf

[viii] RAND Corporation. "Imported Oil and U.S. National Security." P. 74 (2009)

[ix] "Mabus Defends Navy Alternative Energy Plan." Seapower Magazine. http://www.seapowermagazine.org/sas/stories/20120416-mabus.html

[x] "Remarks by the Honorable Secretary Ray Mabus, Senate Armed Services Committee, March 15th 2012." http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CE0QFjAB&url=http%3A%2F%2Fwww.navy.mil%2Fnavydata%2Fpeople%2Fsecnav%2FMabus%2FTestimony%2FSASC%2520DON%2520Posture%2520Statement%25202012.pdf&ei=S133T5jPEcS36wH1z9XHBg&usg=AFQjCNGROl2bzE6W4HhxDGmKp7bQn3KheQ

[xi] CNA Report on "Powering America's Defense: Energy and the Risks to National Security" (May 2009) http://www.cna.org/documents/PoweringAmericasDefense.pdf

[xii] "Q&A with Rear Adm. Philip Hart Cullom" CHIPS Magazine. http://www.doncio.navy.mil/chips/ArticleDetails.aspx?ID=2475

[xiii] Ibid.

Mr. SULLIVAN. Thank you, Mr. Breen. Next, Ms. Stadler, you are recognized for 5 minutes.

STATEMENT OF FELICE STADLER

Ms. STADLER. Great, thank you. I am here today representing National Wildlife Federation's four million members and supporters who are united by a shared value for clean air and clean water, and for open spaces that are safe havens for wildlife and places where we go to seek solace.

I am here today under the assumption that we all share these values, that we are working together to identify the best course for our country when it comes to the energy choices we make today.

We are at an energy crossroads, and now, more than any other time, is when we need to put politics aside and choose the path that will sustain and grow our economy, protect our local water supplies, and prevent disastrous climate-related weather events from increasing.

I would like to take a minute to share a personal story of what my neighbors and I experienced nearly 1 week ago. I live in Silver Spring, Maryland, and I share a street with elderly residents, local business owners, government employees, with Republicans, Democrats, artists, lawyers, and sportsmen.

I faced the "derecho" storm with a profound sense of fear for my children. I prayed my kids wouldn't wake, that no tree would fall on my house and that any destruction facing me in the morning would be tolerable. We were lucky. Sadly, my elderly neighbor down the street wasn't. She lost her life when the top half of a giant oak tree crashed through her roof. And my neighborhood was not alone.

As we know, the damage we have sustained from weather-related disasters is being felt in communities across the country. Fires in Colorado have destroyed over a thousand homes, already costing taxpayers $40 million to fight. The Poudre River, Colorado's only wild and scenic river outside of Fort Collins, is running black, a toxic mix of ash, debris, and fire retardant. In Florida, extensive flooding occurred last month when Tropical Storm Debbie deluged parts of the State with an astounding 26 inches of rain over a 72-hour period. The heat wave has been lost on no one.

The weather extremes affecting us are exactly the sorts of climate change impacts that scientists have been projecting for years, so here is where we stand at a crossroads. Carbon pollution is changing our climate; and our changing climate is contributing to extreme weather; and in order to slow down this devastating trend, we need to dramatically cut carbon pollution.

This is an urgent matter. We must begin this downward trend by 2020, just 8 years from now, if we are to have at least a 2 to 1 chance of keeping temperatures from rising to the point of dangerous interference with the climate system. Yet, our carbon emissions are still on a decidedly upward trajectory.

Faced with these stark climate-changing realities, the National Wildlife Federation is propelled to ignite a national call to move this country swiftly down an alternate, sustainable, low-carbon fuels and electric generating path.

We are not naíve to think that getting off high-carbon liquid fuels will be an easy task. It will require a major overhaul of our car and truck fleet; a major revamping of our public transit systems; a major investment in sustainable, renewable fuels; and a major shift in our fossil fuels subsidies structure.

The good news is that we are making progress in a few limited areas. Corn ethanol has shown what is possible, but it is not the long term answer to our Nation's energy needs. We need more support to get us to the next generation of biofuels from non-food, perennial crops and wastes, that create significant greenhouse gas reductions and not lead to other major environmental problems.

New fuel economy standards are essential. Recent and proposed fuel economy and greenhouse gas standards for cars, SUVs, and pickups has the potential to cut about 10 percent of total U.S. carbon pollution. In addition, steady expansion of electric vehicle technology can take us even further, to a mass market, high performance vehicle fleet that uses little oil and produces near zero pollution.

Consumers can save money, communities and natural resources will not stand in harm's way of climate-related impacts, and American ingenuity can thrive. But this will only happen if we are bold in our resolve to address the root causes of climate change, the runaway carbon pollution that is generated by our current fossil-intensive fuel mix. This is the energy vision we need.

National Wildlife Federation looks to you for your leadership at this critically important time, and Americans are eager to learn of the solutions path you will lead them down as you exert your authority and power as lawmakers.

Thank you for the opportunity to provide comments on this important matter.

[The prepared statement of Ms. Stadler follows:]

Testimony by Felice Stadler
Director of Dirty Fuels Campaigns, National Wildlife Federation
Before the Subcommittee on Energy and Power hearing titled
"The American Energy Initiative"
July 10, 2012

Thank you for the opportunity today to speak about the energy choices facing our nation, and the impact these choices will have not just for our generation but for my children's and those that follow.

I am here today representing National Wildlife Federation's four million members and supporters who are united by our conservation values that transcend political leanings, business interests, and economic differences. We are united by our shared value for clean air and clean water, and for open spaces (from the local park to the western prairies) that are safe havens for wildlife and places where we go to seek solace.

I am here today under the assumption that we all share these values, that we are working together to identify the best course for our country when it comes to the energy choices we make today that will leave a legacy for decades to come. I am working under the assumption that we want our children to inherit a clean and safe planet. And I am working under the assumption that lawmakers will look at what is in the best interest of the American people, and not the select few who are advancing their corporate interests.

But I am concerned that my assumptions may be naïve.

We are at an energy crossroads, and now, more than any other time, is when we need to put politics aside and choose the path that is the morally correct one, that will sustain and grow our economy, that will protect our local water supplies, and that will prevent disastrous climate-related weather events from increasing.

I would like to take a minute to share a personal story of what my neighbors, friends, and family experienced nearly one week ago. I live in Silver Spring, Maryland, and I share a street with elderly residents, immigrants, local business owners, government employees, with Republicans, Democrats, artists, lawyers, and fishermen.

I faced the "derecho" storm with a profound sense of fear for my children. I prayed my kids wouldn't wake, that no tree would fall on my house and that any destruction facing me in the morning would be tolerable. We were lucky. Sadly, my elderly neighbor down the street wasn't. She lost her life when the top half of a giant oak tree crashed through her roof. Police tape, camera crews, and emergency vehicles stood in stark contrast to Pepco's orange tree-removal trucks that dotted the destroyed neighborhood streets.

Remember, 'Thundersnow' from January 2011, when in record time ice and wet snow coated our streets, homes, and trees, shutting down the city?[i] Or Snowmaggedon from winter 2009-2010, when our region got nearly 55 inches of snow over a 3-month period?[ii] Or 2011's Tropical Storm Lee that flooded a good portion of the East Coast, including Fairfax County, VA which sustained as much as $10 million in damages to roads and bridges?[iii] Are these just isolated freak weather events, or a premonition of what the future may hold? Climate scientists and meteorologists are suggesting the latter.

As we know, the damage we've sustained from weather-related disasters is being felt in communities across the country. Fires in Colorado have destroyed over a thousand homes and displaced families, already costing taxpayers $40 million to fight;[iv] and destroying the fragile ecosystem as well. The Poudre River, for example—Colorado's only wild and scenic river outside of Fort Collins—is running black, a toxic mix of ash, debris, and fire retardant.[v]

In Florida, extensive flooding occurred last month when Tropical Storm Debbie deluged parts of the state with an astounding 26 inches of rain over a 72-hour period.[vi]

And remember previous year's weather-related events? The major flooding in the Northeastern US from back-to-back storms?[vii] Or the record-setting heat, drought, and wildfires across Texas?[viii]

The weather extremes affecting the United States and the world are exactly the sorts of climate change impacts that scientists have been projecting for years. And, today, the scientific analysis is proving that climate change is indeed causing more extremes. For example, a recent study by NASA scientist Jim Hansen and colleagues found that the area of the globe experiencing extremely hot summertime temperatures has increased by a factor of 50 and that recent extreme heat waves are very unlikely to have happened in the absence of climate change.[ix]

40,000 heat records have already been broken this year across the United States, according to the National Oceanic and Atmospheric Administration.

As of July 3rd, 56.0% of the contiguous U.S. experienced drought conditions, marking the largest percentage of the nation experiencing drought conditions in the 12-year record of the U.S. Drought Monitor.[x]

And while parts of the country are cooking, others are flooding. Iowa, for example, has had four "100-year" flood events in the past 5 years.[xi]

So, here is where we stand at a crossroads: Carbon pollution is changing our climate; and our changing climate is contributing to extreme weather; and in order to slow down this devastating trend, we need to dramatically cut carbon pollution.

This is an urgent matter. We must begin this downward trend by 2020—just eight years from now—if we are to have at least a 2:1 chance of keeping temperatures from rising more than 2 degrees C, the level that scientists and the global community have established as the point of dangerous interference with the climate system.

Yet, our carbon emissions are still on a decidedly upward trajectory. Since 2000, CO_2 emissions derived from human sources have been growing

4 times faster than in the 1990s and are now above the worst case emission scenario of the Intergovernmental Panel on Climate Change.

Faced with these stark climate-changing realities, the National Wildlife Federation is propelled to ignite a national call to move this country, swiftly down an alternate, sustainable, low-carbon fuels path.

Coal to liquids wouldn't be on this path—From well to wheel, CO2 emissions from coal-derived fuel is twice as high as conventional petroleum-derived fuel.

Canadian tar sands wouldn't be on this path—Producing oil from tar sands emits 2-3 times the carbon pollution of conventional oil.

Western oil shale wouldn't be on this path—While still in the R&D phase, it is estimated that retorting oil shale will emit up to two times more greenhouse gas emissions than that from conventionally produced gasoline.[xii]

We're not naïve to think that getting off high-carbon liquid fuels (including conventional oil and gas) will be an easy task—it will require a major overhaul of our car and truck fleet; it will require a major revamping of our public transit systems; it will require a major investment in sustainable, renewable fuels; it will require a major shift in our subsidies structure—to level the playing field between the oil and gas giants and the companies trying to get efficient, renewable technologies into the marketplace.

The good news is that we're making progress.

Corn ethanol has shown what is possible, but it is not the long term answer to our nation's energy needs. We need more support to get us to the next generation of biofuels from non-food, perennial crops and wastes, that create significant greenhouse gas reductions and not lead to other major environmental problems.

New fuel economy standards are essential. Taken together, recent and proposed fuel economy and GHG standards for cars, SUV's, and

pickups, make landmark cuts in carbon pollution: Over 650 million metric tons a year in 2030, about 10% of total US carbon pollution today. The standards – and the renaissance in auto innovation that is coming with them - will also cut our demand for oil by more than we import today from the Persian Gulf, Venezuela and Russia combined.

In addition, steady expansion of electric vehicle technology can take us even further—to a mass market, high performance vehicle fleet that uses little oil and produces near zero pollution.

Deep cuts in the oil we need means less pressure for risky new drilling projects in the Arctic or for clearcutting critical forests in Canada to mine for tar sands oil. It means less need for new pipelines, fewer leaks and threats to people, wildlife, our nation's streams, rivers, and aquifers, and our public and private lands.

Consumers can save money, communities and natural resources will not stand in harm's way of climate-related impacts, and American ingenuity can thrive. But this will only happen if we are bold in our resolve to address the root causes of climate change—the runaway carbon pollution that is generated by our current fossil-intensive fuel mix.

This is the energy vision we need, one that is driven by a determination to address the climate crisis head-on.

National Wildlife Federation looks to you for your leadership at this critically important time, when so many Americans across the country are trying to make sense of what is contributing to these weather extremes; and are eager to learn of the solutions path you will lead them down as you exert your authority and power as lawmakers.

Thank you for the opportunity to provide comments on this important matter.

[i] http://www.washingtonpost.com/wp-dyn/content/article/2011/01/26/AR2011012608076.html
[ii] http://planetsave.com/2012/02/12/nasa-asks-what-caused-snowmaggedon/
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Mr. SULLIVAN. Thanks, Ms. Stadler.

Now we will move to the question period, and I will recognize myself for 5 minutes.

Mr. Petrowski, the first one is to you. What are the costs to gas station owners of complying with the RFS? Do you expect those costs to increase in the years ahead, and if so, why? What other current or proposed regulations pose challenges for you? What is the impact of the RFS and other regulations on your customers?

Mr. PETROWSKI. Well right now, the main threat we face on the RFS is, as was mentioned, when we mandate the use of a fuel that doesn't exist. We have to go out and purchase RINs. That adds to the cost of gasoline. Ethanol, which has spent most of this year actually below the price of gasoline, has not added a lot of costs this year. Ethanol has been blended in and accepted by our customers. Our customers are very, very price sensitive. I mean, that is one thing that you know in the retail business. A 2 to 3 cent differential between gas stations will cause huge shifts in demand.

What I am worried about going forward, in addition to higher blends than are mandated, our liability of our equipment, our dispensers, private action lawsuits that are all addressed by House Bill 4345, and I worry right now currently the drought that we are experiencing in the Midwest, ethanol has gone up 40 to 45 cents in the last 2 months and we may reach a situation this summer where ethanol is a significant premium to gasoline, and that will add to the cost of the finished product. We have a price-resistant and price sensitive customer.

Mr. SULLIVAN. Thank you. Mr. Gerard, from a refiner's perspective, what are the problems created by the blend wall? If E15 must be used, what legal risks do refiners face? Is there any way under existing law to avoid the blend wall? What do you feel you need in order to address the challenges posed by the blend wall?

Mr. GERARD. There are a lot of answers to that, Vice Chairman Sullivan, but let me just address it generally, if I can.

First as to the blend wall, we have come to the blend wall much quicker than anticipated. Back when the RFS was first enacted, though I was not part of that debate, I think it was expected in 2018, 2019, et cetera is when we had come to that point of addressing it. What has happened today, if we go beyond the blend wall, then we are pushed into other fuel blends like E15. As I mentioned in my testimony earlier, recent research we have done with the auto industry shows that E15 has impacts on engine durability. The engines that we test with the auto shows that as many as five million of our existing vehicles would not be able to operate or would have adverse impacts.

So there is issues associated with moving beyond the E10 blend wall, as mandated by the RFS. That is why we believe it is critically important to come back and address that issue by opening it up.

Looking at the other questions Mr. Petrowski talked about, such as cellulosic, our guys are major investors in alternative renewable forms of energy. In many ways, we lead the country in investing these energies. But we have got to be realistic about what it does, particularly to the consumer. When you talk about impacts on local service stations, convenience stores, impacts on autos, not to men-

tion small utilities, boats, chainsaws—the list goes on—we think we have got to step back and address that and make sure we are thoughtful, because at the end of the day, if we impact the consumer adversely unintentionally, we are going to discourage the very use of the fuels that we are trying to promote. So we think it is a serious issue that needs to be looked at. RFS should be reopened to adjust for the reality of what the marketplace shows.

Mr. SULLIVAN. Also, Mr. Gerard, what is the potential for increased E85 use, and why has it not caught on so far?

Mr. GERARD. Well I think it really goes back to consumer choice. As I understand it, it is about 4 percent of the vehicles today that are E85 compatible or flex fuel vehicles. Less than 2 percent of our service stations around the country can provide it, and even flex fuel vehicle owners and users use it less than 1 percent of the time.

So once again, it is a consumer question. If you make it available out there and the consumer chooses not to buy it for whatever reason, we need to be sensitive about that. We need to make sure the policy is done in a way that we don't get the rejection from the very people we are trying to convince to new, better forms of energy, other forms of fuels.

Mr. SULLIVAN. Thank you, Mr. Gerard.

Mr. Tanton, the President has officially—occasionally pointed to California energy and environmental policies as a model for the Nation. Do you agree with him?

Mr. TANTON. No, I don't. I mean, people often point to Hollywood models, but you know, we suffer from the Charlie Sheen phenomenon. We have very many self-inflicted wounds.

We often hear during campaign season that we need to run government more like business. In 40 years in California, I have finally figured out what business we are in. We are in the business of building stranded assets. We had a large corn-to-ethanol facility. It went belly up. It is now just coming back online, but what happens often in policy is we try to pick the technology du jour, and tomorrow it is another technology. We need to focus on constantly improving productivity, which is what got this Nation to be the wealthiest nation on earth. We need to practice our policy—focus our policies on principles and process, not picking technologies.

Mr. SULLIVAN. Thank you so much. Next I recognize Congressman Rush for 5 minutes.

Mr. RUSH. I want to thank you, Mr. Chairman. Mr. Chairman, I have a question I am going to ask both Mr. Dinneen and Mr. McAdams to address. Under the Energy Security and Independence Act, which passed out on the floor for many in 2007, contained the RFS as a role of reaching 36 million gallons of renewable fuels by the year 2022.

I want to ask each of these fine gentlemen, are we currently on pace to meet that goal, and if not, what additional steps are needed in order to make sure that we are on pace to meet those objectives? And what are some of the broader benefits to our economy that Renewable Fuel Standard would bring? What would be the standard—what would the standard have—the effects of the standard on future gas prices? What type of an impact would meeting the goals of the Renewable Fuel Standard have on jobs here in America? So first, Mr. Dinneen, and then Mr. McAdams.

Mr. DINNEEN. Congressman, thank you for that question and the opportunity to respond. Look, I have been in this business for 25 years, so I am the eternal optimist. I do believe that the 2022 target of 36 billion gallons can be met, but it needs to have some policy certainty to it. As Mr. McAdams noted, the uncertainty created about the RFS or the uncertainty with respect to tax incentives is going to have a big role in determining whether or not those targets are met in the out years. Clearly we are not meeting them early on, but that really is a function of an economic collapse in '08 and the consequent freeze on financing that occurred.

But I have been to half a dozen plants producing cellulosic ethanol today from a variety of feedstocks. It really is not a technological question, it has been how do you encourage the financing to be given. It is happening today. Once the ethanol industry is allowed to continue to grow and evolve, as I believe that it can and it will, you are going to see tremendous economic and energy benefits beyond what you have today.

I am real proud of the ethanol industry today. It is an industry that is responsible for some 400,000 jobs. It is an industry that last year added $53 billion to our gross domestic product. It is an industry that displaced the 477 million barrels of oil last year. It is a tremendously successful industry as it is. Those benefits will just expand further if the ethanol industry is allowed to continue to evolve.

Mr. MCADAMS. Let me just echo what Mr. Dinneen said. I represent more of the second and third generation parties, and so I want to correct one myth. There is only one pool that has been short of—yes, I have it on. There is only one pool that has been short in terms of hitting the targets, and that is the cellulosic pool. So let me take Mr. Gerard's comment on about that pool.

So what the EPA has under your vision, when you wrote the statute you allowed EPA to have flexibility to waive if the pool was short. So you waived—the EPA waived over 95 percent of the statutory mandate for the cellulosic pool. And so what we are dealing with is less than 5 percent of the pool that was kept in place. If you waived it back in, then you have completely removed any certainty of the market to finance the building of any plant that will build the fuel.

So that is why we have a dispute about it, and I would—with Jack, thoughtfully—about you can't give it—you can't give away 95 percent of the statute up front and then give away the last 5 percent in the back or no one will believe that they need to finance the building of these plants. The financing of the building of these second generation plants is the big deal.

Jobs, here is a neat idea. All over the southeast, all over the west, there are different feedstocks that will be available for these new advanced technologies. Woods, different types of trees that grow oil, different types of grasses, an enormous amount of biomass that will be used in these different types of platforms. They create new jobs. They create new farm opportunities. Many of these feedstocks are grown on lands that couldn't sustain row crops, so they have no other use but to grow, for instance, maybe a pine tree. Now you can grow giant Miscanthus or something else.

So you see not only on the technological deployment side an opportunity, you also see on the rural development side an opportunity with the advent of these new fuels. Thank you for the question.

Mr. GERARD. Mr. Rush, could I respond to that?

Mr. RUSH. Certainly.

Mr. GERARD. Thank you. Let me just add a little nuance to what Mr. McAdams said, and generally we are in sync on these as we work on these important alternative fuels. The—cellulosic, it has not met its target. We agree on that. The EPA did waive the 95 percent of it. The problem is there is 5 percent they didn't waive. It cost the industry $15 million, merely because EPA set a fictitious number out there. We sought a waiver after it was already determined that there was no cellulosic produced that year to meet the requirement of the RFS, and we were just ignored and they said sorry, we decline your waiver.

So what has happened under the law is you have given EPA almost a taxing authority. EPA could have mandated the $500 million under that—500 million barrels under the statute and put a very significant tax on the oil and gas industry because of that, or the obligated party.

So that is where we think we need to open this up and take a close look at it. We are not trying to discourage what is trying to be accomplished in a broader energy policy here. Where we take great issue is when a statute mandates essentially a fan of fuel, and then you have the EPA, supposedly Environmental Protection Agency, that has almost unfettered discretion to decide how much they are going to charge the obligated parties each year. It is absurd. It is outrageous. It is bad public policy. That is what we are trying to address, not to discourage the advanced biofuels. We understand that. Again, our industry are major investors in a lot of those, as I think most on the panel here know.

Mr. SULLIVAN. Thank you, Mr. Rush. Next, Mr. Shimkus, you are recognized for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman, and again, to the panel. I appreciate your coming in. I wish I had 5 minutes for each one of you. I am sure our visitors wouldn't like that, but I sure would.

Let me go first to Mr. Petrowski. You know, EPA has approved the E15 for sale, so what are your hurdles?

Mr. PETROWSKI. We need some liability protection.

Mr. SHIMKUS. What do you mean by that?

Mr. PETROWSKI. A private action—if a customer comes in, even though the EPA has deemed E15 usable, and he puts it in his vehicle that does not warranty anything above E10, we do not want to be held responsible for that private action. It is—if we have a dispenser or an underground tank, we need to have the manufacturer and our insurance certificate warranty that it is OK to have E15 in there. We don't want to be excused from handling fuel properly and from things that we do that are our fault, but we don't want to try to comply in putting E15 in our equipment and then be held liable for that later.

Mr. SHIMKUS. What about E85?

Mr. PETROWSKI. We have 70 E85 stations within the Gulf-Cumberland network. Special equipment was used——

Mr. SHIMKUS. And let me interrupt. In my congressional district I have—I can travel throughout my now—my 30 county area and always fill up at an E85 location anywhere in my congressional—but it is primarily the independent marketers. Why is that? Do you have any idea why it is more the independents than——

Mr. PETROWSKI. I really don't—again, the retailer cares to sell the most volume he can and get his customer to come in, especially coming into our stores. And do remember, 85 percent of the gas stations in the United States are owned by independents and major oil is down to 10 to 15 percent. We had a very successful E85 program when it was priced accordingly. As the price spread between conventional gasoline or RFG 10 percent blend and E85 now, we lost demand for the E85. It is simply a matter of price.

Mr. SHIMKUS. Great, thank you.

Let me—can I ask to put now—giving credit to Bungee, we are going to put up a slide, a picture of a kernel of corn, and I do this because a lot of times the debate on food fuel or anything else, or cellulosic, people don't really understand what occurs with a kernel and they think well, the whole thing goes.

So first I would like Mr. Dinneen to talk about the component parts of a kernel, and then Mr. McAdams, I will segue to you really talking about next generation cellulosic, based upon a National Research Center, you know, announcement about a month ago.

Mr. Dinneen?

Mr. DINNEEN. Well not being a farmer myself, the corn kernel is not necessarily my wheel house, but I will tell you, in the production of ethanol, we are just using the starch component of that corn kernel, and what is left behind is a very high protein, high fiber, high mineral content feed product that then goes to cattle and poultry markets across this country.

Mr. SHIMKUS. So it is called distillers dry grains after the processing of the kernel, and distillers dry grains is really a major component in feed products for livestock. And I do this for my colleagues and friends who are concerned about the corn—the food fuel debate on livestock. The distillers dry grains is a commodity product sold after the refinery process, is that correct?

Mr. DINNEEN. Yes. In fact, last year, the ethanol industry produced some 36 million metric tons of distillers dry grains that was then fed across the country, and to put that in context, 36 million metric tons is enough feed to feed every cattle fed on a feed lot in this country.

Mr. SHIMKUS. Well, and I would also say that we have—we produce so much distillers dry grains that we are exporting distillers dry grains to other countries throughout the world, China, in particular, in their feedstock, so again, addressing the food fuel debate.

Mr. McAdams, we talk about cellulosic, and I am not sure you followed the National Corn to Ethanol Research announcement where they talked about research demonstrated proof of the viability of generation 2.0 ethanol, and it is basically from the bran portion of the kernel, and that is why we have the kernel up there.

Mr. MCADAMS. Well you also can use this stock in the——

Mr. SHIMKUS. Pull that microphone closer. I think that——

Mr. MCADAMS. You can also use this stock in the leaves. So when you are looking at cellulosic technologies, you have different types. Thermal chemical, which is gasification at different degrees, can use a range of different feedstocks. Prevalent in the southeast, for instance, in the woody biomass, woodchips, so you have a company like Sun Drop, I see you have Louisiana members here, that is going to build a 50 million gallon facility in Louisiana using wood chips and rice hulls, and they are going to turn it into synthetic gasoline with an MGA Exelon technology, again, to the partnership that Jack was talking about across the range.

You have Enios using grasses, you have other people with synthetic biology now that can take cellulosic sugars, that is, extracting say, 40 or 50 percent of the sugar out of various compounds, either grasses or woods. Now you use bacteria, you modify the DNA bacteria and the bacteria literally spits out an oil, a gasoline, a jet fuel, exactly as if it came out of the barrel oil through a refinery. It is amazing technology that is coming——

Mr. SHIMKUS. Thank you very much. Thank you, Mr. Chairman.

Mr. SULLIVAN. Thank you, Mr. Shimkus. Next, Congressman Green from Texas, you are recognized for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman.

Mr. McAdams's and Mr. Dinneen's testimony that he thinks that the RIN fraud situation is being overblown, but I am hearing that this is a real problem that the industry groups affected parties are working hard to solve this issue. First, do you agree with Mr. Dinneen on this overblown—that it is overblown?

Mr. MCADAMS. I can understand—honestly, I can understand why Bob feels that. Ethanol does not have the same issue as the D–4 RIN pool. I can tell you, I have six members that effectively shut down in November when EPA announced the fraud that took place in Maryland and Texas. They completely shut down. Why? They are small operators. They make what is called a D–4 RIN credit, which is the biomass-based diesel pool, and for them to sustain their operations, they had to be able to sell the RIN credits. They went through—not to get too detailed, but they went through a RIN separation process. That created an issue with respect to whether the major oil companies felt safe with their RINs, given the fact that they got stuck for $60 million, so we are, as Mr. Gerard said, we are working very closely with EPA and API to try to range the risk of the various opportunities, the various buckets of RINs, so that we can have a more reliable system and stand the OFS up so that you have surety and liquidity in the marketplace.

Mr. GERARD. So Congressman, I would be glad to put a little context around that comment, if you would like.

Mr. GREEN. Well let me finish with my question, though. Do you take those RIN frauds seriously then, it sounds like?

Mr. GERARD. I think all of us in the biofuels industry do not want to have fraud in our market, and so yes, we do take it seriously. And so the issue here is how do you de-risk the current market.

Mr. GREEN. Well, again, you know, I know you are trying to work on it, but we haven't had much success on our subcommittee with EPA wanting to step up to the table. Hopefully they are.

Bob, I know you wanted to get in.

Mr. DINNEEN. I appreciate that. Look, all I was trying to point out is we have had 29 billion RINs that have been issued, and 140 million of those, all D–4 RINs, have been found or alleged to be fraudulent. The lion's share of this program are D–6 RINs, ethanol RINs, and there has not been any suggestion of an issue with those RINs. So you are talking about half of 1 percent that deserves a serious response, and the RFA is indeed working with the API and others to identify an appropriate response. But I think the response needs to be focused on where the problem is, and people ought not get too disturbed about the integrity of the whole program, because I think the whole program has——

Mr. GREEN. Let me get Mr. Gerard to respond to that.

Mr. GERARD. Let me just very briefly respond, and I appreciate what Bob is saying. However, back to what Mr. McAdams said, these RINs are in buckets. When you look at the bucket on the biodiesel area where we found the fraud, it is 5 to 12 percent of the market. That is a serious problem, as those who buy the RINs and then EPA turns around and says well gee, you bought a fraudulent RIN, so go buy another one. So we have come back to the EPA and say let us create a process here where we can certify a mechanism to make sure we are not promoting or allowing fraud in the RIN process. It is that simple, but it is a serious issue. Five to 12 percent of the market in the biodiesel area has been determined or estimated to be fraudulent. That is a problem for those of us buying the RINs.

Mr. GREEN. So are you—is API and Mr. McAdams and the renewable fuels folks actually working with EPA, and what is the response from EPA?

Mr. GERARD. Well Mr. McAdams and I are working together. I think today Bob and company haven't really thought it was their issue because in their space, in their bucket of RINs, there doesn't appear to be a problem, not yet. We hope there never is. We are working with the EPA. They have been slow to respond with solutions, but in combination with the White House and EPA, we are hopeful we can get a resolution by the end of the calendar year, so going in to 2013. We have got certainty in the program because you can appreciate, those buying the RINs will look to those we have got most confidence in, and that discourages some of the smaller plants and others that are trying to get into the market.

Mr. MCADAMS. Let me drive that home, just real quickly. Let me put money on the table.

So in the D–4 RIN pool, the D–4 RIN credit today is $1.20. For a small producer, $1.20 represents this whole margin. That is his cash flow in his business. If Mr. Gerard's numbers don't believe the D–4 RIN pool is valid and that there is more fraud in it and my guys can't sell that $1.20 RIN, they can't operate. And that is why we have to have quality assurance in the D–4 pool.

Mr. GREEN. And that is a concern that I have, because that $60 million, believe me, the folks at the pump paid for that, and so that is just an additional adding to our gasoline costs.

Mr. Chairman, I know I am out. I wish I had more time for Mr. Dinneen because I have a line of questions, so I don't know if we will have time to do a second round, but thank you.

Mr. SULLIVAN. Thank you, Congressman Green. Next we recognize Congressman Burgess from Texas for 5 minutes.

Mr. BURGESS. Thank the chair for the recognition.

On the RIN issue—and I wasn't going to devote any time to this, but we are having a subcommittee hearing in Oversight and Investigations on this issue. I have several small producers in my district in Texas who were, in fact, harmed very badly by this and their margin was cut to the point where they are likely out of business, and there is a significant dollar involvement that they will be looked to to make good on, and it is rather startling to think that we set up a program that had all of the good aspects of retailing of—securities and product of the energy market, and probably an object lesson for all of us. But I would just—an open invitation, if any of you have things that you would like to share with my office, we are going to be looking into this in detail during the Oversight and Investigations Subcommittee that will probably be in this very room.

Mr. Gerard, I wanted to ask you a question on the—you know, I do travel some and travel by automobile, and when I go out of the Dallas/Ft. Worth immediate metroplex area, of course, we are under some air quality considerations where ethanol blends are mandated in our fuels that we sell over the summer, but sometimes when you get out to east Texas or even a State like Oklahoma or Arkansas, there will be a gas station that will put a big placard up that says no ethanol in my gas. And I always rejoice when I find those stations, because I am going to get extra miles per gallon out of my little Prius when I fill up. But is that day coming to an end where those retailers are going to be able to have ethanol-free gas? Your comments that under the current mandates that that 10 percent volume will have to be in every gallon of gas that is sold, and what did you say, by 2020 there will have to be a 20 percent volume?

Mr. GERARD. Well, if you look at the mandates in the Renewable Fuel Standard, it could grow to essentially—and this is projection—an E20 standard. And what I mean by that, when you get to the 36 billion gallons that were talked about by 2022 in the current construct, that is about where it is projected to go. In fact, some people believe it will go higher than that.

So the more you mandate that, the less likely you are to find pure, conventional gasoline. I imagine there will be some creative folks out there, and Mr. Petrowski has probably seen some of them in the industry, who may try to avoid some of that or to offer it as an alternative, but at the end of the day, the more you mandate, the less likely it is you will see some without a blend, without fuel mix.

Mr. BURGESS. And of course, it is troubling as a consumer but also, I mean, I guess because of the—of 10 percent ethanol I spend a lot of time at my lawn mower repair shop, Lowery's Motors, in Lewisville, Texas, and he said that the ethanol in gasoline had been very good for the lawn mower repair business or the small engine repair business, because he gets a lot of business. Is that observation accurate?

Mr. GERARD. Very much so. In fact, particularly in the small business area, motor boats and others, I noticed just the other day

on a boat system around the gas cap, you know, nothing beyond E10. Toyota and the other individual companies now will tell you that it is unlikely they will warranty anything that goes beyond E10, and there are actually gas caps on their automobiles this year that do that.

So it is a serious issue. The warranty question is a serious question, and perhaps more so even in the small engines, to your point, the lawn mowers, the other engines. And that is why we believe you have got to go back and look at these questions. Let us be thoughtful about energy policy. We need all of the above, but we don't need to mandate and push something that creates problems for consumers that could cost them hundreds of millions of dollars.

Mr. DINNEEN. I am sorry, if I could just add here——

Mr. BURGESS. Well no, because I have an——

Mr. DINNEEN. Just to corroborate an interesting point though——

Mr. BURGESS. Let me just—I will give you a chance to follow up, but just a moment. In the last Congress, we should have had a hearing on this and we didn't. What we had was a briefing. We had a briefing down in the committee room, but the difference between a briefing and a hearing is there was no record. C–SPAN wasn't on and some very good questions were asked about what was the testing that went into the E15 regarding older engines and smaller engines. And it really was a series of finger pointing by the Environmental Protection Agency and Department of Energy. We had asked who is in charge here and it was this sort of activity. That is why I am so grateful we are having this hearing today. We should have had one in the last Congress before we got so far down the road on this. But we are putting people's investments at risk, certainly the retail gas outlets are going to be under some difficulty from liability concerns, and we have a responsibility to do this correctly. Unfortunately, in the last Congress we found it necessary not to.

I also just need to point out, Mr. Tanton, I hope you gave us the upbeat version of your testimony? Is that right?

Mr. TANTON. Staying in California requires that one is an eternal optimist.

Mr. BURGESS. Well, in a joint Economic Committee hearing that we had here just before the break, the green jobs phenomenon was looked to actually cost jobs. Is that something that you have experienced in your State as well?

Mr. TANTON. Yes, and you are referring to the studies out of Spain, Italy, Denmark——

Mr. BURGESS. Right.

Mr. TANTON [continuing]. Germany? Yes.

Mr. BURGESS. One green job equals three lost regular jobs.

Mr. TANTON. Yes, we haven't enumerized it yet, but it is not a positive.

Mr. BURGESS. All right, thank you.

Mr. SULLIVAN. Go ahead for a second.

Mr. DINNEEN. Thank you, Mr. Vice Chairman.

Congressman, your points are all well-taken, of course, but you had teed up that question—that series of questions to Mr. Gerard suggesting that your own lawn mower was having difficulties with

E10. I just wanted to point out that all small engine manufacturers warranty up to E10, and Mr. Gerard's answer indicated that above E10 might be an issue, and that could be true. I agree with you that there probably should have been a hearing to discuss the testing that had been done before E15 was approved, because I think the record would have shown that there was an exhaustive amount of testing. The Department of Energy and EPA did more than 100 vehicles, more than 6 million miles, 12 trips to the Moon and back, testing on E15. They did not do testing on older vehicles or small engines, older vehicles in part because it is difficult to test for the full life of a vehicle on vehicles that have already been beyond their full useful life.

And so in an abundance of caution, EPA did not approve the use of E15 in those older vehicles or for small engines. We support that action. We do think that there was enough on the record to demonstrate that older vehicles would not have seen a problem as well, but again, in an abundance of caution, EPA has limited E15 so that those engines for which it is not appropriate would not be able to use it.

Mr. BURGESS. So the retailer is going to have to rush out and say no, no, you can't fill your 2000 year automobile with this tank because you need to use the tank around the corner? I mean, this was the problem. We had that—we had a briefing and not a hearing. There is no record. I promise you, that was a series of finger pointing.

Mr. Chairman, I thank you for your indulgence. I am going to yield back, but it was not the proper way to go about this. We have an obligation to people to do this correctly. I yield back.

Mr. SULLIVAN. Mr. Gerard?

Mr. GERARD. I will be very brief, Mr. Vice Chairman. My apologies. I just can't let that entirely stand. I am not sure how long the research went that EPA did to the Moon and back. I will tell you it was very limited research and it was conducted on the basis of catalytic converters. It wasn't engine durability. We, in combination with the auto industry, with DOE and with EPA, were doing a comprehensive analysis on engine durability. We told the EPA, let us wait until we get our research done. Let us look at this before we make a final decision. They rushed ahead. Our research now shows that two of those engines essentially failed of the eight we tested, and puts at risk five million autos in the current fleet as a result of the E15 decision. That is what the actual research shows on engine durability.

So we believe, again, we should have more research. We have been doing this in collaboration with DOE and EPA, and we shouldn't rush into these issues. That is why we got to take a look at the RFS.

Mr. DINNEEN. But one of those engines also failed on E0, so it suggests that there maybe is an issue with the vehicle technology, not the fuel——

Mr. SULLIVAN. OK.

Mr. DINNEEN. And one of the failures was about a component of the vehicle that was under recall——

Mr. SULLIVAN. We have got to move on.

Mr. GERARD. So let us suggest we need more research, Mr. Vice Chairman, and I think we agree on that as opposed to rushing head on into policy decisions without careful consideration.

Mr. SULLIVAN. Thank you, sir.

Mr. Gonzalez, you are recognized for 5 minutes.

Mr. GONZALEZ. Thank you very much, Mr. Chairman. I am going to ask each of the witnesses for a yes or no answer. I would appreciate if you would give me a yes or no answer. It goes directly—it ties right in to what my colleague from Texas was pointing out about E15 and the mandate of increasing ethanol blends.

This question is going to be predicated on two points. One is fact and the other is just an assumption in worst case scenario, but the fact would be that the following manufacturers will not warrant their vehicles if you exceed E10: Chrysler, Ford, General Motors, Mercedes Benz, Honda, Mazda, Toyota, Nissan, Volkswagen, Volvo, BMW, Hyundai, Kia. I don't know who that—I don't know, I guess that leaves out Ferrari, Maserati, Lamborghini, but I assure you, they probably would not warrant their engines either.

The second—that is fact, unless it has been updated and they have reversed their positions. I don't think that is going to happen. The other is the assumption is that EPA was just wrong and Mr. Gerard was right. They didn't conduct the research as they should have to arrive at that particular conclusion and mandate.

Do you believe that it would be proper for Congress—now we are talking judiciary, but we will work with judiciary—to pass a law that would immunize the producer, the supplier, and the retailer of E15 from liability by the consumer? Just a yes or no, is that a good thing for Congress to do?

Mr. PETROWSKI. Yes.

Mr. GERARD. Yes.

Mr. DINNEEN. Yes.

Mr. TANTON. No.

Mr. BAJURA. No.

Mr. MCADAMS. No.

Mr. BREEN. I don't know.

Ms. STADLER. I don't think that is going to make sense.

Mr. GONZALEZ. All right. Does it make sense for Congress to pass a law that will allow the consumer who, in fact, suffers some damage as a result of a miscalculation or inappropriate testing by the Federal Government that requires a mandate for the supplier to supply, the retailer to obviously make available, something they put in their gas tank that destroys their engine, should that consumer have a remedy against the Federal Government to make them whole again? Yes or no.

Mr. PETROWSKI. Yes.

Mr. GERARD. If you are going to mandate the fuel, the government should take responsibility. They are the mandater of the fuel.

Mr. DINNEEN. Yes.

Mr. TANTON. I got to think about it more.

Mr. BAJURA. Yes, but more importantly, every November.

Mr. MCADAMS. I don't think that is a proper role.

Mr. BREEN. Yes, I have to think about it.

Ms. STADLER. Yes, I am going to pass.

Mr. GONZALEZ. If you think this—I mean, from the point of our constituents, your customers, come on. They have to put something in their engines that is mandated by someone out there in authority, and then everyone escapes liability. I believe liability instills accountability. It is called human nature, and if we don't have that, then EPA or even the private sector can do whatever they want without any consequence. And that is what we are seeing today.

I am a supporter of what EPA does most of the time. In this particular case, they did move quickly, prematurely. If I have the manufacturers of these vehicles telling you they are not going to warrant this, how is it fair for us to impose that kind of consequence on the consumer? We are all concerned about the producers, we are all concerned about the suppliers and the retailers. Is anyone talking about the consumer? Why wouldn't all of you say look, if the Federal Government is requiring you to do something, you shouldn't be held liable for any unintended consequence? Why aren't all of you all saying to the American people that if we force something on you and you have no choice but to use it, and it basically destroys your only means of transportation, someone should be held liable. Believe it or not, that is the basis of our American jurisprudence, is liability, believe it or not. It instills responsibility and accountability. That is what has been missing.

Now I am going to tell you, we do have a piece of legislation out there when it comes to the producers, suppliers, retailers, and so on. Mr. Green and I have a piece of legislation out there that views it from the consumers' viewpoint and will allow them a remedy. I do think all of us need to be acting, you know, going in that particular direction so that we move forward, and I know that we are going to have conflicts among many of you as to what is the proper blend and such, but at a minimum, we should be looking at this incredibly important question.

Thank you for your testimony today, and I yield back, Mr. Chairman.

Mr. GREEN. If the gentleman would yield just 1 second?

Mr. GONZALEZ. I think I have got a second.

Mr. GREEN. I know our committee passed a bill that would not provide it, but the bill you and I have that would actually follow up just like we did on vaccines that the Federal Government mandates, we take the responsibility, why wouldn't we do that though on my 2002 Blazer I like to drive at home. So thank you.

Mr. SULLIVAN. Mr. Olson, you are recognized for 5 minutes.

Mr. OLSON. I thank the chairman, and good morning to the witnesses. Hope you all had a happy 4th of July.

Before I start with my questions, I just want to be sure we all have the facts, because every one of us is entitled to an opinion, but none of us are entitled to their own facts. Here are the facts about the American energy future.

Our Nation thrives because we have cheap, reliable sources of energy, American fossil fuel energy. We will be a fossil fuel Nation for at least the next 25 years minimum. We have limited abilities to recover the oil and gas we have in our country. Now for most of the past century, we only got about 25 percent of the oil and gas out of the ground that we knew was down there, but we didn't have the technology to do that.

Enter the American entrepreneur. In two techniques, directional hydraulic drilling—I am sorry, directional drilling, horizontal drilling, and hydraulic fracturing. Because of those two techniques, our energy portfolio has changed dramatically. We actually have a chance—I have been on this planet for about 50 years now. We have a chance to become energy independent, or at least depend upon North American sources of energy, Canada and Mexico, and it is because of these two techniques.

We have got shale plays happening all over this country. North Dakota last month became the second largest producer of oil and gas in America. North Dakota. They got ahead of Alaska with that pipeline. My home State is still number one, I am not worried about that.

None of us in this room could have foreseen these technologies and what it is doing for our country 20 years ago. None of us could see that. And so I want to tell everybody in this room, never, ever underestimate the power of the American entrepreneur in a free market system.

And that is what concerns me about the RFS, because it interferes with the American innovator in the market, and forces them to pursue technologies that the government wants, not that the market supports.

So my first questions are for you, Mr. Gerard and Mr. Tanton. A civil—we are stuck with the RFS, and I really want to get rid of it. I mean, again, it is the government choosing winners and losers, but assuming that we are stuck with the program as it currently is, given the increase in volume of ethanol mandate each year, shouldn't we diversify the sources from which we can produce ethanol to include abundant and cheap fossil fuels developed right here at home in America?

Mr. GERARD. Well, if you allow fossil fuel production to meet the mandate, that could be one option, of course. But let me just add to your earlier comment on technology. One of the overlooked technology developments in the country today is in the oil and gas spaces you commented, our deep water drilling, hydraulic fracturing, horizontal—it is a whole new game and we shouldn't overlook that as we, once again, consider the energy future of the United States. So those would be options.

Mr. OLSON. Yes, sir. Care to comment, Mr. Tanton?

Mr. TANTON. Yes. We need to diversify our sources, including the sources for renewable fuels. There has been a lot of talk today about cellulosic ethanol requirement. It is very simple to make cellulose into an alcohol fuel. It turns out as wood alcohol, methanol. You know, if I was going to make one tweak to the RFS, I would allow cellulosic methanol to compete, as well as cellulosic ethanol. But you can also make methanol out of natural gas, and of all the resources that have been—become available, expanded, I think perhaps natural gas is the one.

Now I sort of bad-mouthed California energy policy. We are considering passing a hydraulic fracturing ban in California. For those of you from California or any influence in California, please help me stop that. California is the third largest refining State in the Nation. We are about to lose 30 percent of our refining capacity be-

cause of this so-called Low Carbon Fuel Standard, which was passed as part of our Global Warming Act.

Mr. OLSON. You kind of led to my next questions for you, Mr. Dinneen. I mean, you noted in your testimony that the Renewable Fuels Association's main mission is to drive expanded production of the U.S. American made corn-based ethanol.

Mr. DINNEEN. Just ethanol.

Mr. OLSON. OK, exactly. But there are examples out there in this world, Brazil has an ethanol mandate but it is sugar-based. Mr. Tanton, this wasn't coordinated but I have got a company in my district that select these natural gas to make some sort of—ethanol. So do you support extending the RFS beyond corn-based ethanol?

Mr. DINNEEN. I think the RFS envisions that there are going to be a wide range of renewable fuels that will compete, and I would inform Mr. Tanton, including methanol if it is produced and can be done so competitively. The fact of the matter is, corn-derived ethanol today is the lowest cost alternative fuel that is out there. We are less expensive than Brazilian ethanol. Brazilian ethanol still comes in, it does compete, but the RFS is not an ethanol mandate. It is a renewable fuels mandate. It empowers the kind of entrepreneurship that you are seeking, because Mike's members and some of my members are looking for ways to evolve this industry to new feedstocks and new technologies. It is really an exciting time to be in the industry, because you see that evolution occurring before our eyes.

But one thing that would undermine that, however, is to repeal the underpinnings for that development. And if you choose to move the Renewable Fuels Standard away from its foundation of a renewable fuel to allow for non-renewable technologies to compete, then you are going to drive investment there. Then you are picking winners and losers. I think that there is certainly a role for some of those nonconventional, you know, petroleum fuels and if there are programs that you can develop in addition to the RFS to encourage those, have at it. We would support it. But the RFS was designed as a renewable fuel program, and I think it should stay as such.

Mr. OLSON. And the chairman has given me about 2 minutes extra time, so I thank him for that, and I yield back.

Mr. SULLIVAN. Thank you. Next yield to Ranking Member Waxman for 5 minutes.

Mr. WAXMAN. Thank you, Mr. Chairman.

It is a good thing when we are less dependent on foreign oil. It is a good thing that we can have lower costs for our fuels, but the elephant in the room is climate change. And this year, the United States has experienced record heat waves across the country, debilitating droughts, and forest fires that threaten our communities in the West.

Two weeks ago, Rex Tillerson of the Exxon Mobil acknowledged that burning fossil fuels is warming the planet and changing our climate, and I was pleased to hear Mr. Tillerson acknowledge this serious threat. Mr. Gerard, does the API agree with Mr. Tillerson that the burning of fossil fuels increases the temperature of the planet?

Mr. GERARD. I think there are two responses to that, Mr. Waxman. First is, as you know, Mr. Tillerson is an important member of ours and we have a broad diversity within our group. I will say the general consensus is they recognize it as a challenge, but what they have done as industry is they have stepped forward and their single largest industry investors in forms of energy that are zero carbon emitting or low carbon emitting technologies.

Mr. WAXMAN. That is helpful. So the association does not necessarily agree with Mr. Tillerson? They have different views?

Mr. GERARD. No, our membership has different views, particularly different views as to how you would address it. Some support a carbon tax, you know, we had some that supported your——

Mr. WAXMAN. Well before—we have those who support one thing or another. Presumably those who support one position or another recognize there is a problem and that we have global warming.

Dr. Bajura, you aren't a climate scientist but you are the director of University Energy and Environmental Center. You are an expert on coal. I understand that you have acknowledged that fossil fuel pollution is responsible for climate change. In a presentation you gave to the National Coal Council, you stated that carbon management must be an integral part of coal-to-liquids technology. Dr. Bajura, I have a simple question for you. Is climate change a hoax?

Mr. BAJURA. I don't want to get involved in the issue of climate change is a hoax. We are concerned about CO2 emissions and if we are looking at the effect of CO2 emissions, it is a greenhouse gas. We have learned that in our fundamental science and engineering. It could contribute to climate change.

Mr. WAXMAN. Unfortunately, the House Republicans seem to think climate change is a hoax. They voted to deny this science and to repeal any authority to address the problem.

Ms. Stadler and Mr. Breen, I want to ask you about whether our energy policies should be rooted in science or in denial. Particularly Mr. Breen, can you explain from a national security perspective how climate change should inform our energy policy?

Mr. BREEN. Absolutely, and thank you for the question.

There is a pretty strong emerging consensus among many national security leaders, including most of the most prominent think tanks in the field, that climate change is a dire national security threat. It is what the Pentagon calls an accelerant of instability or a force multiplier of instability. It creates the conditions that lead to insurgency, terrorism, interstate warfare, large mass migrations of people. We are already seeing some of this happening, that according to even the most conservative climate projections, is set to increase, especially in some of the most volatile areas in the world where our military is the most active, including central Asia. It is a huge problem.

I am not a climate scientist, but according to all the research I have seen, 95 percent of climate scientists do believe that climate change is real and as a military officer, if I were informed that 95 percent of my intelligence told me I was facing a lethal threat, if I didn't act I would be committing unconscionable military malpractice.

Mr. WAXMAN. Well military matters are handled by government. It is not left to private entrepreneurs to figure out what the mili-

tary strategy ought to be for national security. Energy policy should be, in some ways, directed by our government. Not to—and we should not expect that private entrepreneurs are going to risk their profits in order to develop some technologies that may help our attention to the climate change issue when it is not profitable for them.

Ms. Stadler, can you explain what our energy policy should look like if we want to be guided by science, and do we have the luxury of time to establish such a policy?

Ms. STADLER. Well, we are running out of time, so I don't think we can sit around and think we have another decade to figure this out. I know this is going—is a debate that has been dragged on for multiple decades. There is strong scientific consensus that we are nearing a tipping point and that we really need to start ratcheting down carbon pollution, and if we don't, we are going to see more extreme storms and weather events like we have already seen.

In terms of how we develop fuels policies, you know, we believe that we need to—not just when it comes to fuels, but energy policy more broadly, we need to evaluate them based on their ability to drive down carbon pollution. So when we talk about all of the above, we don't think that works when we are in this time of a tipping point.

Mr. WAXMAN. Well all of the above is unfortunately the direction we have to take, because no one is going to stop using coal. No one is going to stop using oil. But what we need are alternatives and market incentives to develop the technology that will allow us to use oil and coal and other fossil fuels and take the carbon out of it, because our focus has to be, I think, on this climate change threat. It is not going to happen with the free market responding to it, because there is no competition to try to achieve what is a national—international goal by entrepreneurs, unless they can also make money. So we have got to give them the financial incentives to accomplish that goal.

Thank you very much, Mr. Chairman.

Mr. SULLIVAN. Gentleman's time is expired. I recognize the gentleman from Kansas, Mr. Pompeo, 5 minutes for questions, please.

Mr. POMPEO. Great. Thank you, Mr. Chairman.

You know, if folks back in Kansas were listening to this hearing this morning, they would be amazed, talking about D–4 RINs and mandates and liabilities and fining companies because they don't buy a product that doesn't exist. I mean, they would be floored, I just have to tell you.

Mr. Dinneen, you talked about RFS. Did you say there need to be no changes in the RFS? Did I understand that correctly? You said not to make broad sweeping changes. Does that go to say that you think there ought to be no changes in the RFS as well?

Mr. DINNEEN. I think it has been a tremendously successful program. I think one of its successes is founded upon the fact that this committee gave EPA tremendous flexibility in addressing some of the issues that have arrived.

Mr. POMPEO. So is that no changes——

Mr. DINNEEN. Yes, no changes.

Mr. POMPEO. No changes. So in spite of the fact that a product doesn't exist, you think we should penalize companies for not purchasing the product?

Mr. DINNEEN. The product does exist. It is being produced today. It is not being commercialized as rapidly as we would like, but EPA has had the authority to reduce the cellulosic requirement, and they have done so.

Mr. POMPEO. Right, it is amazing. You all talk about having reduced 95 percent of the requirement, is that right? What a stunning statement, to say that they have reduced it by—what a mess we made.

Mr. DINNEEN. It was a pretty stunning recession, I agree.

Mr. POMPEO. I guess we are just not as smart on this side of the podiums as we thought we were.

You also talked about how price sensitive consumers are. In fact, in Wichita, you can flip the radio on in the morning and they are advertising which gas station has the lowest price that morning by 2 cents, you know. They will talk about—I hear it all the time. Why are—do I not hear from my constituents screaming for E15 and E85 if it is such a good thing to lower consumer prices? I will tell you what, my constituents don't hesitate to call me when there is something they want. Tell me why I don't hear that very often.

Mr. DINNEEN. Well, I think there are going to be some constituents that will want it, absolutely.

Mr. POMPEO. But I am telling you, in my experience—I have only been here 18 months, I will concede that—but I don't hear it. I was in four parades this week, and not a sole asked me about, sir, please, bring me E85.

Mr. DINNEEN. Maybe your constituents don't want to have choice, but I think most consumers——

Mr. POMPEO. No, I promise you they do.

Mr. DINNEEN [continuing]. Around the country want to have the option to utilize E15 if it is a lower cost, if it is appropriate for their vehicle, and we are not talking about mandating E15, and Mr. Gerard's repeal, he talked about E20, were are not talking about mandating E20. We are talking about giving consumers the choice to use it.

Mr. POMPEO. That is just not right. You are not talking about giving them a choice, you are talking about a mandate. You are talking—you are not—I am happy—E100, knock yourself out. If you are prepared to give up the mandate here this morning, I am prepared to advocate for E100. Deal? I mean, you talk about choice, but it is fundamentally misleading to say that the consumers aren't looking for just—you are looking for a government mandate for your product.

Mr. DINNEEN. For 100 years, we have had a government mandate for gasoline. What we are doing right now is trying to——

Mr. POMPEO. Sir, if you will point me to statute——

Mr. DINNEEN [continuing]. Create incentive for other alternatives.

Mr. POMPEO. If you will show me the statute mandating consumer's use of petroleum products, I will be happy to withdraw my previous comment. You can't. You can't point to it. I have asked

your organization before for that very statute, and you can't point to it. I don't want to get into an argument. It is true.

Mr. McAdams, you talked about financing. Why wouldn't—should we not just have government financing? You said you can't get these things financed because there is uncertainty about the RFS. Just have a government loan program.

Mr. MCADAMS. I didn't suggest that.

Mr. POMPEO. No, you didn't. I am suggesting it would be easier and cleaner——

Mr. MCADAMS. I suggested there needs to be a partnership and vision with the advanced biofuels industry with the Federal Government, much like we had with the aircraft industry or we wouldn't have airplanes today; much like we had with the space program or we never would have put a man on the moon; much like we did with the internet, or we wouldn't have the internet.

There is a partnership that can take place between the Federal Government and this innovative technology——

Mr. POMPEO. Right. I am suggesting an even deeper partnership. Why don't we just give you the money, or loan it to you at a really cheap rate that you couldn't get any place else because the market just won't accept your product?

Mr. MCADAMS. I am not going to sit here and defend the Loan Guarantee Program. I am not so sure that model worked very well. After all of my members looked at the Loan Guarantee Program, in all honesty, they were only awarded one. Most of—felt the transactional rates weren't right.

Mr. POMPEO. Mr. McAdams, you agree it is the same effect. We are lowering the cost of financing. You want a mandate to lower the cost of financing. There is—it is different, the economics are slightly different, but the outcome for industries that are demanding Federal mandates is largely the same.

Mr. MCADAMS. I don't know what the combination between tax policy, grant policy is. I just know that we went through a very difficult period of time from 2008 to date——

Mr. POMPEO. The whole economy did. So did our consumers, who were having to pay the tax bill——

Mr. MCADAMS. Absolutely.

Mr. POMPEO [continuing]. For your mandates and your subsidies.

I want to ask one other question. So we have this restriction on RFS that only certain things—I have had several folks come into my office and talk about products like Mr. Olson was talking about that don't fit today's mandate. Another way to open this up, you complain about cheap natural gas. It is—that causes problems because natural gas—because you can't—you don't have enough price differential. Why not just put an enormous tariff on imported oil? Solves Mr. Breen's problem. We won't be taking oil from nasty companies. I am not advocating, I am just asking Mr. Dinneen or Mr. McAdams, why not just put an enormous tariff on imported oil and let everyone compete across that spectrum? We would obviously raise the price for gasoline.

Mr. MCADAMS. If history serves me, I believe it was Bob Dole that suggested an import tariff, and it didn't receive much support.

Mr. POMPEO. Would you advocate for that?

Mr. MCADAMS. I wouldn't.

Mr. POMPEO. Mr. Dinneen, would you?

Mr. DINNEEN. I wouldn't, but I think it does point right to the issue that we have here, is that you don't have a free market when it comes to energy.

Mr. POMPEO. I am past my time. Thank you, Mr. Chairman.

Mr. BURGESS. [Presiding] The gentleman's time is expired. Chair recognizes gentlelady from Florida, Ms. Castor, for 5 minutes.

Ms. CASTOR. Thank you, Mr. Chairman. Thank you all on the panel for being here today.

I do believe that the overarching goals of the Renewable Fuel Standard are very important, and I think that they are goals that while we may not have our constituents demanding E85 at the pump, they do believe that it is important to reduce greenhouse gases and the Renewable Fuels Standard proposes as a goal by 2022, a greenhouse gas emission reduction of over 138 metric tons. We do hear our constituents clamoring for ways to reduce the risk of these extreme weather events tied to climate change. They can't do it by themselves, and they need leadership out of the Congress to do it. I think that is an important goal, and we are all struggling for how to get there and provide that leadership.

I think our constituents also believe that it is important to provide our country with greater energy security, and that means greater domestic sources, and this is one in the all of the above category, that really challenges how we get to the second generation. I am frustrated by it, but you know, we are—the American people are kind of impatient and this is a goal that was set in 2005, 2007. It is 2012, and gosh, we haven't seen the second generation of biofuels emerge. That is frustrating. And I hear people say well, be patient. But you know, we are hearing a lot more now, a growing chorus saying this is impacting our ability to have affordable food. The relying so much on corn has not—while maybe people were willing to say up front OK, we will do that to kick this off, we have got to make that transition now off corn-based ethanol into the second generation. I have heard some discussion here today, and Mr. McAdams, I wish you would get a little more specific with financing and how we move into the advanced biofuels and beyond the corn-based ethanol that is competing with food.

Mr. MCADAMS. Well, let me give you an example why one size doesn't fit all. So if I am BP or DuPont, I can still finance the building of a cellulosic plant. I am a big entity, I have my own draw and capital. That is something I can do, and both of those companies are looking at building their own plants. If I am a smaller, innovative company, I don't have that line. So for instance, one of my companies, Sun Drop Fuels, has adopted a different model, so they went to Chesapeake, a natural gas company, because they are going to use natural gas as part of the feedstock in their plant. And so Chesapeake is going to help build this plant, along with the State of Louisiana. The State of Louisiana has put up $450 million worth of bonds to build this plant, to create this new 50 million gallon cellulosic gasoline plant.

And that is one point I want to make to Madam Congresswoman, is this is not all about ethanol. Most of the people that I represent make hydrocarbon drop-in fuels. So most of the technologies I am talking about are sugar-based fuels to gasoline, diesel, or jet fuel.

Our wood-based fuels to gasoline, diesel or jet fuel, they are not going to make ethanol. They are going to make a fungible fuel which we will partner with the oil industry with, that will move through the existing infrastructure, does not need infrastructure changes and does not need changes to the engines. We will not have a lot of these subsidiary issues.

So I think there is a bright future there, but my answer on what do you need, which is why I appreciated Mr. Pompeo's questions, it depends on who you are trying to help and what the scheme looks like. It is a tax piece, is it depreciation? I can tell you, if a big oil company wants to partner with one of my members and you give them accelerated depreciation, that is a lot more appealing than other forms of tax structure. So it depends. Multiple limited partnerships just offered by Senator Kuhns, another interesting model, then used very well by the independent oil industry. We don't have multiple lending partnerships in the biofuels world. We don't have intangible drilling costs in the biofuels world.

So when you look at energy policy, you have got to create a level playing field across the whole sector, because we are going to use oil and gas for the next 30 to 40 years. And we ought to also have the same kind of optionality for advanced biofuels and cellulosic biofuels that we have given to the inherent incumbent——

Ms. CASTOR. And I think that you said here in the U.S. we are a leader globally when it comes to advanced biofuels, but are there some lessons we can take from what is happening in other countries when it comes to the advanced biofuels?

Mr. MCADAMS. I think we can look from other companies for guidance, OK, and the concept that we have a free market, well, go talk to China or Brazil. They are financing the building of a lot of innovative technologies. We are developing the IP in the United States. I got two companies building their first plant in Brazil. Why? The federal government of Brazil sees a future there and they are helping fund the building of the plant. We are not doing that here. We are arguing about whether or not the Department of Defense can, you know, help glide a limited amount of money to build three plants.

Mr. BURGESS. Gentlelady's——

Mr. MCADAMS. Brazil is building them all over the country.

Ms. CASTOR. Thank you very much.

Mr. BURGESS. Gentlelady's time is expired. Recognize the gentleman from Virginia, Mr. Griffith, 5 minutes for questions.

Mr. GRIFFITH. Thank you, Mr. Chairman.

Dr. Bajura, one of the greatest benefits of coal-derived fuels is the ability to provide our military with a more stable domestic source of energy. I was happy to hear you mention my bill, H.R. 2036, in your testimony, the American Alternative Fuel Act of 2011, which would repeal Section 526 of the 2007 Energy Bill. This section effectively sets us on a course to rely even more on unstable regions where many of our military personnel are now deployed. Do you believe the potential to source military fuel from domestic resources, such as liquid fuel derived from coal, is a national security issue?

Mr. BAJURA. Yes, sir, I think it is, and it makes sense for us to have a diversity of supplies. The Department of Defense wants to

ensure that it has the ability to have fuel to fund all of its operations. I think another thing that could be benefitted by having the Department of Defense program put in place is we talked about $4 a gallon petroleum, we talked about $27 a gallon renewable fuels, but at the war theater, a gallon of fuel might cost $300. If we had coal-to-liquids or gasification in Fischer-Tropsch technologies, we might be able to produce that fuel right there at the theater, and that would reduce the cost of transporting it, which is another advantage to the Defense Department.

I would also——

Mr. GRIFFITH. Hang on, sir, before you go on, can you explain that in a little bit more detail for all of us folks and at home who are watching?

Mr. BAJURA. Well, what we are doing——

Mr. GRIFFITH. Why would it cost so much at the war theater and what makes it advantageous to perhaps have that technology in that theater?

Mr. BAJURA. You want to ensure a security of supply, not only getting it there but the quality of supply. If you bought something elsewhere, would you know that it wasn't contaminated, for example. So you want to ensure security. So we take our own fuel to the theater. If we made our fuel there, it would be cheaper. Using gasification Fischer-Tropsch, we could produce it with materials that are there in that country.

Mr. GRIFFITH. All right. Go ahead.

Mr. BAJURA. I would also—one other comment to you, Section 526 is based upon an assumption of the amounting of greenhouse gases emitted in 2005 when we set a baseline for petroleum production. We are outmining the Department of Defense by alternative fuels, say, from coal, but yet if we import fuel from Venezuela, for example, petroleum, it doesn't have the same greenhouse gas content. It is emitting more, but we are allowing them to import the fuel but on our own industries to make the fuel here.

Mr. GRIFFITH. And you believe that with using the coal gasification we can actually reduce the greenhouse gas in the total process of that fuel, is that correct?

Mr. BAJURA. I think in doing coal gasification, for example, we have the ability to capture the CO2 there. If we produce Fischer-Tropsch fuels, as I commented earlier, we use biomass, we can sequester the carbon that is generated and as a result, we have fewer emissions than with regular petroleum.

Mr. GRIFFITH. OK. What role do you believe long-term contracting authority for the Department of Defense could play in the development of a robust alternative fuels industry?

Mr. BAJURA. Long-term contracting is—it was proposed—was designed to provide some guarantees for a company that builds a plant. We are talking big bucks here if you are saying it is $100,000 per daily barrel of output and you need 25,000 barrels a day, you are talking billions of dollars. There is a lot of risk in investing in a technology like that. We might say the elements are known, but putting such a big plant together is very costly. The price of oil is dynamic. I think it is important for us to have the floor and ceiling for prices, and as that legislation was proposed, we were even looking at ways where the Federal Government

would not have to pick up the cost if it were a higher price—if the fuel production was cheaper than on the market, it would be beneficial.

I think this is important that we ensure that development of the technology, once it is developed and proven, then I think industry will step in and do it.

Mr. GRIFFITH. And so part of what you are saying is—and I think I am correct in interpreting this—is that if we use that research capability, then we put it into the field, if somebody is going to invest the billions of dollars in putting something into the field, it might need something longer than a 5-year contract from the military to feel comfortable in putting that money into the investment. Is that a correct statement?

Mr. BAJURA. That is correct. That is why I want to do a long-term contract, because you look at a coal plant and you have got a 20-, 30-year repayment cost for your capital contents. And we need that stability.

Mr. GRIFFITH. And so 20 years is more rational than a 5-year?

Mr. BAJURA. Most definitely.

Mr. GRIFFITH. All right. Thank you very much, and I believe my time is up. I yield back.

Mr. BURGESS. Gentleman yields back his time. I recognize the gentleman from New York, Mr. Engel, 5 minutes for questions, please.

Mr. ENGEL. Thank you very much, Mr. Chairman. I am very happy that this hearing includes legislation that I have long championed, the Open Fuel Standard Act, H.R. 1687. Every President for the past 40 years has pledged to free ourselves from the dangers of oil dependence, and you know, our transportation sector is the reason why we are still dependent on oil. Only 1 percent of U.S. electricity is generated from oil, but virtually every car and truck and bus and train, ship and plane manufactured and sold in America runs on oil, and for the most part, they cannot run on anything less. It is by far the biggest reason why we send $400 billion per year to hostile nations and we know that money winds up funding terrorists in their efforts to harm us.

What frustrates me in conversations about oil dependence are usually dominated by calls to drill more or use less. Both can be helpful, but neither is even close to sufficient. Between 2000 to 2008, drilling increased by 66 percent, and yet gas prices tripled. OPEC merely responded by decreasing its supply, keeping the overall amount of oil in the market the same. So I believe we need a game changing way to alter this dynamic.

My colleague, John Shimkus, and I believe that the cheapest way and most effective way to do this is to allow fuels to compete in every new vehicle sold in the U.S., and that is why we have worked together to write the Open Fuels Standard Act. It has 28 sponsors in the House, 16 Democrats and 12 Republicans, and our bill would simply require new vehicles to be able to operate on non-petroleum fuels, in addition to or instead of petroleum-based fuels. Any kind of fuel would qualify: natural gas, alcohol, hydrogen, biodiesel, plug-in electric, fuel cell, anything other than just plain gasoline, and we are simply looking to open the fuel market to competition

so that consumers can choose whichever fuel they want at any given price.

Mr. McAdams, you mentioned and you talked about Brazil. I travel to Brazil, and it has long frustrated me that in Brazil fuel competition is a regular part of life. Not here, but in Brazil. Drivers pull into a fueling station and they get to choose which fuel they want to buy. Drivers make the choice, not the government, not the oil companies, and as a result, when global oil prices spiked in 2008, Brazilians simply purchased more ethanol than gasoline and were largely unaffected. But the American consumer cannot be as smart or as shrewd as the Brazilian consumer, because our cars cannot run on anything but oil, and that would change if we passed our Open Fuels Standard Act.

And I want to just say before I ask my question, the United States Energy Security Council, really smart people, former Secretary of State George Schultz, former Secretaries of Defense Bill Perry and Harold Brown, former Secretary of Homeland Security Tom Ridge, former Chairman of the Federal Reserve Alan Greenspan, former Director of the CIA Jim Woolsey, they are all part of this and they stress that we need to break oil's monopoly over our transportation sector by opening the fuel market to competition from sources other than petroleum and fully support Mr. Shimkus's and my bill.

So let me say, Mr. Petrowski, your testimony made references to four bedrock points. One was the need for diverse fuel sources, which I clearly support, and another was a concern over externalities. Your written testimony provides more detail in what you mean by that, but I just want to ask you simply would you be willing to sit down with Mr. Shimkus and myself to discuss how these externalities would be impacted by the Open Fuel Standard?

Mr. PETROWSKI. Sure, I would love to. I would love to sit down. As I stated in my written statement and oral statement, we believe in diversity. I would caution, I would not exclude petroleum. Again, we may be on the verge of seeing ethanol spike for a short period of time this summer if we don't get sufficient rain and relief in the Midwest. You do not want to lock the industry into one fuel, whether it is ethanol or petroleum. Flexibility and optionality is the key to survival.

Mr. ENGEL. I agree with you.

Mr. Breen, your testimony mentioned that the price for oil was set by the global market and when the price of oil spikes, it spikes for everyone. You mentioned that in '08 when the price of oil went to $147 per barrel, truckers in the U.K. went on strike over the high cost of fuel and that happened even though the U.K. was self-sufficient, thanks to the oil it produces in the North Sea. And the global price spikes impacted them like everybody else. So contrary to popular belief, only 9 percent of U.S. oil supply comes from the Persian Gulf, yet the U.S. economy is affected by spikes in oil prices when the Persian Gulf destabilizes. So since '05, we have been producing more and more oil while consuming less and less, so we increased our production, decreased our demand, yet American motorists paid more for fuel than any other year. Clearly something is wrong in our approach. I would like—Mr. Breen, do you agree?

Mr. BREEN. I do. I think we have got to remember that this is a globally traded commodity. Like many, many other globally traded commodities, there are spikes and decreases in the price, depending on what the global demand and the global supply looks like. I think the key point is the point that you made and the point that your bill makes, which I very much endorse, which is that flexibility and optionality is, as Mr. Petrowski said, are absolutely key. It is not that oil is not incredibly important to our economy and unlikely to be so for the foreseeable future, it is. It is that we need to have choices. It is that we can't be blocked into a single—the behavior of a single commodity that determines our national destiny. That is the issue.

Mr. ENGEL. I couldn't put it better myself.

Thank you. Mr.——

Mr. BURGESS. Gentleman's time has expired.

Mr. ENGEL. Oh, I am sorry. Thank you.

Mr. BURGESS. The chair will recognize the gentleman from West Virginia, Mr. McKinley, 5 minutes for questions.

Mr. MCKINLEY. Thank you, Mr. Chairman.

Dr. Bajura, if I could focus back a little bit on some of your remarks and some of your testimony and things that you had submitted. There is—from the Energy Information Agency that suggested that there are about 18 billion short tons of coal recoverable assets in America. Is that—do you agree with that?

Mr. BAJURA. I think that is a reasonable number, yes.

Mr. MCKINLEY. And what would—so that we can relate to it, at the current burn rate that we have in America, what would—how many years would that provide us for service in this country?

Mr. BAJURA. We are currently consuming about 1.1 billion tons a year of coal, so that would be 18 years.

Mr. MCKINLEY. So we have—you say we have 18 years left of coal? I don't think that is correct.

Mr. BAJURA. I don't think that is right either.

Mr. MCKINLEY. Thank you.

Mr. BAJURA. I think we have like 250 years of coal.

Mr. MCKINLEY. Thank you. Do your math and—but so do you think the Federal policies are helping us or hurting us in the coal production?

Mr. BAJURA. I think we have coal at the resource that we could continue to use. We generate much more electricity from coal than we do from renewables. I think it would be worthwhile for us to make more investments in coal——

Mr. MCKINLEY. Well that is what I want—that is where I am really headed towards, Doctor, is trying to get us over into that—first identifying what we have and then how we can use it so that we are not importing it.

But the—you are aware, perhaps, with the National Energy Technology Laboratory in Morgantown, just nearby where you work, also in Pittsburgh, that the President has thumped his chest that he was good for all of the above and he was going to help innovate—how to innovate, be creative, but yet, you are aware he slashed the clean coal technology and the research into alternative fuels there at the NETL by 41 percent. Are you aware of that?

Mr. BAJURA. Yes, I am, sir, and I had done some homework on the recommendations for funding for a fossil energy program of all of the five energy programs, nuclear, renewable, science, and things of that sort. Coal has taken, by far, the biggest hit, roughly say 33 percent in terms of requested funding and allocated funding since the last 2 years. I think we do need to use coal in the future. I think with technology we can answer the concerns people have about carbon sequestration, taking coal, putting the CO2 in the ground, making electricity. There are no——

Mr. MCKINLEY. I think some of the things you said are very innovative, and I have had a chance to read your report that you submitted last year.

But let us go back to how we are, as engineering and scientists in America, how we are competing, what we are doing compared to the global market with China and perhaps India as well, with the CTO and SNG, what are we doing? Are they outperforming us? What kind of investments are they putting into coal-to-liquid?

Mr. BAJURA. China is making investments in coal-to-liquid technology. They don't have much as a petroleum-based resource, and so they are making these investments, and they are doing them with government support. They are taking very big steps whereas we are taking smaller steps. They have no concerns about demonstrating a technology that hasn't been extremely well proven, because they are willing to put the money behind it. We are not funding our programs well enough that we can do demonstration programs. I think if we did demonstration programs, we could also hasten this technology into our marketplace. I am concerned that with the way the Chinese are developing their technologies in advanced coal electricity plants and coal-to-liquids, coal-to-chemicals plants, we may wind up buying our technology from China if we don't make investments here in this country to develop these technologies ourselves.

Mr. MCKINLEY. Do you subscribe to the fact that perhaps with the fact that they are developing in such a rapid way in the production of coal because they wrapped in at 3 billion tons of coal production a year? Are they just ignoring the environment, or do they have a different view on it than we do? Are they going to be—could we anticipate they are going to have bad weather conditions in the years ahead because they are producing coal—burning coal?

Mr. BAJURA. My observations about China is they are going to come lately, so to speak, to the aspect of global climate change. But what I have seen in terms of the technology and the discussions I have had with the people from China, their managers of their coal plants are very concerned about meeting environmental standards. They are doing everything they can to deploy new technologies to capture the criteria pollutants, and they are making great strides in terms of doing carbon capture and sequestration. For example, they built a large coal-to-liquids plant that produces 25,000 barrels per day of liquid fuels. They are capturing the CO2 that comes from that. Roughly, that is like 3 million tons a year of CO2 and they are planning to inject it underground. To actually doing that with the plant, we are were not able to go forward with our plant, the Mountaineer plant in West Virginia because we couldn't get the financing to make it happen. While China might

be late to the game, I think they are aggressively pursuing not only developing the technologies, producing the products, but they are also taking advantage and doing what they can for the environment.

Mr. MCKINLEY. Unfortunately my time is expired, but thank you very much for coming here today.

Mr. BURGESS. The gentleman's time has expired. The chair recognizes the gentleman from Massachusetts, Mr. Markey, for 5 minutes for questions.

Mr. MARKEY. Thank you, Mr. Chairman, very much.

This is a very important hearing, and because it focuses upon what became a consensus after the first oil embargo, which was that it was critical for the United States to not have American produced oil be exported to foreign countries. And that is an almost 40-year policy now, a consensus that we had reached. And with few exceptions, that has been consistent with American policy over the last 37 years, to keep American crude oil in America, to supply fuel for Americans.

So Mr. Gerard, you were quoted last month as saying that you support the lifting of restrictions on the exportation of American crude oil and that that needs to be a serious consideration, that we start increasingly exporting our crude oil. My problem is that even with Americans paying an average of $3.38 for a gallon of gasoline, that the large oil companies want to send our resources to foreign countries. With American men and women on the ground in the Middle East, fighting and dying to protect oil supply lines, I don't think that it is really good for the American Petroleum Institute to say that we should be sending American crude oil abroad, otherwise, we should just change the name of the institute to the World Petroleum Institute, not the American Petroleum Institute, because it is not about America anymore. Because I just don't think that we are advancing American security, American employment, and American economy if we are thinking about this oil supply is anything other than something that should be used here in the United States, given the vast amount of oil that we still import into our country on a daily basis. Exporting oil just doesn't make any sense. It actually goes counter to our goal to reduce our total dependence upon imported oil.

Mr. Breen, do you think it is a good idea to export American crude oil as long as there are American soldiers that are dying to protect foreign oil overseas? Shouldn't we keep our domestic resources right here at home so that fewer Americans will have to give their lives so that we can put gasoline into our cars and our trucks?

Mr. BREEN. I think, Mr. Markey, the—my sort of central point standard is that it is a global market and so when we talk about American production, even if we are talking about American exports, we have got to ask ourselves, are we going to be able to produce enough to meet global demand, which is skyrocketing? Again, you know, Chinese demand is supposed to go up 80 percent in the next 2 decades, Indian demand 96 percent in the next 2 decades. So I think it is highly unrealistic to imagine that we are going to be able to produce enough to touch that, especially in a

global market where many of the dynamics are dictated by OPEC in cartels that will just lower their own production.

Mr. MARKEY. Well as you know, since President Bush left office the amount of imported oil in the United States has dropped from 57 percent down to 45 percent. My goal would be to see it just keep going lower and lower, the percentage of oil that we import. Do you think that would be a good goal for the United States?

Mr. BREEN. Absolutely.

Mr. MARKEY. You think exporting crude oil advances that goal?

Mr. BREEN. Probably not.

Mr. MARKEY. That is what I am saying. That is the goal that I would have, to make sure that we don't see that occur, especially since we are now at our highest level of production in the United States in 18 years, highest level of production of oil in 18 years right now, today, in the United States of America. And that is quite an achievement for the Obama administration. I mean, Obama really has embraced "drill baby, drill." I mean, he is just incredible. Eighteen-year high, something the United States never achieved by the Bush administration. In fact, it kept going down during the Bush administration, so let us give this guy credit, all of us. He deserves a lot of credit.

Mr. GERARD. Mr. Markey, can I comment on that?

Mr. MARKEY. About the exportation? I would like you to comment on the exportation of crude oil, if you could.

Mr. GERARD. I am anxious to see which quotes you are saying. I am not aware that I ever said that as it related to crude oil.

But we have strongly opposed approaches like you have advocated at others to get in the business of managing the marketplace and denying exports, be it natural gas and——

Mr. MARKEY. If I may just interrupt you, you said it is a serious consideration that as America's changing energy—call for more supporters of domestic oil and gas production, and possibly an eventual shift of U.S. energy export policy. American Petroleum Institute President Jack Gerard told Roiters in an interview. "It is a serious consideration as we continue to produce more and more in this country," Gerard said, at the API's Washington, DC, office——

Mr. GERARD. Absolutely, it is a very serious consideration. The very reason it is a serious consideration is due to modern technologies, that is why we are driving down the amount of imported oil in this country.

Mr. MARKEY. Right.

Mr. GERARD. There are two reasons. Number one, the economy——

Mr. MARKEY. Well should we keep the oil here?

Mr. GERARD. Well, why don't we—let us produce our resource here.

Mr. MARKEY. That is what I am saying. Should we—if we produce the resource here, should we keep it here? That is the question. Yes.

Mr. GERARD. We would love to work with you to expand the development of U.S. oil production——

Mr. MARKEY. I am saying but if we produce it here, should we keep it here?

Mr. GERARD. Absolutely, until we can produce enough to fill our market and then allow the market to work on a global basis——

Mr. MARKEY. So you don't think we should export crude oil until we achieve that goal of filling our own market, is that what you are saying?

Mr. GERARD. As you know, today we export less than 1 percent, and that is generally in a trader market. As you know, that is the current public policy and has been for——

Mr. MARKEY. But should that be—should we continue the policy of keeping the crude oil here——

Mr. GERARD. Yes, we should focus on adding to the supply to get——

Mr. MARKEY. But should we keep it here if we do add to the supply?

Mr. GERARD. The marketplace will dictate that and it——

Mr. BURGESS. Chair would instruct that the gentleman's time has expired. The witness has answered the question.

Mr. GERARD. I would be happy to come visit with you.

Mr. MARKEY. He has not answered the question.

Mr. BURGESS. The chair recognizes the gentleman from California, Mr. Bilbray, 5 minutes for questions, please.

Mr. BILBRAY. Thank you, Mr. Chairman. Mr. Chairman, I just want to clarify the history. There was a reference to the development of the aircraft being a government-subsidized endeavor. I think if you remember your history—well, the partnership was you had one government-financed effort here on the Potomac, and you had one private enterprise of two bicycle makers in the Midwest. The fact is, Langley was highly subsidized by the Federal Government and spent more time worrying about getting his government subsidy than developing the wind tunnels that could develop a successful aircraft, where the bicycle makers were the ones who actually developed it. So there is a perception that government involvement helps to move technology along the times. History again and again—and I can talk about environmental stuff—have proven that government intervention and control actually can divert those resources and the development of aircraft really is an example.

On the dome of the Capitol, you do not see in that relief Langley's painting on the wall, you see the Wright Brothers chasing the airplane. So I think that we have got to learn from our mistakes.

Now, I would ask Mr. McAdams, do you believe that we should be fuel neutral?

Mr. MCADAMS. Yes, sir.

Mr. BILBRAY. OK. Do you believe that we should make sure that our standards are fuel neutral?

Mr. MCADAMS. Yes, sir.

Mr. BILBRAY. Now, if I can get 100 miles on one fuel with this much, and 100 miles with this much, do you think we should be giving our mandates and our benefits based on volume or based on BTUs?

Mr. MCADAMS. Well, our association specifically when we went into the RFS——

Mr. BILBRAY. I want to know—don't go around. Should it be based on how much energy or how much volume?

Mr. MCADAMS. We support energy density as a key component of the Federal policy, and we did in the RFS too, and——

Mr. BILBRAY. Excuse me. Last I checked, aren't we at 10 percent by volume?

Mr. MCADAMS. You are talking about ethanol. I am talking about hydrocarbon based——

Mr. BILBRAY. I am talking about across the board, do you think that we should—our standards should always be based on percentage of BTU rather than volume of the fuel itself?

Mr. MCADAMS. I think that is a novel policy in terms of performance-based. Our association specifically supported energy density as a component in the RFS——

Mr. BILBRAY. OK. Do you believe that this should get the same benefits as this if the same amount of energy is contained in each?

Mr. MCADAMS. That is certainly a policy a lot of my members would endorse.

Mr. BILBRAY. But you can't—you wouldn't endorse it at this time?

Mr. MCADAMS. Well, I don't know what you are talking about. Are you talking about a tax policy, are you talking about RIN credits?

Mr. BILBRAY. Mandate 10 percent by volume is a pretty clear definition. Now, if I put 10 percent of something that has only 70 percent of the energy in of something that has 100 percent. Let us—you know, we can get into it, but the fact is BTUs is what the consumer—you want to give the consumer choice. When they buy—fill up their tank, don't they have the right to know that they are getting the same amount of mileage, quality, performance out of what they are putting in the tank——

Mr. MCADAMS. I don't have a problem with that. Most of my guys make 124,500 BTU molecule——

Mr. BILBRAY. OK.

Mr. MCADAMS. That is identical to a molecule coming out of a barrel of oil through a refinery.

Mr. BILBRAY. OK, and when we get into our environment, per emissions, we have been going to—don't you think it is a little absurd that we continue to give a per gallon emission standard rather than a per mile or per BTU? In other words, we are back to this issue that when you have unequal fuel potential, don't you think our support, our mandate, and our environmental regulation should reflect the reality of how much mileage you get out of that fuel, not just how much of the fuel is there?

Mr. MCADAMS. I think you have a series of regulations across the board that are incumbent regulations that need to be looked at to recognize the new molecules that will come into the market.

Mr. BILBRAY. OK. I am just getting back to the fact that in California—let us move over to in California we ran into a situation with the liability issue, didn't we, Mr. Tanton?

Mr. TANTON. Yes, we did.

Mr. BILBRAY. We actually had boat owners suing the oil companies for putting ethanol into their fuel system, right?

Mr. TANTON. Correct, and I think those were misdirected. They should have been aimed at the Air Resources Board and the elected officials who mandated that ethanol.

Mr. BILBRAY. Well, as a former member of the Air Resources Board, I so agree with you. The question really comes down to is that we got into that conflict, nobody is talking about would you, Mr. Tanton, leave your lawn mower with E10, let alone E15, with gasoline in it? Would you actually leave your lawn mower without burning out all the fuel before you put it away for the season?

Mr. TANTON. No, I would not, and I think we need to keep in mind that people keep their lawn mowers longer than they keep their cars.

Mr. BILBRAY. Well, how much I use my lawn.

Mr. Chairman, I appreciate that. Can I ask for one thing? This is a hearing but I would ask that we have a hearing about the fact that we don't even talk about natural gas being the alternative to traditional oil for the next 10 to 20 years that consumers could have. And we totally—both sides ignore that natural gas option, and I will say it again. In 1992, I drove a natural gas car. It is compatible with the use of traditional fuels, or renewable fuels, and it is the orphan child of energy options out there, and it is the one thing that can break the monopoly of oil companies of the solid oil companies where we get into it. And I wish both sides of the aisle would finally admit it, but we need to have a hearing separate on that issue, because they have been left out in most of these hearings.

I yield back.

Mr. SHIMKUS [presiding]. And I think my colleague looks at the Open Fuel Standard, and that would address some of the concerns of being able to use and not let the market—let the competition dictate the fuel.

So I would like to ask unanimous consent—and Mr. Cassidy be recognized for 5 minutes. Before I give him that time, there are votes called. It is a vote to adjourn. I am willing to miss it. It is a stupid vote. So if we can get someone back from the Minority, I will try to keep moving on. But Mr. Cassidy, without objection, you are recognized for 5 minutes.

Mr. CASSIDY. Thank you. First, for my colleague, Mr. Bilbray, actually House—my bill, 1712, promotes the use of natural gas as a transportation fuel, so I hope to see you as a cosponsor.

Mr. Tanton, I really enjoyed your testimony. I always figure that California is the cutting edge of Democratic policy, and I see how poorly you all have done. I say, "Well, what a tremendous State, how you can screw up even California?" I also say I really like your attachment, your excerpt from Prop 87: "Energy security should come from shifting to a system of manageable risks." That is a great quote. Now Mr.——

Mr. TANTON. Feel free to use it.

Mr. CASSIDY. I will. I will steal it and from henceforth not attribute it.

Mr. Engel mentioned in the Open Fuel Standard bill, what is your feeling—because you are little bit kind of annalistic about the ability of government to be positive. On the other hand, what do you think about the Open Fuel Standard bill?

Mr. TANTON. I think the Open Fuel Standard bill is a good idea, but perhaps not implemented very well. I would be glad to work with the authors to improve it. It is, in many ways, identical to

programs we have had in California over the past 4 decades. There is no consumer perspective. While it aims to allow for competition on the fuel side, it does so by denigrating competition on the vehicle side.

Mr. CASSIDY. Now let me ask you, because there is a little bit of a chicken and egg. If you don't create the potential to use an Open Fuel Standard, then you can never have an Open Fuel Standard.

Mr. TANTON. Certainly, but every one of the vehicles that are called out in the Open Fuel Standard bill, have been or are available today. I mean——

Mr. CASSIDY. Now let me ask you——

Mr. TANTON. There was an earlier question about natural gas.

Mr. CASSIDY. Yes, let me go there.

Mr. TANTON. OK.

Mr. CASSIDY. Again, I am not challenging, again, you and—because of California's issues.

Mr. TANTON. OK.

Mr. CASSIDY. Now in Idaho—I believe it is Idaho, they actually have a disseminated way to distribute natural gas. A utility has it and regular customer can go up and pump natural gas.

Mr. TANTON. OK.

Mr. CASSIDY. I am told they are shipping natural gas vehicles from around the country to be resold in Idaho because there is actually a market for them. If you will, the infrastructure was there so now people purchase cars, so you have to have one or the other lead the way and then the other follows. It makes sense to me that you would at least—that somehow you have to break ground and allow one to lead the way.

Mr. TANTON. OK.

Mr. CASSIDY. Now so with that said, you agree to that it sounds, but you would still take issue with the Open Fuel Standard, what seems to me is just a way to break ground and help it lead the way?

Mr. TANTON. I agree that a portfolio is important. Achieving the portfolio needs to recognize that consumers have diverse needs, diverse wants, have different risk perspectives. What is in the best interest of my retirement portfolio may not be in the best interest of Dr. Bajura's retirement portfolio. Everybody's portfolio is different. I find that when government subsidizes or mandates, which is, in effect, the same thing, a particular technology, even if it a menu of technologies, something goes awry.

Mr. CASSIDY. OK, I think I have your point and I am running short on time, so let me go to Mr. Gerard.

Mr. TANTON. I will try to make my answers shorter next time.

Mr. CASSIDY. OK. Mr. Gerard, I actually met with folks from a major oil company regarding the use of methanol, because obviously produced from natural gas, a way to domestically supplement. We have the experience from California where E85 cars can run. I was told by one of their engineers—they are very nice. They brought somebody in from their testing facility—that EPA will not approve the use of the chemicals required to make methanol immiscible in gasoline. So sure, methanol itself is environmentally OK, but the chemicals used to make it mixable or miscible with the

gasoline is not. Is it your understanding, this man's understanding, that EPA is a major roadblock in using products such as E85?

Mr. GERARD. I would have to check on that specific case, Congressman. I would be happy to do so, but clearly, EPA is driving a lot of the energy policies I talked about earlier on cellulosic mandates and others. There is a lot of discretion, and that is one of the reasons we think the RFS needs to be open so we can deal with some of that discretion so you, as those elected officials, drive the policy and not the regulators. But I will look at the specifics of that case. I don't have an answer for you right now.

Mr. CASSIDY. OK. Ms. Stadler, would you approve—would you agree with the Open Fuel Standard?

Ms. STADLER. Right now we have not—the organization has not taken a formal position on the Open Fuel Standard. We firmly believe that we need to look at shifting investments to getting sustainable, renewable fuels into the marketplace, but specifically with respect to that piece of legislation we have not taken a position.

Mr. CASSIDY. I yield back. Thank you for your generosity, Mr. Chairman.

Mr. SHIMKUS. You are more than welcome. We really thank the panel. We really need to have more hearings like this. Of course, I was bouncing between two, just to make sure the debate is out there so we can ask these questions, hopefully eventually get to some consensus, and as far as I am concerned, we are all friends and allies here, even our friend from the far right, as I am looking at Ms. Stadler, because of the positive things she said about ethanol. So I was happy with that.

So we will just keep working together. We do want energy security. We want to decrease our reliance on imported crude oil. There are a lot of options to go to, our own natural resources and things. But the plan now is to dismiss the first panel, and if my colleague is going to stay, we are going to empanel the second panel and try to move through opening statements while the other members come back from the vote.

Just an announcement while we are doing this, there is going to be another series of votes at 1:30, so that is why we are trying to expeditiously get through the second panel.

We would like to call the second panel in the hearing room to order, and welcome you all for coming. You have sat through a pretty extensive first panel, so that might encourage more questions. Hopefully my colleagues come back. Obviously for full disclosure, we are in a vote series so—but hopefully they will get back in time to participate.

So on the second panel we have—and the way I like to operate, I will introduce you all first and then we will go from left to right and have your 5-minute opening statement. And remember that your full testimony is submitted for the record.

So joining us on the second panel is Mr. Gregory Dolan, Executive Director, Americas/Europe Methanol Institute. We welcome you. Next is Mr. Donald Althoff, Chief Executive Officer, Flex Fuel U.S. I don't know if you were there for my introductory comments, but we do appreciate the bouncing around and being able to make it. Mr. Shane Karr, Vice President of Federal Government Affairs,

the Alliance of Automobile Manufacturers; Mr. Thomas Hassenboehler, Vice President of Policy Development and Legislative Affairs for America's Natural Gas Alliance; and Ms. Mary Ann Wright, Vice President of Global Technology Innovation, and the Chair of the Electric Drive Transportation Association, Johnson Controls, Incorporated. Again, your full statements are in the record. You are going to be recognized each for 5 minutes, and we will start with Mr. Dolan.

STATEMENTS OF GREGORY A. DOLAN, ACITNG CHIEF EXECUTIVE OFFICER, METHANOL INSTITUTE; DON ALTHOFF, CHIEF EXECUTIVE OFFICER, FLEX FUEL U.S.; SHANE KARR, VICE PRESIDENT, FEDERAL GOVERNMENT AFFAIRS, ALLIANCE OF AUTOMOBILE MANUFACTURERS; TOM HASSENBOEHLER, VICE PRESIDENT OF POLICY DEVELOPMENT AND LEGISLATIVE AFFAIRS, AMERICA'S NATURAL GAS ALLIANCE; AND MARY ANN WRIGHT, VICE PRESIDENT, GLOBAL TECHNOLOGY AND INNOVATION, POWER SOLUTIONS DIVISION, JOHNSON CONTROLS, INC., AND CHAIR, ELECTRIC DRIVE TRANSPORTATION ASSOCIATION

STATEMENT OF GREGORY A. DOLAN

Mr. DOLAN. Thank you. It is a pleasure to be here today, and thank you for inviting me to testify on behalf of the Methanol Institute, representing methanol producers, distributors, and related technology companies from around the world. I am here today to talk about the global experience of methanol fuels and offer some insight into how the U.S. can once again regain its position as a leader in transportation innovation.

In the late 1970s, when high gasoline prices driven by instability in the Middle East led to long lines at the pump, our country began to explore new alternatives in earnest. At that time, the State of California looked at the range of alternative fuels that can reduce the economic burden of oil, and also provide environmental benefits for consumers. California at that time determined that methanol offered the best range of benefits. California launched the Nation's first large scale alternative fuel demonstration program, placing nearly 18,000 methanol-fueled vehicles on the roads and establishing a network of 100 methanol fueling stations. America was leading the way in transportation innovation with the methanol experiment.

Methanol is the most basic form of alcohol, and is naturally occurring in the environment. Methanol is readily biodegradable and it is much more environmentally benign than gasoline. Commercially, methanol can be made from anything that is or ever was a plant. It can be made from natural gas and coal. It can also be made from forest thinnings, biomass, municipal solid waste, even CO2 itself. We have members at our trade association around the globe that are actively producing these second generation biofuels at the commercial scale today. Worldwide, methanol demand exceeds 15 billion gallons per year, while generating $35 billion in economic activity and 100,000 jobs.

California not only chose methanol for the wide availability of different feedstocks to produce it, they also selected methanol for

its low cost and excellent performance. With its high octane rating and efficient burning performance, methanol is most often associated with racing fuels.

But the low cost of methanol is its most impressive feature. For the past 5 years, the wholesale cost of methanol has ranged from $1.05 a gallon to $1.15 per gallon. If you were to sell methanol fuel as M85 at the pump today, adding distribution, retail taxes and markup, plus 15 percent gasoline, and accounting for the difference in energy content of methanol, consumers would still pay just $3 a gallon at the pump without any incentives, almost 40 cents a gallon cheaper than the national average of gasoline, which today is $3.38 a gallon.

Alcohol fuels also have the lowest cost fuel infrastructure, with pumps costing just 20 to $60,000, and because you can get significant margins from selling methanol at the pump, there is room for investment for retail fueling infrastructure.

California's experiment continued for a number of years, but ultimately prices for gasoline were brought back down towards historic norms and consumers and governments quickly forgot about the stinging pains of high prices and continued business as usual.

The question on everyone's mind as we gather here today is ultimately, How do we implement meaningful, long-term change that will have a significant impact on our dependence on foreign oil, help reduce costs at the pump, and be a bridge to the next generation of energy innovation? Other countries are answering that question by taking on methanol. In China, a methanol mix of about 8 percent of their transportation fuel pool and they use domestic feedstocks to meet that demand. The Chinese have buses, taxis, trucks, and passenger vehicles on the road that are running on a wide range of methanol fuels. China's powerful National Development Reform Commission considers coal-based methanol to be a strategic transportation fuel. Between 2005 and 2011, China increased its methanol production capacity from 1.5 billion gallons a year to 15.5 billion gallons.

There are no technical hurdles to the use of methanol as an alternative fuel. We know what materials to use in the cars. We know how to make those cars run efficiently. The first flexible fuel vehicles that Ford built ran on both ethanol and methanol. Lotus Engineering has been building tri-fuel engines. We also know that the cost to add a flex fuel capability to a new car is just $150.

A recent study by MIT noted that methanol was the liquid fuel most efficiently inexpensively produced from natural gas. The U.S. is currently experiencing a boom in natural gas production, and then is creating a resurgence in the domestic methanol industry. We have seen—right now a plant is being reopened in Beaumont, Texas, that had been mothballed for years because of the lower natural gas costs. LyondellBassell has announced it is reopening a plant in Texas; so is Celanese. Methanex is moving a plant from Chile to Louisiana to take advantage of the lower natural gas prices.

Now Congressman Shimkus and Congressman Engel have introduced legislation would take the first step in our path away from oil dependency. They have developed the Open Fuel Standard Act, H.R. 1687. The legislation would require that an increasing per-

centage of vehicles sold in the U.S. be capable of running on alternative fuels and technologies, in addition to or replacement of gasoline. This means that electric vehicles, natural gas vehicles, fuel cell vehicles, biodiesel, and of course, alcohol FFVs will all qualify under this standard. The bill is about competition and economics. It is not about dictating what alternatives should move forward. The Open Fuel Standard Act would ensure that new vehicles on the road are no longer dependent on oil-derived gasoline. By embracing choices offered by the Open Fuel Standard Act, Congress has a chance to take action that will help serve as a bridge to new technologies and new solutions at no cost to the Federal Government. The Open Fuel Standard Act is an all of the above strategy for our passenger car fleet.

Thank you for your attention.

[The prepared statement of Mr. Dolan follows:]

Testimony of Gregory A. Dolan
Acting CEO, Methanol Institute
Before the House Subcommittee on Energy and Power
Hearing on "The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities"
July 10, 2012

Testimony Synopsis:

- Sustained high gasoline prices and the negative impacts of oil dependency are hurting our nation's economic recovery and the pockets of American families.
- Our current initiatives with alternatives have not produced the substantive impact that is needed to overcome the negative impacts.
- America once was a leader in technological innovation, and developed the first methanol fueled vehicles and fueling stations in the world. Other nations – including China, Israel, Brazil, and the European Union – have learned from America's innovation and are quickly ramping up their use of alcohol fuels.
- Methanol can be produced from anything that is, or ever was, a plant. This means natural gas and coal, as well as renewables like biomass, forest thinnings, industrial and municipal waste, bio-methane, and even CO_2 itself can be used as a feedstock.
- Alcohol flex-fuel vehicles – which can run on any combination of gasoline, ethanol, and methanol, as well as other liquid fuels – cost around $150 more than standard vehicles to produce.
- Based on today's prices, consumers could save $0.40 a gallon or more, saving $750 or more in each household by using methanol fuel.
- Introduction of methanol into the U.S. fuel pool will create real competition for gasoline, and help reduce costs for every consumer, regardless of whether they drive an FFV or not.
- Methanol can serve as a bridge to greater adoption of advanced 2nd generation biofuels, and those 2nd generation fuels are already available around the globe today, and are being produced at commercial scales. A methanol FFV is also capable of running on almost any liquid fuel.
- There are no technical hurdles to the widespread adoption of methanol vehicles.
- The Open Fuel Standard Act of 2011 is legislation that can increase adoption of alternative fuel vehicles and create competition at the pump, at no cost to the taxpayer.

MR. CHAIRMAN, SUBCOMMITTEE MEMBERS, THANK YOU FOR INVITING ME TO TESTIFY ON BEHALF OF THE METHANOL INSTITUTE. MY NAME IS GREGORY DOLAN, AND I AM THE ACTING CEO FOR THE GLOBAL TRADE ASSOCIATION THAT REPRESENTS METHANOL PRODUCERS, DISTRIBUTORS AND RELATED TECHNOLOGY COMPANIES AROUND THE WORLD.

THE UNITED STATES IS CURRENTLY RELIVING AN ALL-TOO-FAMILIAR EXPERIENCE WITH SUSTAINED HIGH GASOLINE PRICES CAUSING US TO SEEK ALTERNATIVES TO SATISFY OUR GROWING ENERGY NEEDS. ENERGY DRIVES COMMERCE, AND CAN FUEL OUR ECONOMIC RECOVERY, BUT THE CURRENT PRICE SITUATION IS PUTTING AN UNBEARABLE BURDEN ON AMERICAN FAMILIES AND BUSINESSES.

I AM HERE TODAY TO TALK ABOUT THE GLOBAL EXPERIENCE WITH METHANOL FUELS, AND OFFER SOME INSIGHT INTO HOW THE U.S. CAN ONCE AGAIN REGAIN ITS POSITION AS A LEADER IN TRANSPORTATION INNOVATION.

IN THE LATE 1970'S, WHEN HIGH GASOLINE PRICES DRIVEN BY INSTABILITY IN THE MIDDLE EAST LED TO LONG LINES AT GAS STATIONS, OUR COUNTRY BEGAN TO EXPLORE NEW ALTERNATIVES IN EARNEST. AT THAT TIME IN CALIFORNIA, THE STATE GOVERNMENT LOOKED AT THE RANGE OF ALTERNATIVE FUELS THAT COULD REDUCE THE ECONOMIC BURDEN OF OIL AND ALSO PROVIDE ENVIRONMENTAL BENEFITS FOR CONSUMERS. CALIFORNIA DETERMINED THAT METHANOL OFFERED THE BEST RANGE OF BENEFITS. THEY LAUNCHED THE NATION'S FIRST LARGE-SCALE ALTERNATIVE FUEL DEMONSTRATION PROGRAM PLACING NEARLY 18,000 METHANOL FUELED VEHICLES ONTO THEIR ROADS AND ESTABLISHING A NETWORK OF ONE HUNDRED METHANOL FUELING STATIONS. AMERICA WAS LEADING THE WAY IN TRANSPORTATION INNOVATION WITH THE METHANOL EXPERIMENT.

METHANOL IS THE MOST BASIC FORM OF ALCOHOL, IS NATURALLY OCCURRING, AND IS EVER-PRESENT IN OUR ENVIRONMENT. COMMERCIALLY, METHANOL CAN BE MADE FROM ANYTHING THAT

IS, OR EVER WAS, A PLANT – MEANING IT IS MADE FROM COAL AND NATURAL GAS, BUT IT IS ALSO MADE FROM FOREST THINNINGS, BIOMASS, INDUSTRIAL AND MUNICIPAL SOLID WASTE, AND EVEN CO2 ITSELF. WE HAVE MEMBERS AROUND THE GLOBE THAT ARE ACTIVELY PRODUCING THESE 2ND GENERATION BIOFUELS, AT COMMERCIAL SCALE. WORLDWIDE METHANOL DEMAND EXCEEDS 15 BILLION GALLONS PER YEAR, WHILE GENERATING $35 BILLION IN ECONOMIC ACTIVITY AND 100,000 JOBS.

CALIFORNIA DID NOT ONLY CHOOSE METHANOL FOR THE WIDE AVAILABILITY OF DIFFERENT FEEDSTOCKS TO PRODUCE IT, THEY ALSO SELECTED METHANOL FOR ITS LOW-COST AND EXCELLENT PERFORMANCE. WITH ITS HIGH OCTANE RATING AND EFFICIENT BURNING PERFORMANCE, METHANOL IS MOST OFTEN ASSOCIATED WITH MOTOR RACING IN THE UNITED STATES. THE LOW COST OF METHANOL IS TRULY THE IMPRESSIVE FEATURE THOUGH. FOR THE PAST FIVE YEARS, THE WHOLESALE COST OF METHANOL HAS RANGED FROM $1.05 TO $1.15 PER GALLON. IF YOU WERE TO SELL METHANOL FUEL AS M-85 AT THE PUMP TODAY, INCLUDING ALL DISTRIBUTION, TAXES AND RETAIL MARK UP, THE 15% GASOLINE – AND ACCOUNTING FOR THE DIFFERENCE IN ENERGY DENSITY - CONSUMERS WOULD PAY $3.00 A GALLON WITHOUT ANY INCENTIVES; ALMOST $0.40 CHEAPER THAN THE NATIONAL AVERAGE OF $3.38. THAT IS OVER $750 IN SAVINGS FOR THE AVERAGE HOUSEHOLD EVERY YEAR – ALMOST 8% OF A MINIMUM WAGE EARNERS ANNUAL INCOME, A GROUP THAT IS HIT HARDEST BY FLUCTUATIONS IN ENERGY PRICES.

CALIFORNIA'S EXPERIMENT CONTINUED FOR A NUMBER OF YEARS, BUT ULTIMATELY MORE POWERFUL INTERESTS ASSERTED THEMSELVES IN THE TRANSPORTATION MARKET AND PRICES FOR GASOLINE WERE BROUGHT BACK DOWN TOWARDS HISTORIC NORMS, AND CONSUMERS AND GOVERNMENTS QUICKLY FORGOT ABOUT THE STINGING PAINS OF HIGH PRICES AND CONTINUED BUSINESS AS USUAL. THE QUESTION THAT IS ON EVERYONE'S MIND AS WE GATHER TODAY IS

ULTIMATELY, HOW DO WE IMPLEMENT MEANINGFUL LONG-TERM CHANGE THAT WILL HAVE A SUBSTANTIVE IMPACT ON OUR DEPENDENCE ON FOREIGN OIL, HELP REDUCE COSTS AT THE PUMP, AND BE A BRIDGE TO THE NEXT GENERATION OF ENERGY INNOVATION?

OTHER COUNTRIES ARE ANSWERING THAT QUESTION BY TAKING ON THE METHANOL EXPERIMENT AND IMPLEMENTING IT ON A MUCH LARGER SCALE. IN CHINA FOR EXAMPLE, A COUNTRY THAT DOES NOT HAVE EXTENSIVE LIQUID FUEL HOLDINGS, METHANOL MAKES UP ABOUT 8% OF THEIR TRANSPORTATION FUEL POOL – AND THEY USE DOMESTIC FEEDSTOCKS TO MEET THAT DEMAND. THE CHINESE HAVE BUSES, TAXIS, FLEETS, AND PASSENGER VEHICLES ON THE ROAD THAT ARE RUNNING ON M15, M85 AND EVEN M100 FUEL. CHINA'S POWERFUL NATIONAL DEVELOPMENT AND REFORM COMMISSION CONSIDERS COAL-BASED METHANOL TO BE A STRATEGIC TRANSPORTATION FUEL. BETWEEN 2005 AND 2011, CHINA INCREASED ITS METHANOL PRODUCTION CAPACITY FROM 1.5 BILLION GALLONS A YEAR TO 15.5 BILLION GALLONS.

ISRAEL IS ALSO BUILDING FROM AMERICA'S INNOVATION, AND IS CURRENTLY LAUNCHING A PILOT PROGRAM FOR METHANOL FUELED VEHICLES TO TAKE ADVANTAGE OF NEW NATURAL GAS FINDS IN THE REGION. BRAZIL HAS OFTEN EMPLOYED METHANOL TO HELP EXTEND THE POOL OF ETHANOL PRODUCED FROM SUGAR CANE. THE EUROPEAN UNION HAS IN PLACE FUEL SPECIFICATIONS THAT ALLOW FOR LOW-LEVEL METHANOL BLENDING. AND WE ARE SEEING METHANOL FUEL PROGRAMS DEVELOPING IN TRINDAD & TOBAGO, DENMARK, ICELAND, AUSTRALIA, MALAYSIA, EVEN IN PAKISTAN AND IRAN.

THERE ARE NO TECHNICAL HURDLES TO THE USE OF METHANOL AS AN ALTERNATIVE FUEL. METHANOL – LIKE ETHANOL – IS SLIGHTLY MORE CORROSIVE THAN GASOLINE, WHICH MEANS WE NEED TO USE ALCOHOL COMPATIBLE MATERIALS IN FUEL-WETTED CAR PARTS. TODAY'S MODERN CARS EMPLOY COMPUTER TECHNOLOGY THAT RECOGNIZES THE OXYGEN CONTENT OF THE FUEL AND

ADJUSTS THE ENGINE TIMING ACCORDINGLY, AND CAN BE MODIFIED TO RECOGNIZE VARYING LEVELS OF ALCOHOL FUELS.

FLEXIBLE FUEL VEHICLES OR "FFV'S" ARE OFTEN INTERPRETED AS SOME WHOLLY NEW TECHNOLOGY, OR AN ENTIRELY DIFFERENT VEHICLE. THAT IS NOT THE CASE. TO CREATE A TRULY FLEXIBLE FUEL VEHICLE THAT CAN OPERATE ON METHANOL, ETHANOL, GASOLINE, AND MOST OTHER LIQUID FUELS, COSTS ABOUT $150. THE AVERAGE VEHICLE OWNER WOULD RECOUP THAT COST DIFFERENCE IN ABOUT THREE MONTHS. EVERYTHING ABOUT THE VEHICLE IS THE SAME, AND THE TRANSITION WOULD BE PRACTICALLY INVISIBLE TO THE CONSUMER – EXCEPT WHEN THEY PULL UP TO THE PUMP TO FILL THEIR TANK, WHERE THEY WOULD TRULY HAVE FUEL CHOICE.

THE CURRENT FLEET OF FFV'S THAT ARE ON THE ROAD TODAY ARE WARRANTED TO RUN ON ETHANOL ONLY, AND THEY ARE FACING THE CLASSIC CHICKEN-AND-EGG CONUNDRUM. WITH A LIMITED NUMBER OF VEHICLES ON THE ROAD TODAY, GAS STATIONS ARE HESITANT TO PUT IN PUMPS. LIKEWISE, AUTOMAKERS ARE ALSO HESITANT TO PRODUCE FFV'S CLAIMING A LOW AVAILABILITY OF REFUELING STATIONS.

CONGRESS HAS A CHANCE TO ACT, TO BREAK THE CHICKEN-AND-THE-EGG CYCLE AND TAKE A CRITICAL STEP THAT COSTS THE TAXPAYERS NOTHING, BUT CAN SERVE AS A BRIDGE FORWARD IN ENERGY INNOVATION. THAT STEP WOULD BE TO RAISE THE STANDARDS FOR NEW CARS ON THE ROAD TO ENSURE THAT THEY ARE COMPATIBLE WITH MULTIPLE TYPES OF FUEL.

WHEN CONSUMERS CAN TRULY CHOOSE BETWEEN FUEL OPTIONS IN THEIR VEHICLE, THEN THE MONOPOLY THAT OIL CURRENTLY MAINTAINS IN TRANSPORTATION CAN BE EFFECTIVELY BROKEN. THIS WILL NOT ONLY ENABLE EMERGING TECHNOLOGIES AND FUEL OPTIONS TO PERMEATE THE MARKET, BUT WILL ALSO FORCE GASOLINE TO COMPETE AT THE PUMP, DOLLAR FOR DOLLAR, AND DRASTICALLY REDUCE THE COST OF GASOLINE ITSELF AS WELL. TODAY ONLY ABOUT 3.5% OF VEHICLES ON THE ROAD

ARE ETHANOL-ONLY FFV'S. WITH A MUCH LARGER PORTION OF VEHICLES CAPABLE OF USING ALTERNATIVE FUELS, THEN FUELING STATION OWNERS WILL HAVE THE ECONOMIC INCENTIVE TO INSTALL OR UPGRADE PUMPS. THE FIRST STATIONS TO INSTALL THESE PUMPS WILL BE ABLE TO COMMAND CONSIDERABLE MARGINS FOR THE FUEL, WHILE STILL SAVING CONSUMERS MONEY.

THE UNITED STATES IS CURRENTLY EXPERIENCING A BOOM IN NATURAL GAS PRODUCTION THAT IS CREATING SUSTAINABLY LOW PRICES FOR THIS POWERFUL ENERGY SOURCE. IN BEAUMONT, TEXAS, A METHANOL PLANT THAT HAD BEEN MOTHBALLED FOR YEARS DUE TO HIGH NATURAL GAS PRICES IS NOW COMING BACK TO LIFE. LYONDELLBASSELL HAS ANNOUNCED THAT IT WILL REOPEN A METHANOL PLANT NEXT YEAR IN CHANNELVIEW, TEXAS, CELANESE HAS ALSO ANNOUNCED PLANS TO RESTART A METHANOL PLANT IN CLEAR LAKE, TEXAS, AND METHANEX IS MOVING AN IDLED METHANOL PLANT IN CHILE TO LOUISIANA. LOW NATURAL GAS PRICES ARE LEADING A RESURGENCE OF THE DOMESTIC METHANOL INDUSTRY.

IN A STUDY PUBLISHED IN 2010, RESEARCHERS AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY CONCLUDED THAT METHANOL WAS THE 'LIQUID FUEL MOST EFFICIENTLY AND INEXPENSIVELY PRODUCED FROM NATURAL GAS,' AND THEY RECOMMENDED METHANOL AS THE MOST EFFECTIVE WAY TO INTEGRATE NATURAL GAS INTO OUR TRANSPORTATION ECONOMY.

WHILE INITIALLY CONSUMERS WILL UTILIZE NATURAL GAS-DERIVED METHANOL, RENEWABLE METHANOL IS QUICKLY RISING AS DEMAND FOR CLEANER FUELS CONTINUES AROUND THE GLOBE. IN A DEPARTMENT OF ENERGY SPONSORED PROJECT, OUR MEMBER COMPANY ENERKEM IS CONVERTING MUNICIPAL SOLID WASTE AND INDUSTRIAL WASTE INTO CLEAN BURNING METHANOL AT FACILITIES IN CANADA AND THE U.S. CHEMREC AB FROM SWEDEN IS USING BLACK LIQUOR – A BYPRODUCT OF PAPER PRODUCTION – AS A FEEDSTOCK FOR RENEWABLE METHANOL. CARBON RECYCLING INTERNATIONAL OF ICELAND IS ALSO REVOLUTIONIZING THE WAY WE THINK ABOUT ENERGY, AND IS

USING CO2 POLLUTION FROM A GEOTHERMAL POWER PLANT COMBINED WITH RENEWABLE HYDROGEN TO CREATE METHANOL FUEL WITH A NEGATIVE CARBON FOOTPRINT.

YOUR COLLEAGUES, CONGRESSMEN JOHN SHIMKUS AND ELIOT ENGEL, HAVE INTRODUCED LEGISLATION THAT WOULD TAKE THE FIRST STEP IN OUR PATH AWAY FROM OIL DEPENDENCY. THEY HAVE DEVELOPED THE OPEN FUEL STANDARD ACT OF 2011 (H.R. 1687), WHICH HAS BEEN REFERRED TO THE FULL ENERGY AND COMMERCE COMMITTEE FOR CONSIDERATION. THIS LEGISLATION WOULD REQUIRE THAT AN INCREASING PERCENTAGE OF VEHICLES SOLD IN THE U.S. BE CAPABLE OF RUNNING ON ALTERNATIVE FUELS IN ADDITION TO, OR REPLACEMENT OF, GASOLINE. THIS MEANS THAT ELECTRIC VEHICLES, NATURAL GAS VEHICLES, FUEL CELLS, HYDROGEN, BIODIESEL, AND OF COURSE ALCOHOL FFV'S WOULD ALL QUALIFY UNDER THIS STANDARD.

THIS BILL IS ABOUT COMPETITION AND ECONOMICS; IT IS NOT ABOUT DICTATING WHAT ALTERNATIVES SHOULD BE MOVED FORWARD. OUR ADDICTION TO OIL PRODUCES NUMEROUS NEGATIVE CONSEQUENCES TO OUR HEALTH, OUR ECONOMY, AND OUR NATIONAL SECURITY. THE OPEN FUEL STANDARD ACT WOULD ENSURE THAT NEW VEHICLES ON THE ROAD ARE NOT DEPENDENT ON OIL-DERIVED GASOLINE AND ARE NOT AIDING THE CONTINUED MONOPOLY AND HOLD OIL HAS ON OUR ECONOMY.

INNOVATION IS WITHIN OUR REACH, AND THE ROLE OF GOVERNMENT HAS ALWAYS BEEN TO FOSTER INNOVATION AND TECHNOLOGY, NOT DIRECT IT. BY EMBRACING CHOICE AS OFFERED BY THE OPEN FUEL STANDARD ACT, CONGRESS HAS THE CHANCE TO TAKE ACTION THAT WILL HELP SERVE AS A BRIDGE TO NEW TECHNOLOGIES AND NEW SOLUTIONS. AT NO COST TO THE FEDERAL GOVERNMENT, ADOPTION OF THE OFS WOULD PROVIDE A CLEAR SIGNAL THAT THE U.S. IS SERIOUS ABOUT KICKING THE OIL HABIT.

METHANOL IS A CLEAN BURNING FUEL, THAT IS READILY AVAILABLE, AND 2ND GENERATION METHANOL IS ALREADY BEING PRODUCED AT COMMERCIAL SCALES FROM A NUMBER OF FEEDSTOCKS. METHANOL FFV'S ARE EASILY PRODUCED – IN FACT I DROVE TO WORK TODAY IN A 1998, U.S.-MADE, AND FACTORY-PRODUCED FORD TAURUS.

AMERICA – LIKE OTHER COUNTRIES – IS CURRENTLY EXPERIENCING A RENEWED INTEREST IN METHANOL AS A SUSTAINABLE ENERGY SOURCE, AND WE HOPE THAT AS YOU DEVELOP YOUR RECOMMENDATIONS FOR THE BROADER COMMITTEE THAT YOU WILL CONTINUE TO FOSTER THE INNOVATION THAT AMERICA BEGAN MORE THAN THREE DECADES AGO SO THAT WE CAN RECLAIM OUR ROLE AS THE LEADING INNOVATORS IN ALTERNATIVE TRANSPORTATION FUELS.

THANK YOU FOR YOUR TIME AND FOR INCLUDING OUR ORGANIZATION IN THESE VITAL DISCUSSIONS.

Mr. SHIMKUS. And thank you. Now Mr. Althoff, you are recognized for 5 minutes.

STATEMENT OF DON ALTHOFF

Mr. ALTHOFF. Thank you, Mr. Chairman, and thanks for continuing to invite me back. We think this is an important dialogue and we have lots to contribute.

Most people probably weren't aware, but actually today there is an EPA-certified street legal E85 flex fuel conversion kit on the market today. Flex Fuel U.S. LLC has developed the first Federal EPA-certified product which legally converts existing cars and light duty trucks to run on any combination of ethanol and gasoline, up to E85. The conversion system is low cost, it is easy to install, factory warranties are maintained. We have had successful pilots in some of the most demanding testing done on any vehicles in the country at DOE and at the EPA.

While we are a new company, we have hundreds of these vehicles converted. We have got millions of miles running. They have delivered trouble-free and exceptional performance, and with the average vehicle life lasting longer than 15 years, it would take way too long to reach economies of scale if we only relied on new vehicle technology to get us where we want to go. So we see retrofitting as a bridge, a bridge that helps us achieve our ultimate fuel solution faster. Existing retrofit systems are cost effective and should be a serious consideration today.

We support the Open Fuel Standard because the new legislation would have a significant impact on what I believe is the most critical area in building a sustainable, economic alternate fuel marketplace, which is creating economies of scale. For any alternate fuel approach to be economically competitive against gasoline, a large percentage of the vehicles on the road must be alternate fuel, the fuel supply chain must be large, efficient, and competitive. In most alternate fuel policy debates, the old "chicken or the egg" dilemma surfaces. If there were enough vehicles available, the retailers would add fuel, or if the retailer would just add fuel, the car companies would build more alternative vehicles. This has been true for all the alternative technologies coming forward. This legislation resolves this dilemma by creating a large flex fuel fleet, or alternate fuel fleet in the marketplace.

We also support the standard because the legislation can create scale in the marketplace at very low cost, versus other alternative fuels, that is, for flex fuel. The incremental cost to produce alternate fuel vehicles is very low. Several credible studies conclude that the incremental cost is less than $100 a vehicle. Retrofitting existing vehicles with our EPA-certified system can also be accomplished at a very low price. With scale, the retrofit can be done for under $500 a vehicle, and is available for tens of millions of vehicles on the road today.

Another advantage, as the number of flex fuel vehicles on the road grows, we will also see more competition to build better flex fuel vehicles and to see more aggressive pricing at the retail sites. These are subtle but important aspects. Today, most flex fuel vehicles are built without an ethanol sensor, which reduces the cost for the builder but has done—was done so at the expense to perform-

ance. So when we think that there is high demand for the product, that the product will be engineered to a higher quality and a higher standard.

I would also like to emphasize that the economics work for ethanol blends today. The payback on the investment to build or convert a flex fuel vehicle could be as short as 1 year, in some markets. This may surprise some people, but the facts bear it out. In Chicago, the average spot price differential for E85 has averaged 22 percent less than gasoline for the last 4 years. It has been 20 percent lower in 2012, even when the blender credit has been taken away. A properly designed flex fuel vehicle should have a fuel economy loss of 15 to 20 percent. We did a major test in the city of Chicago on 26 police vehicles with millions of miles driven that had a fuel economy loss of 18 percent. So in this example, you are saving somewhere between 4 to 6 percent on your fuel costs every year on every vehicle. So the economics work.

Now although we see a lot of advantages for it, we do believe there are some areas where the legislation could be enhanced, or new policies created. We think they are simple and pragmatic, but they would enable us to achieve our goals in a faster pace.

First, we believe that retrofitting existing vehicles is critical for the overall program. As I said earlier, with the average life of 15 years, it simply will take too long to get there. The other thing that retrofitting provides is it allows you to target where you convert. One of the interesting things today is demand of vehicles tends to say where the flex fuel vehicles end up. There are more flex fuel vehicles in California and it has the fewest number of E85 pumps in the country. So this method of allocating isn't very—doesn't create economies of scale and make the system work.

The last piece that we would like to see is we believe that there needs to be some incentives for marketing and promoting the fuel. We believe that there is not strong public and consumer perception today, but that is mostly based on inaccurate data around the quality of the fuel, the fuel economy that is out there, and the pricing for the product.

So we believe with those two simple enhancements, the fuel can go even further to make a big difference in the market. Thank you.

[The prepared statement of Mr. Althoff follows:]

July 10, 2012

Congressmen and Congresswomen,

Good morning, my name is Don Althoff; I'm the CEO for Flex Fuel US. Thank you for the opportunity to speak today.

I appreciate the opportunity to provide our input to the Open Fuels Standard legislation because I believe we bring unique insights to the discussion. We have deep experience in all of the key elements in the alternate fuel supply chain including automotive design and construction as well as the manufacture, distribution and resell of motor fuels. Based on our experience in the alternative fuel marketplace, having the ability to support our customers across the entire supply chain is required to achieve a sustainable economic model. Vehicle technology and fuel supply need to work together. Therefore we have developed an in-depth understanding of the entire supply chain for ethanol and other alternate fuels. *We believe the Open Standard Fuel legislation is good for our nation because it begins to build economies of scale in the supply chain. It offers real choice to consumers and results in markets that will drive down fuel costs while improving vehicle performance.*

Before I get into the details around why we support the legislation and provide some suggestion on how we might make it even more successful, please allow me to share a little bit about my company, Flex Fuel US. Most of you are probably not aware that an EPA certified Retrofit Solution is now available. Flex Fuel US LLC was formed in 2006 and has developed the first Federal EPA certified product which legally converts existing cars and light duty trucks to run on any combination of gasoline and ethanol up to E85. The conversion system is low cost and easy to install. Factory warrantees are maintained. Successful pilots and the most demanding DOE and EPA studies have proven the technology works. While we are a new company, hundreds of converted vehicles driven millions of miles are already on the road delivering trouble-free, exceptional performance.

When we started the company, we felt that any successful alternate fuel approach would require the ability to have a low cost retrofit in the supply chain. With the average vehicle life lasting longer than 15 years, it would take too long to reach economies of scale if our national transition relied only on the sale of new vehicles. So *retrofitting is a bridge solution* that helps you achieve your alternative fuel goals even faster. *Existing retrofit systems work cost effectively and should be a serious consideration in any transition of national scale.*

Support for the Open Fuel Standard Legislation

We support the Open Fuels Standard Act because the new legislation would have a significant impact on what I believe is the most critical area in building a sustainable, economical alternate fuel marketplace; creating economies of scale. For any alternate fuel approach to be economically competitive against gasoline, a large percentage of the vehicles on the road must be alternative fuel and the fuel supply chain must be large, efficient and competitive. In most alternate fuel policy debates, the old chicken or egg dilemma surfaces; *if the vehicles were available, the retailers would add the fuel.* Or if the retailers would add the fuel, the car companies will build more alternate fuel vehicles. This has been true for all of the alternate fuel technologies e.g., electric and compressed natural gas vehicles. This legislation resolves this dilemma. When consumers have vehicles that can use the fuel and the fuels are available, consumers have choice in a competitive marketplace. For ethanol, the infrastructure and distribution systems are already in place.

We also support the Standard because *the legislation can create scale in the marketplace at a very low cost versus other alternative fuel technology.* The incremental cost to produce alternate fuel vehicles is very low. Several credible studies conclude the incremental costs are less than $100 for a new vehicle. Retrofitting existing vehicles with EPA certified systems could also be accomplished at very low costs. *With scale, retrofit can be done for under $500/vehicle on tens of millions of vehicles.*

We also see another significant benefit from this legislation; consumers will see lower *fuel prices.* The legislation will help increase the amount of ethanol in our fuel supply chain resulting in lower fuel prices for all consumers. This conclusion is based on a National Renewable Energy Laboratory and McKinsey 2008 study on the impact of ethanol on gasoline pricing. The study's major finding is that ethanol helps to reduce U.S. gasoline prices today and could potentially play an even larger role in the future by helping to reduce crude oil prices. The report says that ethanol blending in the U.S. is keeping U.S. retail gasoline prices about 14 cents per gallon lower than they would be with no ethanol. This takes into account the lower mileage impact of ethanol.

As the numbers of FFV's on the road grow, *we will also see more competition to build better FFV's and create more aggressive retail pricing.* These are subtle but important impacts. Today, most FFV's are built without ethanol sensors to reduce costs but this was done at the expense of performance. When large number of customers begin to use higher blends of ethanol and demand increases, the car companies will have an incentive to produce better performing vehicles.

This legislation also helps to level the playing field with other alternative fuel options. With the elimination of VEETC, ethanol no longer receives any incentives to create new demand. All of the other key alternate fuel technologies receive significant tax incentives with the exception of FFV's.

I would like to emphasize that the economics work today for ethanol blends. The payback on the investment to build or convert FFV is as short as one year in some markets. This might surprise some people but the facts are clear:

- The average Chicago spot price differential for E85 averaged 22% lower vs. gasoline for the last 4 years. It's been 20% lower in 2012 after VEETC was dropped.
- A properly designed FFV will have a fuel economy loss of 15% to 20%. A major test study with the Chicago Police Department showed an 18% loss with our conversion technology. These results were reviewed with DOE and the EPA to provide assurance that they were credible.

Additional Legislative Points for Consideration

There are a myriad of reasons why we support this legislation. Most of the supply chain is in place and ready to be retrofitted to accommodate increased demand. But we also believe there are some areas of the legislation that should be enhanced or new policies created. These are simple but pragmatic tactics that would enable this effort to achieve its goals and accelerate our quest for foreign oil independence and clean air.

First I believe that retrofitting existing vehicles to be Flex Fuel is critical for the overall program and should be incentivized. With the average life of a vehicle on the road today of 15 years, relying only on new vehicles to build scale in the market would take too long. Fortunately there is a legal, EPA approved retrofit option that can be deployed quickly. The technology can also be enhanced to work with methanol.

Retrofitting also has the advantage of targeting where you build out the Flex Fuel fleets to build scale. Unfortunately, new vehicle demand tends to drive today's allocation process with markets like California having the largest number of FFV but the lowest number of E85 retail stations. The retrofit option has the flexibility to build scale in targeted areas. This allows the marketplace to optimize investments where there is abundant fuel availability and strong price differentials. This is materially different than the way the market allocates FFV today.

So placing the vehicles where the fuel is available makes the economics work. Government incentives can encourage expansion of the FFV fleet in targeted areas. This can be accomplished by affording FFVs the same benefits that CNG and Propane vehicles receive today.

I also believe that there needs to be legislation that incentivizes marketing and promotion of Flex Fuel vehicles and fuel. Today the ethanol based alternative fuel program lacks a strong and positive consumer appeal. The lack of acceptance stems from incorrect information in the market today about the quality of the fuel, the performance of a properly designed FFV and the fuel economy data.

A significant educational/marketing program is needed to correct this perception and underpin the proposed legislation actions. In our view, the best way to do this effectively is to incentivize the automobile manufacturers to promote flex fuel vehicles and the fuel. There are a number of options we would suggest as possible approaches in creating incentives to the auto industry to produce high quality vehicles and promote their benefits including:

- Modify or eliminate EPA certification costs associated with certifying the FFV capabilities. We understand that the EPA costs represent about 80% of the total cost difference to produce a FFV.
- Offer tax credits to the owners of FFVs when they demonstrate they purchase at least 50% of their fuel as E85 or a higher ethanol blend.

We do not think that the current CAFÉ credit program should be continued because it hasn't delivered the results it was intended to provide.

In summary, we support the Open Fuel Standard. This legislation is a game changer in our goal of foreign oil independence. We believe it will have a significant impact on creating a sustainable alternate fuel program that can compete economically with gasoline-powered vehicles. And we believe it's a credible first step to achieve real economies of scale. But we also believe that additional steps should be taken including incentives for FFV retrofits and creating incentives to market and promote FFV and fuel.

Thank you very much for the chance to speak today and I would be happy to answer any questions from the committee.

Don Althoff
CEO Flex Fuel US LLC

Appendix attachments

1. Flex Fuel US Overview
2. Oak Ridge National Laboratory - Fuel Economy and Emissions of a Vehicle Equipped with an Aftermarket Flexible-Fuel Conversion Kit
3. National Renewable Energy Laboratory/McKinsey & Co. – Impact of ethanol blending on US Gasoline prices

Mr. SHIMKUS. Thank you. Now the chair recognizes Mr. Karr for 5 minutes.

STATEMENT OF SHANE KARR

Mr. KARR. Thank you, Mr. Chairman.

Mr. SHIMKUS. Sometimes they just have to be pulled closer. That is the problem.

Mr. KARR. My name is Shane Karr, and I am representing the Alliance of Automobile Manufacturers today. We are a trade association of 12 light duty vehicle manufacturers, OEMs, representing roughly 3/4 of the market, the new car market by volume every year. I appreciate the opportunity to offer our views on the challenges and opportunities with alternative fuels.

I want to start by saying that auto makers have invested $200 billion over the last decade in R&D on fuel efficiency and other features. We are perennially back and forth with pharmaceuticals for the largest R&D investors on an annual basis.

Today, consumers have more than 270 models that get over 30 miles per gallon, and we are working on, as you all know, a variety of additional technologies that will improve fuel economy and reduce gasoline consumption.

But the fact is that none of us have a crystal ball. None of my members have a crystal ball. And ultimately, consumers over a long period of time with their vehicle purchase choices are going to decide which technologies are the right ones for them.

Given that fact, while we agree that alternative fuels are an important component of an energy security and independence strategy, we strongly believe that legislation mandating a particular vehicle technology or fuel or set of fuels would be a mistake. Vehicle production mandates—there are two problems with vehicle production mandates. They divert resources that could otherwise be used on other fuel-saving technologies, and they reduce the incentive for manufacturers to innovate.

I do want to say that we agree with you, Mr. Shimkus and Mr. Engel, that E85 FFVs are an important and worthwhile technology. As you know, my guys make them. We sell a little over a million a year. There are approaching 12 million on the roads today. They are clearly a piece of the puzzle, but their effectiveness in actually displacing gasoline consumption, which I understand is the goal of the Open Fuel Standards Act, has been relatively small thus far, and it—frankly, it is a function of fuel price, availability, and consumers' willingness to use the fuel.

We hear all kinds of different numbers about the cost to manufacture FFVs, but—and everyone talks about a per car cost. I would just remind folks that we are selling about hopefully 14 million vehicles in the U.S. this year, so even $100 a car quickly gets you over $1 billion in costs to consumers for this technology. The other thing that is particularly relevant to this committee is to know that emission standards in approximately 40 percent of the United States, California and the States that follow California, are about to be increased, and that increase in emissions standards is somewhat problematic with FFV technology. It is not insurmountable, but it is likely to make FFV technology more expensive.

The other important point to note is that the Open Fuel Standard, as Mr. Dolan has highlighted, requires vehicles to run on E85, which is ethanol, and M85, which is methanol. You know, while we certainly have built vehicles that can run on methanol in the past and we could do it again, the fact is there are no production facilities in the U.S. making methanol in commercial—you know, for transportation use in commercial quantities right now. There are a number of other significant issues that would have to be further studied and addressed if we were going to go in that direction.

What we are open to are prospective policies that, you know, reflect a comprehensive commitment to make new fuel successful in the marketplace, and those are policies that address production and distribution equally with vehicles and consumer acceptance. There, you know, we are looking at the timing and availability of new fuels coinciding with the availability of vehicles that can run on them. This really is a far preferable approach to introducing fuels and then trying to retroactively fit them in the marketplace. Above all, we would want the opportunity to build vehicles that deliver the best fuel economy, performance, and most cost effective compliance to improve the value proposition for our customers.

I will just close by saying, you know, it is worth stressing again that competition is the best driver for technology innovations. My guys are placing bets on a variety of advanced technologies in alternative fuels. Ultimately, consumers will have the final say in determining which technologies and fuels will succeed or fail in the marketplace, and that is how it should be.

[The prepared statement of Mr. Karr follows:]

STATEMENT

OF

THE ALLIANCE OF AUTOMOBILE MANUFACTURERS

BEFORE THE:

ENERGY AND COMMERCE COMMITTEE
THE SUBCOMMITTEE ON ENERGY AND POWER
U.S. HOUSE OF REPRESENTATIVES

JULY 10, 2012

PRESENTED BY:

Shane Karr
Vice President, Federal Government Affairs

Thank you, Chairman Whitfield, Ranking Member Rush and members of the Subcommittee. My name is Shane Karr and I am Vice President for Federal Government Affairs at the Alliance of Automobile Manufacturers (Alliance). The Alliance is a trade association of twelve car and light truck manufacturers including BMW Group, Chrysler Group LLC, Ford Motor Company, General Motors Company, Jaguar Land Rover, Mazda, Mercedes-Benz USA, Mitsubishi Motors, Porsche Cars, Toyota, Volkswagen Group and Volvo Cars. Together, Alliance members account for roughly 3 out of every 4 new vehicles sold in the U.S. each year. On behalf of the Alliance, I appreciate the opportunity to offer our views on the role alternative fuels can play in helping address our nation's energy security and environmental concerns.

Automakers in the United States have invested almost $200 billion over the last decade in research and development to increase fuel efficiency, for safety innovations, for environmental gains and for improved communications. Roughly 99% of that research has been privately funded. Today, consumers have more than 270 models that get over 30 miles per gallon – and we are working on a variety of additional technologies to dramatically improve fuel economy and reduce gasoline consumption. Each company is pursuing research strategies consistent with its own vision of what will motivate its future customers.

Ultimately, consumers will determine which of these investments were wise. Given the absence of a crystal ball, and the reality that consumers will manifest their choices over a long window of time, we believe it is imperative that government not get in the business of picking technology winners and losers. Government should set performance-based standards and let auto engineers decide how best to meet them. Consumers should choose winners through their collective purchasing patterns. Therefore, while we agree that alternative fuels are an important component of an energy security and independence strategy, we strongly believe that legislation mandating a particular vehicle technology or fuel or set of fuels would be a mistake.

Without meaningful alternative fuel use, the energy security implications of any particular alternative fuel technology are marginal at best, and possibly less impactful than other technology applications aimed at reducing oil consumption. This is an important point, because vehicle production mandates divert significant resources that could be applied to other fuel saving technologies and reduce the incentive for manufacturers to innovate.

The U.S. is on pace to consume around 132 billion gallons of gasoline this year, which is down because of the relatively higher price of gasoline, the vastly improved fuel efficiency of new vehicles, and the slowing pace of broader economic recovery. As it happens, the renewable fuel standard (RFS) requires blenders to purchase 13.2 billion gallons of corn ethanol this year, almost exactly 10 percent of the total gasoline pool, which will be taken up almost exclusively by E10, leaving virtually no room for higher level blends.

The U.S. is already the world's largest producer by far of corn ethanol. No one – not even the ethanol industry – is suggesting that the US should divert more of its arable land to produce additional feedstock for corn ethanol. Continued production efficiencies will result in higher yields, but those will be incremental, not exponential. We won't have the option of importing it in significant quantities (which arguably defeats the energy security goal anyway), given that the second largest ethanol producer in the world is Brazil, which itself has a shortage that will continue as long as sugar prices remain high. And we still wouldn't have pipelines to ship ethanol around the country efficiently and cheaply or the compatible pumps at fueling stations. So, a number of very significant factors in addition to vehicles would need to change to make the theoretical notion that consumers could buy more ethanol – if they wanted to – a reality.

H.R. 1687, The Open Fuels Standard Act

H.R. 1687 calls for 95 percent of vehicles to be alternative fuel vehicles beginning in model year 2017. Although the bill defines alternative fuel broadly, it is generally understood that the least expensive compliance path would be to build vehicles that meet the current requirements for flexible fuel vehicles (FFVs). This is why H.R. 1687 is supported primarily by the ethanol producers in the alternative fuel space.

Let me start by saying that automakers agree with the sponsors of H.R. 1687 that FFVs, currently defined as vehicles capable of running on any blend of gasoline and ethanol up to 85 percent (E85), are an important and worthwhile technology. In fact, there are already close to 12 million E85 FFVs on U.S. roads, and we will probably sell another million this year. However, only about 2 percent of gas stations have an E85 pump, and most are concentrated in the Midwest, where most corn ethanol is produced. This makes sense, because keeping production

close to point-of-sale is the most affordable approach. But even in states where E85 pumps are concentrated, actual sale of E85 has been low and stagnant. For example, in 2009 Minnesota had 351 stations with an E85 pump (the most of any state) but the average FFV in the state used10.3 gallons of E85 for the whole year. The bottom line is that E85 FFVs are a piece of the puzzle, but their effectiveness in actually displacing gasoline consumption is a function of fuel price, availability and consumers' willingness to use E85. Thus far it has been small in impact – and requiring huge percentages of new vehicles to have this capability is unnecessary and cost ineffective for consumers.

It is worth noting that achieving compliance with the vehicle production mandates in H.R. 1687 by producing E85 FFVs would cost consumers well more than $1 billion per year by the most conservative estimates. And these conservative estimates are severely understated for the vehicle mandates of the bill for two reasons: (1) H.R. 1687 requires a new kind of tri-fuel FFV that can run on gasoline, ethanol, methanol, and any combination of the three fuels, and which does not exist today; and (2) it will be more expensive to produce tri-fuel FFVs that can comply with H.R. 1687 especially with the forthcoming California Low Emission Vehicles (LEV III) and federal Tier 3 emissions standards along with very aggressive fuel economy/GHG emission requirements through 2025.

The Methanol Experience

In the late-1980s to mid-90s, automakers produced a limited number of light-duty vehicle models that could run on an 85% blend of methanol in gasoline (M85). This was undertaken in response to a series of California initiatives to increase the availability of methanol fuel and M85 FFVs across the state. Attachment 1 lists the extensive changes that were made to vehicles at the time to make them compatible with methanol blends. It should be noted that vehicle changes to accommodate methanol (then and now) are distinct from ethanol FFVs. Larger valves, greater hardening efforts associated with parts, and software changes to allow the vehicles to run effectively are some of the unique modifications necessary to allow vehicles to run on alternative fuels – and they are different for each alternative fuel involved.

The California methanol effort was abandoned for a variety of reasons. The largest was that methanol was finding its way into water supplies and its toxicity was considered a

significant health concern. But from a vehicle perspective, there were also concerns. Methanol contains 50 percent less energy content than gasoline. Drivers had to refuel twice as often and consumer acceptance was low. The fueling infrastructure was very expensive, and retailers were unwilling to mortgage their futures on an unproven fuel.

Today, there are no production facilities in the U.S. making methanol for use as transportation fuel in commercial quantities. The U.S. currently imports over 80% of its methanol needs and the additional imports required to fuel an M85 compatible fleet would be counter to efforts to bolster U.S. energy independence and security. There are no pipelines to ship it around the country and methanol cannot be shipped using conventional oil and gas pipelines due to its highly corrosive nature. There are no pumps available at fueling stations (ethanol pumps would not be certified for methanol, which is more corrosive and much more problematic if it leaks and contaminates our ground water). The only country making significant quantities of methanol for motor vehicle use is China, which is making it from coal. If methanol is intended to become a significant alternative fuel in the future, these issues will have to be further studied and addressed. In the meantime, consumers should not be required to pay more for vehicles that are capable of using a fuel that is unlikely to ever be a player in the market.

Emissions Standards and Alternative Fuels

Even if methanol is eliminated from the equation, the cost of making E85 FFVs will increase. As emission standards continue to be tightened – which is happening as both California and EPA work to create new LEV III and Tier 3 standards respectively – designing vehicles to meet those requirements on two fuels will be very challenging and costly – adding a third fuel could dramatically increase costs. It is worth noting that engineering a vehicle to run effectively and efficiently on two fuels means that it cannot be optimally tuned to run on either, so it is a compromise design to start with. This situation is compounded substantially when you add a third fuel.

Furthermore, today's E85 FFVs do not comply with the most stringent state emissions standards and testing requirements. California and states that have adopted California regulations, which effectively governs 40% of the U.S. vehicle market, will require virtually all vehicles to certify to the most stringent standards in the coming years under its LEV III program.

Because ethanol is a renewable fuel and can have fewer carbon emissions, it does not perform as well as gasoline when a cold engine is started, and methanol is even worse. While California has added flexibilities to its LEV III requirements that may enable automakers to engineer E85 FFVs to comply with these standards over time, they will be more expensive than FFVs today.

It should also be noted that if manufacturers were required to design FFVs to be capable of meeting these emission standards on methanol, the challenges become far greater on all fronts – exhaust emissions, evaporative emissions, durability and test burden. Because burning methanol produces much higher levels of formaldehyde, an air toxic, a whole new development effort focused on meeting stringent formaldehyde standards would be needed. The high volatility and permeation rates of methanol blends bring into question the feasibility of meeting evaporative emission standards (we last produced methanol vehicles before the introduction of real world test procedures in the 1990s). The corrosive nature of methanol leads to durability concerns for fuel system components. Additionally, thousands of additional tests per year would be required, which include more expensive and time-consuming measurement techniques for methanol and formaldehyde, impacting both the need for additional manpower and lab equipment. Simply put, the future emission standards were not developed taking into account the challenges of methanol.

Looking Ahead

Automakers are open to prospective policies that reflect a comprehensive commitment to make new fuels successful in the marketplace. Such policies would need to address production and distribution equally with vehicles and consumer acceptance, which are really the final link in the chain. The availability of new fuels should coincide with the availability of the vehicles that can run on them, so there is a market for both. Such a prospective approach is a far preferable alternative to retroactively introducing fuels into a market that has not been designed, certified or warranted to run on them.

Some key considerations as we move forward include:

Octane Level: Since ethanol provides less energy per gallon than gasoline, the future fuel may need to provide for higher octane to minimize fuel economy decreases as more ethanol is added to gasoline. Higher octane fuels enable automakers to calibrate our engines to improve

fuel economy. This change may be crucial for consumer acceptance. It is also critical that automakers not be penalized under future regulations for any decreases in fuel economy that are attributable to greater ethanol use.

Legacy Fuels: Legacy fuels must continue to be available for older vehicles while the refueling infrastructure for higher level ethanol blends is transitioning. Government assistance in implementing an effective program to educate consumers about the fueling capabilities of their vehicles to prevent misfueling will also be crucial to the success of the effort. In addition, enforcement of fuel blend and labeling requirements must be extensively and effectively executed.

Above all, this approach must give automakers the lead-time required and establish the certainty needed to design and develop vehicles that can best meet the multitude of requirements placed on us by regulators, and by consumers. It should also provide certainty for producers, retailers, engine manufacturers and other stakeholders. With certainty about the fuels our vehicles will be using, our engineers can design vehicles that are optimized for that fuel. This will allow us to deliver better fuel economy, better performance, and more cost-effective compliance with emissions standards – which in turn improves the value proposition for our customers.

In closing, it is worth stressing again that competition is the best driver for technology innovations. Automakers are each placing their bets on various advanced vehicle technologies and alternative fuels. Technology-neutral policies, not government mandates, will guarantee the ongoing development of a broad scope of technologies. But, ultimately consumers will have the final say in determining which technologies and fuels will ultimately succeed or fail in the marketplace. That is how it should be.

Thank you for the opportunity to offer our views on the Open Fuels Standard and I will be happy to answer any questions.

Attachment 1

Past Experience with M85 Flex-Fuel Vehicles (FFVs)

In the late 1980s to mid-90s, automakers produced a limited amount light-duty vehicle models that could run on an 85% blend of methanol in gasoline (M85). This experiment was in response to a series of California initiatives to increase the availability of methanol fuel and M85 FFVs across the state. Below is a generic list of components and modifications automakers may have utilized in the late 80s and 90s to transform a vehicle into a M85 compatible FFV.

It is important to note that these vehicles were produced prior to the implementation of the federal Tier 2 vehicle emissions program or enhanced evaporative emissions standards. The Tier 2 program resulted in vehicles emitting 99% fewer smog-forming emissions compared to vehicles in the 1970s. EPA and California are currently in the process of implementing new Tier 3 and LEV III vehicle emissions standards respectively that will require automakers to significantly lower the remaining 1% of smog-forming emissions. Because of the unique nature of methanol, the M85 FFVs produced in conjunction with this CA program would not have been able to meet the Tier 2 emissions targets, much less the pending aggressive Tier 3 and CA LEV III requirements.

Generic List of Vehicle Components and Modifications Utilized in pre-Tier 2 M85 FFVs:

- Fuel Pump Speed Controller
- Canister Purge Valve
- Engine Modifications:
    - Piston Ring – chrome plated face to resist corrosion and wear.
    - Exhaust Valve & Seat – material upgrade to resist corrosion and pitting.
    - Engine Oil – formulated to reduce the tendency of methanol to remove anti-wear additives from the oil. Also contains additives to reduce corrosion and wear due to higher acidity of blow-by gases.
    - Throttle Body – changes made to allow canister purge at idle.
- Wiring Assemblies – modifications required for component additions.
- Electronic Control Module (ECM) – changes required for specific methanol inputs and outputs:
    - Fuel Composition
    - Fuel Temperature
    - Fuel Tank Level
    - Prom and Software Changes
- Fuel Injector Driver Module
- Ignition Coil – high secondary current ignition coil for improved cold start.
- Fuel Rail Assembly – material changes for methanol compatibility to injectors, pressure regulator, and rail coating.

- Pipe Assemblies – material changes for methanol compatibility.
- Variable Fuel Sensor Assembly – monitors fuel composition (% of methanol) in fuel line.
- Catalytic Converter – revised catalyst loading for emissions control.
- Low Fuel Light – added because of decreased driving range with methanol.
- Fuel Sender Control Module – interrupts current through fuel level sender to reduce galvanic attack in methanol environment.
- Fuel Tank – stainless steel required for corrosive methanol environment.
- Solder –silver solder required for methanol compatibility.
- Flame Arrestors – stainless steel required to prevent fame propagation from fill door to fill tank.
- Fuel Hose and Vent Hose – revised for decreased fuel.
- Fuel Fill Pipe and Vent Extensions – stainless steel required for corrosive methanol environment.
- Fuel Fill Pipe – modified vent pipe to provide canister clearance.
- Canister – increased capacity evaporative canister required because of higher vapor pressures of low methanol blends.
- Canister Bracket – unique bracket to reposition large canister.
- Fuel Cap – gasket materials modified for methanol compatibility
- Fuel Sender and Pump Assembly:
    - Higher flow pump to account for reduce energy density
    - Extensive material changes for methanol compatibility

Mr. SHIMKUS. Thank you very much. Now I would like to recognize Mr. Hassenboehler for 5 minutes.

STATEMENT OF TOM HASSENBOEHLER

Mr. HASSENBOEHLER. Thank you, Mr. Shimkus, members of the subcommittee. My name is Tom Hassenboehler, and I am here on behalf of America's Natural Gas Alliance. ANGA is an educational and advocacy organization dedicated to increasing appreciation for the environmental, economic, and national security benefits of North American natural gas. ANGA's 30 members include many leading North American independent natural gas exploration and production companies.

As has been discussed with the advent of new technologies and the advancement of shale gas production, the recoverable natural gas resource base in the U.S. has increased dramatically in recent years, and the U.S. has now surpassed Russia as the world's top producer of natural gas. In addition, crude oil and natural gas prices in the U.S. have diverged since about 2009. The EIA projects this trend to continue and the gap to widen through 2035. These developments present a tremendous energy security and environmental opportunity for the U.S. to increase its use of natural gas as a transportation fuel.

ANGA works to promote a policy environment that increases market-driven use of natural gas as a transportation fuel. We support efforts to encourage a substantial transition of fleet vehicle to natural gas through policies that encourage natural gas vehicle conversions and original equipment manufacturer production. ANGA also supports significant expansion of natural gas fueling infrastructure along key transportation corridors throughout North America.

These targeted efforts represent the most prudent and efficient means to encourage the development of economies of scale within this market, while decreasing emissions, dramatically reducing exportation of domestic capital, and advancing U.S. energy security. Similarly, ANGA is aware of the current challenges in this economic climate and the responsibility at all levels of government to be conservative in its expenditure of public funds. ANGA's efforts emphasize the importance to maintain parity among alternative transportation fuel policies, as has been discussed.

One region where ANGA has had recent success is the Texas Clean Transportation Triangle, or the CTT. The goal of the CTT is to develop sufficient natural gas stations and initial fleet users to transform heavy duty trucking in Texas. On July 15, 2011, Texas Governor Rick Perry signed into law Senate bill 385, a first of its kind legislation designed to help create a sustainable network of natural gas refueling stations along the interstate highways connecting Houston, San Antonio, Austin, and Dallas/Ft. Worth. The legislation allocates funding from the Texas Emissions Reduction Plan, as well as private sources, to support the development of new stations and the deployment of NGVs. Similar broad stakeholder efforts are now underway in other parts of the country, especially in areas of shale gas production like the Marcellus or Rocky Mountain regions.

Another example of NGV momentum is the bipartisan effort underway by Oklahoma governor Mary Fallin and Colorado governor John Hickenlooper. Last fall, they announced a high level initiative to use NGVs in State fleets by aggregating vehicle purchase numbers. Since then, the governors of 11 additional States have signed the NGV MOU. The governors recently sent a letter to 19 auto manufacturers with plants in the U.S., pushing for the increased production of more affordable compressed natural gas vehicles. As an incentive, the governors reaffirmed their commitment to buy CNG vehicles for their respective State fleets.

While these efforts are encouraging, still less than .1 percent of domestic natural gas in 2010 fueled our Nation's vehicles, and this remains true, despite the fact that there are over 12 million NGVs worldwide today in other parts of the world, and that number continues to grow. Only about 1 percent of those 12 million vehicles are here in the U.S., despite our resources.

At the Federal level, ANGA supports efforts to cerate a level playing field among alternative fuel policies. We agree that it takes all of the above alternative fuels to enhance our energy security. However, current levels of support for NGVs are not on par with other alternatives. We encourage the committee to take a comprehensive technology and feedstock-neutral approach when evaluating current levels of Federal support for alternative fuels among all areas of the Federal Government, including Executive Branch, Federal fleet performance, Federal agency regulatory programs such as CAFE and EPA greenhouse gas standards, existing mandates such as the RFS, and research and development programs.

ANGA appreciates the efforts of Congressmen Shimkus and Engel, and the other cosponsors of the Open Fuel Standard Act. While we are encouraged by this discussion the legislation is helping to create, we are concerned that this mandate on auto makers will not create the level playing field for fuels that is paramount to ANGA. We do look forward to continuing to work with Mr. Shimkus and the committee on constructive policies that do help to level the playing field and contribute to greater energy security through the increased use of natural gas.

Thank you.

[The prepared statement of Mr. Hassenboehler follows:]

July 10, 2012

Summary of Testimony to the Energy & Commerce Committee subcommittee on Energy & Power

ANGA works to promote a policy environment that increases market-driven use of natural gas as a transportation fuel. We especially support efforts to encourage a substantial transition of fleet vehicles to natural gas through policies that encourage natural gas vehicle (NGV) conversions and original equipment manufacturer (OEM) production. ANGA also supports significant expansion of natural gas fueling infrastructure along key transportation corridors throughout North America.

Although the United States has a rich abundance of natural gas energy, less than 0.1% of domestic natural gas in 2010 fueled our nation's vehicles, according to EIA. This remains true despite the fact that there are over twelve million NGVs worldwide today and the number is growing. Only about one percent of those twelve million vehicles are in use here in the United States, despite our vast resources.

Both liquefied natural gas (LNG) and compressed natural gas (CNG) offer fleets the opportunity to improve their environmental footprint, increase use of a domestic resource, and lower overall operating costs, therefore providing a multitude of benefits for both companies and the general public. CNG/LNG also provides new opportunities in emerging nonroad and marine engine applications.

As of June, 2012, there are currently 53 LNG fueling stations in the U.S. serving over 3,300 LNG vehicles. Of the 53 LNG fueling stations, 36 are located in California.

Approximately 100 additional LNG stations are in the planning stages nationwide. 90% of these stations will be located outside of California, significantly improving the geographic distribution of stations and opportunities for an alternative fuel future.

A large nationwide network of CNG fueling stations already exists. Currently, there are over 1,000 CNG stations in the U.S, with 36 states that have at least five CNG stations. About half of the CNG stations are for public use and others are for fleet-specific vehicle use only, although the prevalence of both is increasing. As of June 2012, there were 94 CNG stations currently planned or under development. Recent CNG announcements by retailers such as Love's, Kwik Trip, Flying J, and Clean Energy demonstrate growing mainstream demand for CNG fueling.

At the federal level, ANGA supports efforts to create a level playing field among alternative fuel policies. We agree that it takes an "all of the above" approach to alternative fuels to enhance our energy security.

We encourage the Committee to take a comprehensive technology- and feedstock-neutral approach when evaluating current levels of federal support for alternative fuels among all areas of the federal government, including Executive branch federal fleet performance, federal agency regulatory programs such as CAFE and EPA GHG standards, existing mandates such as the Renewable Fuel Standard, and Research and Development programs.

July 10, 2012

Testimony to the Energy & Commerce Committee subcommittee on Energy & Power

Good morning Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee. My name is Tom Hassenboehler and I am here on behalf of America's Natural Gas Alliance. I appreciate this opportunity to express ANGA's views on alternative transportation fuels and vehicles and our comments on HR 1687, the Open Fuel Standard Act of 2011. ANGA is an educational and advocacy organization dedicated to increasing appreciation for the environmental, economic, and national security benefits of North American natural gas. ANGA's 30 members include many leading, North American independent natural gas exploration and production companies. Their collective natural gas output comprises approximately 40 percent of total annual U.S. natural gas production.

ANGA works to promote a policy environment that increases market-driven use of natural gas as a transportation fuel. We especially support efforts to encourage a substantial transition of fleet vehicles to natural gas through policies that encourage natural gas vehicle (NGV) conversions and original equipment manufacturer (OEM) production. ANGA also supports significant expansion of natural gas fueling infrastructure along key transportation corridors throughout North America. These targeted efforts represent the most prudent and efficient means to encourage the development of economies of scale within this market while decreasing emissions, dramatically reducing exportation of domestic capital, and advancing U.S. energy security. Similarly, ANGA is aware of the current challenges in this economic climate and the responsibility at all levels of government to be conservative in its expenditure of public funds. ANGA's efforts emphasize the importance to maintain parity among alternative transportation fuel policies.

ANGA also collaborates with the American Gas Association in the Drive Natural Gas Initiative to advance a common vision of enhancing our national energy security by promoting the development of natural gas vehicles and infrastructure throughout North America. Our joint activities focus on infrastructure development, vehicle production, marketing and education for clean transportation solutions, and targeted advocacy. Our aim is to work in a cooperative and complementary fashion with other stakeholders who share our commitment to promoting natural gas vehicles and clean, American transportation solutions.

Supply and Demand

Natural gas vehicles represent a tremendous energy security and environmental opportunity for the United States. With the advent of new technologies and the advancement of shale gas production, the United States has now surpassed Russia as the world's top producer of natural gas, according to the EIA. [1] Indeed, in the last decade alone, the Potential Gas Committee estimates of natural gas resources have increased by more than 70 percent, almost all from shale gas. EIA estimates of natural gas resources increased by 86 percent over a three-year period. The size of the resource could increase further as exploration and technology advances continue to provide more information, something which has already been observed in Alaska, in the Gulf of Mexico, and in other newly accessed resource basins.

[1] The U.S. surpassed Russia as world's leading producer of dry natural gas in 2009 and 2010, March 13, 2012, EIA Today in Energy

In addition, crude oil and natural gas prices in the U.S. have diverged since about 2009. The EIA projects this trend to continue and the gap to widen through 2035. A key reason for this is that oil is a far more fungible commodity in the global market than natural gas. Domestic natural gas prices are down primarily due to dramatically increased supply from the shale plays. At the same time, rising global demand for oil (primarily from Asia) along with an unstable Middle-east has caused oil prices to rise.

Although the United States has a rich abundance of natural gas energy, less than 0.1% of domestic natural gas in 2010 fueled our nation's vehicles, according to EIA. This remains true despite the fact that there are over twelve million NGVs worldwide today and the number is growing. Only about one percent of those twelve million vehicles are in use here in the United States, despite our vast resources. Interest in NGV transportation has increased throughout the country, which has presented an opportunity in the United States for many of the leading auto manufacturers that already produce NGVs elsewhere, including Ford, GM, Chrysler, Fiat, Toyota, Honda, Nissan, Hyundai, Volkswagen and Mercedes, among others. Many truck manufacturers are already ramping up NGV volumes in the United States, including Daimler Trucks, Volvo, Kenworth, Peterbilt, and Navistar. Therefore, combined with continued safe and responsible development of our domestic natural gas resource, stable market growth among domestic end users, and consistent policy signals from Washington, natural gas as a transportation fuel can help to provide a low cost way to achieve emission reductions and energy security goals in the transportation sector.

CNG/LNG

Both liquefied natural gas (LNG) and compressed natural gas (CNG) offer fleets the opportunity to improve their environmental footprint, increase use of a domestic resource, and lower overall operating costs, therefore providing a multitude of benefits for both companies and the general public. CNG/LNG also provides new opportunities in emerging nonroad and marine engine applications. Natural gas is the alternative fuel of choice for most heavy-duty vehicle operators and many light- and medium-duty fleets and consumers. NGVs provide similar power, torque and fuel range as conventionally-fueled vehicles, while providing fuel cost savings and lower emissions. Additionally, NGV options are ready in a variety of factory-direct applications that can meet most fleets' light-duty, medium-duty and heavy-duty operational needs.

Natural gas is an extremely versatile transportation fuel that can be sold in the compressed or liquefied state, or as a feedstock to produce other liquid fuels. CNG is made by compressing natural gas to about 3600 pounds per square inch (psi). LNG is made by cryogenically cooling natural gas to -260° F. Natural gas stations can provide CNG, LNG, or a combination of the two.

CNG is ideal for light and medium duty vehicles and any heavy-duty fleets whose operations remain more local, such as municipal operations, refuse collection, and some delivery applications. There are two types of CNG stations: fast-fill and time-fill. A fast-fill station is more expensive than time-fill, but is excellent for retail sales and supporting fleets that require speedy fueling similar to conventional fuels. A time-fill station is less expensive, but works best for fleets that return to central locations and are parked for extended periods – generally overnight -- such as a refuse hauling fleet. Time-fill fueling is also available for passenger vehicles, with home fueling appliances that connect to the home's gas line and fuel CNG-powered vehicles over a multi-hour timeframe.

LNG vehicles provide the best commercially available technology for heavy-duty fleets with high fuel use and long-distance travel demands. This is because cooling gaseous natural gas to make liquid takes up about 1/600th the original volume, meaning trucks can carry more energy in their

tanks as LNG versus CNG. LNG is dispensed in fast-fill stations via mobile or permanent stations. Mobile stations, which consist of an insulated LNG tank and dispensing equipment built on a trailer that can be parked, provide an ideal option for off-road fueling and remote locations without pipeline access to natural gas. Mobile stations can also provide important fuel support until permanent LNG stations can be built.

Infrastructure

As of June, 2012, there are currently 53 LNG fueling stations[2] in the U.S. serving over 3,300 LNG vehicles[3]. Of the 53 LNG fueling stations, 36 are located in California. California is typically an early adopter for new vehicle technologies, due to local air quality challenges and associated government programs that support environmental protection. Although the existing network of LNG stations is highly concentrated in California and other southwestern early adopter states, these early alternative fuel leaders laid the groundwork for a growing national network of natural gas refueling stations.

Approximately 100 additional LNG stations are in the planning stages nationwide. 90% of these stations will be located outside of California, significantly improving the geographic distribution of stations and opportunities for an alternative fuel future.

A large nationwide network of CNG fueling stations already exists. Currently, there are over 1,000 CNG stations in the U.S, with 36 states that have at least five CNG stations[4]. About half of the CNG stations are for public use and others are for fleet-specific vehicle use only, although the prevalence of both is increasing. As of June 2012, there were 94 CNG stations currently planned or under development[5]. Recent CNG announcements by retailers such as Love's, Kwik Trip, Flying J, and Clean Energy demonstrate growing mainstream demand for CNG fueling.

ANGA works to increase this momentum by supporting major expansions of natural gas fueling stations along key highways, in order to support the transition to a lower cost, domestically produced transportation future. One region where ANGA has had recent success is the Texas Clean Transportation Triangle, or CTT. The goal of the CTT is to develop sufficient natural gas stations and initial fleet users to transform heavy-duty trucking in Texas. On July 15, 2011, Texas Governor Rick Perry signed into law Senate Bill 385, a first-of-its-kind legislation designed to help create a sustainable network of natural gas-refueling stations along the interstate highways connecting Houston, San Antonio, Austin, and Dallas/Fort Worth. The CTT legislation allocates funding from the Texas Emissions Reduction Plan (TERP) to support the development of new stations and the deployment of NGVs. For the biennium 2012-2013, over $4.2 million was committed to funding natural gas stations, and $18.3 million to the Natural Gas Vehicle Rebate/Grant Program.

The first round of CTT grant funding was very successful. In April 2012, the Texas Commission on Environmental Quality (TCEQ) received 21 applications for the development of natural gas fueling stations along the CTT. These proposed projects include 3 LNG stations, 4 LCNG stations, and 14 CNG stations. All proposed stations will offer public access and be located within 3 miles of one of the major interstate freeways along the triangle. Natural gas truck sales are expected to expand further as program truck rebates are released in early July 2012.

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[2] "Alternative Fuels Station Locator" US Department of Energy Alternative Fuels Data Center, June 2012
[3] "Alternatives to Transportation Fuels" US Energy Information Administration, 2010
[4] "Alternative Fuels Station Locator" US Department of Energy Alternative Fuels Data Center, June 2012
[5] "Alternative Fuels Station Locator" US Department of Energy Alternative Fuels Data Center, June 2012

This great program developed thanks to the leadership and support of the State Legislature of Texas, the TCEQ, and the Governor's office. An unprecedented consortium of more than 200 stakeholders was engaged in the strategic plan, including fleet operators such as United Parcel Service and business groups such as the Houston NGV Alliance and the Metroplex NGV Consortium. They were joined by utilities, fuel suppliers such as Clean Energy Fuels Corp., natural gas producers, and universities. Similar broad stakeholder efforts are now underway in other parts of the country, especially in areas of shale gas production, like the Marcellus or Rocky Mountain regions.

LNG: An ideal alternative fuel for long-haul trucking

Interest in fueling options from long-haul truck operators drives much of this infrastructure growth. Energy security and transportation air quality are complex problems that require the right fuel for the right application. Natural gas is a practical, cost-effective alternative fuel that can support the operational needs of our nation's heaviest vehicles. The transition to a natural-gas powered transportation future will increase energy security, grow the American workforce, and improve air quality.

Heavy-duty vehicles account for just over two percent of the U.S. vehicle population, but they consume more than 21 percent of the nation's transportation fuel[6]. Currently, diesel costs $3.36 per gallon[7], versus $2.31 per diesel gallon equivalent of CNG[8]. Our heavy-duty transportation economy could save $54 billion in fuel costs each year with a conversion to natural gas, freeing up these billions of dollars to reinvest in local businesses and economies.

Diesel fuel use is rising. Our consumer economy relies on heavy-duty trucks and fueling networks to transport our nation's goods and drive our economy. Due to growing demand over the last several decades, the number of trucks - and associated diesel consumption - is increasing. Of the 4.8 million heavy-duty trucks (Class 7 & 8)[9] on our roads, 4.2 million run on diesel. These heavy-duty trucks consume over 70% of all diesel in the United States[10]. By 2035, the number of heavy-duty trucks will increase by almost 70% and will consume 34% more oil to meet our transportation demand[11].

Average annual mileage per heavy-duty tractor in the United States is 69,000 miles, which equates to approximately 11,700 gallons of diesel per vehicle each year (assuming 5.9 mpg[12]). Using the national average fuel consumption for a heavy duty tractor, the current annual diesel consumption for heavy-duty tractors is approximately 30 billion gallons of diesel per year, or 82 million diesel gallons per day.

Natural gas offers a clear, cost-effective path to energy security and economic growth. As the public network for CNG and LNG stations expands, more Americans will have access to a domestic, low-cost alternative to high gasoline prices and foreign oil.

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[6] "Transportation Energy Data Book", U.S. Department of Energy, 2010 Table 5.4
[7] http://www.eia.gov/petroleum/gasdiesel/ as of 7/2/2012
[8] "Clean Cities Alternative Fuels Price Report", U.S. Department of Energy, April 2012
[9] "Highway Statistic 2010", Federal Highway Administration, Table VM-1 and "Transportation Energy Data Book", U.S. Department of Energy, 2010 Table 5.4
[10] "Transportation Energy Data Book", U.S. Department of Energy, 2010 Table 5.4
[11] "Annual Energy Outlook 2011", U.S. Energy Information Administration, 2011, Supplemental Tables 45-72
[12] "Highway Statistic 2010", Federal Highway Administration, Table VM-1

Governors' NGV Memorandum of Understanding and Light Duty Momentum

Momentum for increased NGV use is growing throughout the nation. Last fall, Oklahoma Governor Mary Fallin and Colorado Governor John Hickenlooper announced a high-level, bipartisan initiative to use NGVs in state fleets by aggregating vehicle purchase numbers. Since then the Governors of 11 additional states have signed the NGV MOU and have worked closely with the natural gas community to support the growth of infrastructure and fueling station initiatives to serve the increasing number of public and private NGVs on the road.

The governors recently took their efforts to a whole new level. In a letter to 19 auto manufacturers with plants in the U.S., the team of governors pushed for the increased production of more affordable compressed natural gas (CNG) vehicles. As an incentive, the governors re-affirmed their commitment to buy CNG vehicles for their respective state fleets.

This bipartisan team of governors recognizes that their combined purchasing power is one way to encourage auto manufacturers to harness the abundant and affordable natural gas resources right here in America. They are asking automakers to consider seriously the value in producing new NGV models not only for state fleets but also for the everyday consumer. This "power in numbers" can - and will - help jumpstart cleaner transportation choices, and with their powerful collective voice, this gubernatorial team certainly is on the road to a better future with cleaner, more affordable natural gas vehicles.

Automakers are responding as well, with Chrysler recently bringing online the U.S.'s only OEM factory-built, CNG/gasoline bi-fuel (capable or running on gasoline and CNG) pickup truck, built on the production line by Chrysler itself. Other manufacturers such as Ford and GM are similarly increasing their bi-fuel options. Honda is also ramping up long-term efforts to market its Civic Natural Gas, with new dealerships across the country signing up to sell the CNG car, which is made in America at Honda's Greensburg, Indiana plant.

Federal Policy Choices

ANGA supports constructive policies to promote natural gas vehicles and all of the benefits they bring for local air quality, community health and U.S. energy security. From government purchasing decisions, to support for transportation corridors that expand fueling infrastructure, policymakers at all levels of government can play a significant role in encouraging this clean form of transportation.

At the federal level, ANGA supports efforts to create a level playing field among alternative fuels policies. We agree that it takes "all of the above" alternative fuels to enhance our energy security. However, current levels of federal support for NGVs are not on par with other alternatives. We encourage the Committee to take a comprehensive technology- and feedstock-neutral approach when evaluating current levels of federal support for alternative fuels among all areas of the federal government, including Executive branch federal fleet performance, federal agency regulatory programs such as CAFE and EPA GHG standards, existing mandates such as the Renewable Fuel Standard, and Research and Development programs.

ANGA appreciates the efforts of Congressman Shimkus and the other cosponsors to expand the use of alternative fuels through HR 1687, the Open Fuel Standard Act. This legislation would require automakers to manufacture certain mandated percentages of vehicles capable of running on alternative fuel, including natural gas, in set time periods as allocated by the statute. While we are

encouraged by the discussion this legislation is helping to create, we are concerned that this mandate on automakers will not create the level playing field for fuels that is paramount to ANGA. We look forward to continuing to work with Congressman Shimkus and the Committee on constructive policies that help to level the playing field for all alternative fuels and contribute to greater energy security though the increased use of natural gas.

Mr. SHIMKUS. Thank you. Now we would like to ask Ms. Wright, you are recognized for 5 minutes.

STATEMENT OF MARY ANN WRIGHT

Ms. WRIGHT. Thank you. On behalf of the over 25,000 Johnson Controls employees who live in work in your States, and the 115 Electric Drive Transportation Association members really appreciate the opportunity to be here today. I am going to focus on three things. One is just an overview of the powertrains available in the marketplace. Number two is where are we in the advanced battery space in the United States, and number three, where do we go next in terms of establishing the U.S. as a competitor in clean vehicle technology.

I would turn your attention to the slide that I put in your deck to just give you an overview—and I think we are going to put it up on the screen, to give you the spectrum of powertrain technologies. I can do——

Mr. SHIMKUS. She is trying. She is getting there. She was sleeping.

[The first slide appears after Ms. Wright's prepared statement.]

Ms. WRIGHT. The powertrain technologies, you go from the left to the right, you see the internal combustion engine, which we have had around for over 100 years, burns gasoline, diesel, and some of the ethanol fuels that we have talked about today, getting more and more efficient. Really interesting space called the start/stop, and what this does is combine a more robust battery with that efficient gas engine to deliver 5 to 20 percent fuel efficiency at a much more attractive value equation. And then, of course, we have the hybrids like the Prius, the plug-ins like the Volt, and the all electric vehicles like the Leaf, that compliment this spectrum, and two important things that you need to take away from this, one is this spectrum of portfolio—powertrain portfolios gives consumers a choice while delivering fuel efficiency, and number two, all of them need batteries.

Which brings me to my next point, and that is where are we in our advanced battery industry? If we think about staying competitive with advanced vehicle technologies, the U.S. needs to continue to develop its manufacturing and technology capabilities in advanced batteries. We have laid the foundation over the last couple of years, but we are really catching up to the Pacific Rims, which have for decades been making significant investments in R&D manufacturing and supply chain development. As a result, they dominate the market for consumer electronics and advanced batteries for vehicles.

In the fall of 2010, Johnson Controls opened the first high volume domestic lithium ion battery manufacturing plant in Holland, Michigan. This plant was established with the help of the ARA matching grant, and I will tell you, this plant would not have been built in the United States had it not been for that program. By the end of this year, we will transfer the production from our French manufacturing facility to the U.S. to support our global customers. These batteries will be made in Michigan and exported to Europe for assembly and distribution throughout the world.

If we could turn to the next graphic, please?

[The second slide appears after Ms. Wright's prepared statement.]

Johnson Controls is also investing hundreds of millions of its own dollars to establish an advanced battery industry in the United States. We have shored up many existing domestic suppliers and have brought Pacific Rim suppliers to the U.S., who are providing Johnson Controls as well as other manufacturers with equipment and materials. When we built the manufacturing facility in Michigan, over 85 percent of the equipment and the infrastructure was sourced through U.S. companies, and the map on the screen shows the locations of our suppliers, many of whom are in your States, for our lithium ion battery industry, which is also creating additional U.S. jobs.

When we think about where we need to go from here, we need to develop a viable and competitive domestic advanced vehicle technology industry, which includes not only batteries, but also electric motors, drives, controls, and software. It is critical for the long-term health of the U.S. economy that our national energy security and continue the position as source of global technology leadership. The Electric Drive Transportation Association, along with its membership, brings together the entire value chain of electric drive to speed technology and infrastructure advancements, and are helping to shape the market through consumer education, public outreach, and productive policy shaping.

Well, what role does the government play? It is critically important of continued Federal support for research, development, and deployment for these technologies. The Department of Energy is successfully promoting innovation in transportation through public-private partnerships, leveraging private sector investments to accelerate technology breakthroughs, manufacturing capability, and deployment of electric vehicles and infrastructure. They are helping to fund bioresearch and development activities to advance vehicle electrification, bring down electric vehicle costs, and increase range and fast charging capabilities.

The bottom line is that global competition in this industry will continue to be incredibly intense, particularly from the Pacific Rim, and we have to make sure that we are effectively competing with long-term commitment, focused investments, and continued public-private cooperation and collaboration across the industry.

In conclusion, clean technology is about implementing proven technologies that large number of consumers are willing to purchase to improve fuel efficiency and reduce emissions across many types of vehicles. Our collective challenge is whether we make the right investments and decisions to domestically provide the advanced technologies and systems for these vehicles. As a country, we can make the choice to pursue energy security and build a domestic industry for advanced vehicle technology, or we can watch our current dependence for energy resources shift from the Middle East to Asia.

Thank you.

[The prepared statement of Ms. Wright follows:]

Testimony of Mary Ann Wright
Representing: Power Solutions – Johnson Controls, Inc.
Electric Drive Transportation Association (EDTA)

Before the Subcommittee on Energy and Power
House Energy and Commerce Committee
Hearing on "The American Energy Initiative"

July 10, 2012

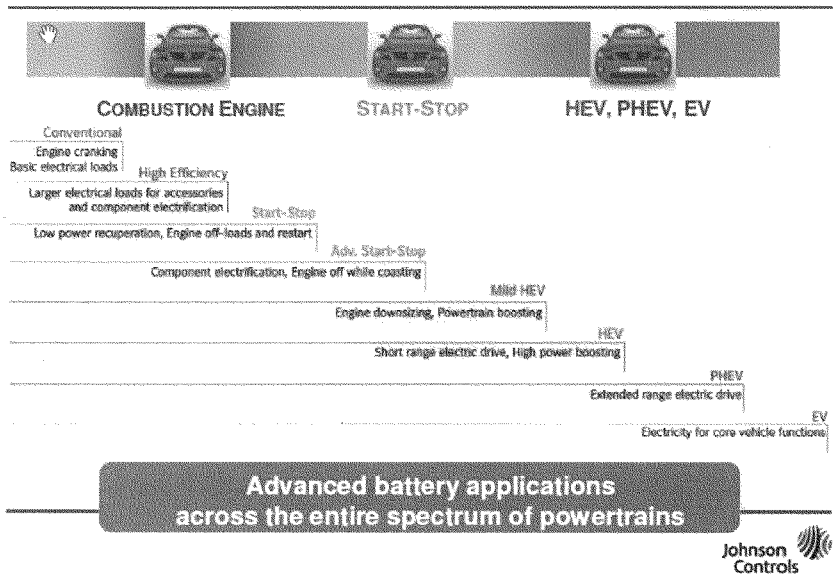
Mr. Chairman and members of the subcommittee, my name is MaryAnn Wright. I am the Vice President for Technology and Innovation, Power Solutions Division of Johnson Controls, Inc. We are the global leader in lead-acid starter batteries and battery systems for hybrid electric, plug-in electric and all-electric vehicles. I am also the incoming Chair of the Board of Directors of the Electric Drive Transportation Association (EDTA).

Thank you for the opportunity to testify at this hearing on The American Energy Initiative and discuss the challenges and opportunities of alternative fuel vehicles. I will focus my testimony on three areas:

1) An overview of the vehicle powertrains available in the marketplace;
2) The current state of the domestic advance battery industry, with a focus on Lithium-ion battery production; and
3) Emerging Start-Stop technology which offers significant fuel economy in the near term with an attractive value equation.

Spectrum of Vehicle Electrification

Today, automakers are offering a range of vehicle powertrain options to consumers. As you move through this spectrum, the powertrain systems become increasingly complex while offering more fuel savings and C02 reduction, providing customers with a full range of differentiated technologies and solutions. The energy storage system or battery is a critical part of each of these powertrain technologies and also becomes more complex with increasing electrification (please see the image below).



Starting with the conventional internal combustion engine vehicle, the battery is used to start the engine and provide power for the accessories – it does not help propel the vehicle. For Start-Stop vehicles, a more advanced and robust battery is continuously engaging in core

vehicle operations, operating the accessories when the engine shuts down while stopped in traffic or idling, with adequate power to immediately restart the vehicle when your foot is taken off the brake. (More on Start-Stop later in my testimony.) For hybrid electric vehicles, plug-in hybrid electric vehicles, and full electric vehicles (HEV, PHEV & EV) the battery becomes more integrated into the vehicle's powertrain system and supports delivery of increasing levels of electric propulsion.

This spectrum of technologies, from moderate to high vehicle electrification, provides a continuum of market opportunities which will increase fuel economy and reduce emissions. The range of gas savings for each type of vehicle is:

Start-Stop	5-10%
Advanced Start-Stop	10-20%
Mild Hybrid	12-20%
Full Hybrid	25-50%
Plug-in Hybrid	40-60%
Full EV	100%

Going forward, we need to keep this spectrum of technologies in mind. There is a lot of market and industry investment in electric vehicles but the internal combustion engine, which continues to become more fuel and emissions efficient (complimented by advanced battery technology) is going to be with us for many years to come.

Due to electric drive range limitations, lack of installed charging infrastructure and challenged economics, PHEVs and EVs will continue to have limited near-term market penetration in the United States. Early adopting consumers are willing to accept these limitations, as they are motivated by attributes other than cost and performance. And, market

opportunity for today's offerings does exist particularly with owners where a central charging infrastructure is practical along with limited daily miles driven, such as government and private fleets. While widespread EV adoption is not imminent, global automakers are making significant investments and launching many vehicles to demonstrate technology feasibility and gain real-world understanding of the advantages and challenges of these vehicles, while building market credibility and acceptance. In fact, electric drive vehicles are being introduced across many vehicle segments including passenger cars, commercial trucks, buses, tractors, and ground support equipment. More than a dozen plug-in electric drive vehicles will be on sale by the end of 2012.

The Electric Drive Transportation Association (EDTA), along with its membership brings together the entire value chain of electric drive to speed technology and infrastructure advancements. EDTA members, including vehicle manufacturers, battery and component manufacturers, utilities and energy companies, as well as smart grid and charging infrastructure developers are advancing the technology needed, while helping shape the market through consumer education, public outreach and productive policy shaping.

While EVs build their market position, HEVs currently deliver a more mature alternative using market-proven technology. They incorporate smaller batteries, reducing the upfront costs, and create cost-of-ownership benefits by targeting parts of the driving cycle where the internal combustion engine is most inefficient. They use technology that is more familiar to consumers and more readily accepted by the market, as well as an infrastructure that is in place

with gas stations located everywhere across the country. In fact, we can expect between 20 to 25 percent market penetrations for hybrids in the next decade.

So while it is true that the internal combustion engine will be with us for many years to come, an increasing percentage of future miles driven will be electric.

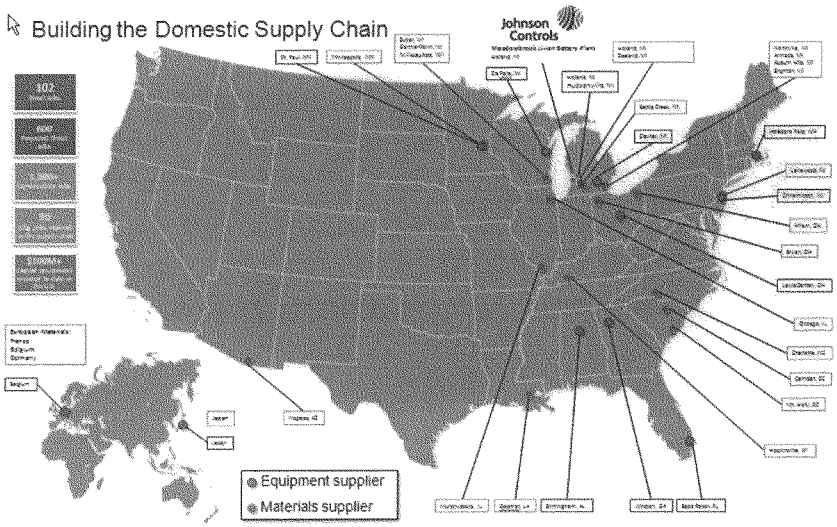
Domestic Advanced Battery Industry

In order to stay competitive in this spectrum of electrified vehicle technologies, the U.S. needs to continue to develop its manufacturing capability of advanced batteries. We have laid the foundation over the last few years but are in a fast-paced technology development race with Pacific Rim countries to manufacture and supply advanced battery systems. It is a well known fact that these countries have a significant head start given their investments in energy storage R&D, supply chain development, manufacturing capacity installation and market domination for consumer electronics and advanced batteries for vehicles.

In the fall of 2010, Johnson Controls opened the first high-volume domestic Li-Ion battery manufacturing plant in Holland, Michigan. This plant was established with the help of an ARRA matching grant and incentives from the State of Michigan. Without these incentives, Johnson Controls would have built the plant in another country. Just ten months after the grant award, our Holland, Michigan plant was producing Li-ion battery systems and delivering to our domestic customers Ford and Azure Dynamics. This state of the art plant can make Li-ion batteries not only for electric vehicles but hybrids and plug-in hybrids, as well. We currently have 120 employees at our Holland, MI plant manufacturing advanced batteries for our global customers. By the end of the year, we will transfer production from our French manufacturing

facility to the U.S. to support Daimler and BMW along with other global customers. These batteries will be made in Michigan and then exported to Europe for assembly into vehicles that will be sold around the world.

Johnson Controls is investing hundreds of millions of its own dollars, not just to build a battery manufacturing plant, but to establish an advanced battery industry in the United States. This includes investments in R&D, engineering, manufacturing technology development, and the supporting infrastructure. In addition, we have deployed our EV battery technology in our own Building Efficiency fleet that services customers with commercial and institutional buildings across the United States. We have also leveraged our investments, with the support of the Department of Energy, to bring a number of new suppliers to the U.S. who are providing Johnson Controls and other manufacturers with critical equipment and materials. As part of our advanced battery manufacturing proposal, Johnson Controls committed to domestically sourcing as much of our materials, equipment and infrastructure as possible. When we built the manufacturing facility in Michigan, over 85% of the equipment and infrastructure was sourced from U.S. companies. The map below shows the locations of our suppliers for our Li-Ion battery production.



Other firms also are making investments in manufacturing capability for advanced Li-Ion batteries. However, market demand for electric vehicles is developing slowly. For example, a recent *Wall Street Journal* article (May 31, 2012) pointed out that while demand for electric vehicles will grow, the market has not developed as quickly as expected. As a result, the U.S. plants built by Johnson Controls and other Li-ion battery makers have too much capacity. This should not come as a surprise, as volatility and consolidation of fledgling start-ups is a common occurrence in new industries. On-going investment requirements in R&D, infrastructure and market development are large and long-term. Only a handful of manufacturers will have the capability to make these investments and remain viable while the market takes shape. Most of these companies are from Japan and Korea which have been making investments for decades

with support from their governments and universities and with industry collaboration to shape the technology and set the standards. Fortunately, because of Johnson Controls' market leadership and experience in the vehicle and energy storage industries, we are in a position to make these investments with a long-term view of the vehicle electrification market.

Established competitors in Japan and Korea are leveraging foreign supply chains and ramping up advanced battery capacity in those countries in anticipation that the hybrid and electric vehicle market will continue to grow. The present situation has resulted in significant excess capacity in both the United States and Asia. China is also aggressively working to establish themselves as leaders in energy storage R&D, manufacturing and the supply chain.

Developing a viable and competitive domestic advanced battery industry is critical for the long term health of the U.S. economy, our national energy security and continued position as a source of global technology leadership. The bottom line is that global competition in this industry has been and will continue to be incredibly intense, and Asian manufacturers have a significant head start and extensive government support. The U.S. industry will not be able to effectively compete without long term commitment, focused investments and continued public-private cooperation and collaboration across the industry.

Start-Stop Technology

Let me now circle back to Start-Stop technology and the promise it holds to significantly reduce fuel consumption in the very near term.

Start-Stop is a proven technology, first introduced in Europe, that automatically shuts the engine off during idle, maintains power to vehicle accessories (lights, wipers, radio, climate control, brakes and steering) and restarts when the driver releases the brake pedal, or engages the clutch. The result is improved fuel economy and emission reductions.

A Start-Stop system relies on an advanced lead-acid battery that can handle the deep cycling requirements of more frequent starts throughout the course of a trip. It works with traditional internal combustion engines, so the technology is much simpler and lower in cost than today's hybrid and electric vehicles.

The additional cost for a Start-Stop system is only in the hundreds of dollars and provides a typical pay back through fuel savings of two years or less. New consumer research conducted by Johnson Controls this year showed that 97 percent of Americans are ready for Start-Stop technology that improves the fuel economy of their vehicle. The research found that most consumers like the idea of their engine turning off at idle. The majority like the idea because of fuel cost savings, and another quarter of consumers that the idea "just makes sense." Additionally, more than one-third of those surveyed would pay up to $500 more for their next vehicle in return for a 5 percent improvement in fuel economy. That figure rises significantly when increased fuel prices, lower vehicle price premiums or greater fuel economy is considered.

In Europe, OE commitments to commercialize Start-Stop vehicles are already well established, and the new vehicle build for Start-Stop is expected to reach 70% of new vehicle production by 2016. Globally, annual production is expected to grow from 3 million today to 35

million in that same time frame. Manufacturers are just now beginning to market this technology in the United States. It offers a quick and efficient way for the industry to achieve 2015 CAFÉ standards with accessible technologies while hybrid and electric alternatives continue to develop and mature. If properly supported, Start-Stop vehicles could achieve 40 percent of the new vehicle market in the United States within the next five years, which would represent significant fuel savings and C02 emissions reduction.

Johnson Controls has invested $140 million to convert our existing lead acid battery plant near Toledo, Ohio into a plant which will produce new Absorptive Glass Mat (AGM) batteries for Start-Stop and high efficiency internal combustion vehicles. The plant will begin production later this year with capacity to produce 6 million AGM batteries for North American auto makers. We are retaining 400 current jobs at this facility and adding 50 new jobs, along with creating over 500 construction jobs for the renovation and expansion.

Federal Government Support

Finally, let me conclude by emphasizing how important it is that we continue federal support for research, development and deployment of the type being conducted by the Department of Energy's Vehicle Technologies Programs and Advanced Research Project Agency – Energy (ARPA-E). These programs have successfully promoted innovation in transportation through public-private partnerships, leveraging private sector investments.

Working with the diverse stakeholders in the electric drive industry, the DOE is helping to accelerate technology breakthroughs, promoting investment in manufacturing capability, and speeding deployment of electric drive vehicles and infrastructure. The Advanced Vehicle

Technologies Programs along with the Advanced Research Projects Agency – Energy (ARPA-E) help fund vital research and development activities, which we participate in to advance vehicle electrification, bring down electric vehicle costs, and increase range and fast charging capability. Continued R&D support is vital if we are to stay in the technology race with our foreign competitors.

With respect to tax credits to promote electrified vehicles, it is important to continue with targeted, time-limited and performance-based incentives. Credits such as the $7500 tax credit for vehicle purchase, Section 30B credit for clean, efficient hybrid and battery electric medium and heavy duty vehicles will help promote savings on fuel expenses for large fleets, as well as for small businesses. The expiration of Section 30C alternative fuel vehicle refueling property credit in 2011 has lead to uncertainty around renewal which is damaging to consumers and businesses planning to invest in plug-in vehicles and charging equipment.

Let me be clear that we do not believe that the economic viability of the electrified vehicle industry is through long-term government subsidy. Private industry must make the necessary investments and ultimately achieve successful and sustainable business models on its own. However, in the near term it is important for the United States to continue to provide needed incentives to jump start this new industry, support collaboration and market development and purposefully level the playing field for the domestic industry versus global competition.

Conclusion

We must continually rethink how we talk about and invest in clean technology in the automotive space. Clean technology isn't just about electric vehicles. It's about implementing proven technologies that large numbers of consumers are willing to purchase to improve fuel efficiency and reduce emissions. Our market research indicates that near-term mass commercialization of more fuel efficient vehicles will come from the traditional gas engine, led by Start-Stop, and will be followed by longer-term adoption of hybrid and electric vehicles as they become more proven and affordable to consumers.

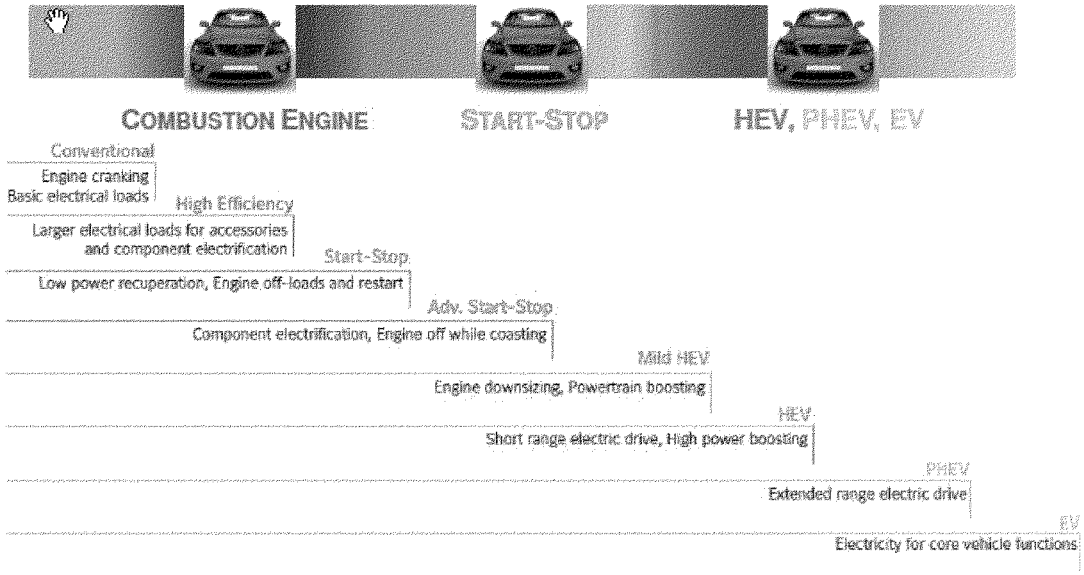
Our collective challenge is whether we make the right investments and decisions to domestically provide the advanced technologies and systems which are necessary for those future vehicles. As a country, we can make the choice to truly pursue energy independence and build the strategic capabilities of a domestic industry for advanced energy storage, or we can watch idly as our current dependence for energy resources will simply shift from the Middle East to Asia.

Thank you for the opportunity to testify today.

About Johnson Controls Power Solutions: Johnson Controls is the global leader in lead-acid automotive batteries and advanced batteries for hybrid and electric vehicles. Our 35 plants supply more than one third of the world's lead-acid batteries to major automakers and aftermarket retailers. Through our innovations we are building the advanced battery industry for hybrid and electric vehicles. We were the first company in the world to produce lithium-ion batteries for mass-production hybrid vehicles. Our commitment to sustainability is evidenced by our world-class technology, manufacturing and recycling capabilities.

About the Electric Drive Transportation Association: EDTA is the cross-industry trade association promoting the advancement of electric drive technology and electrified

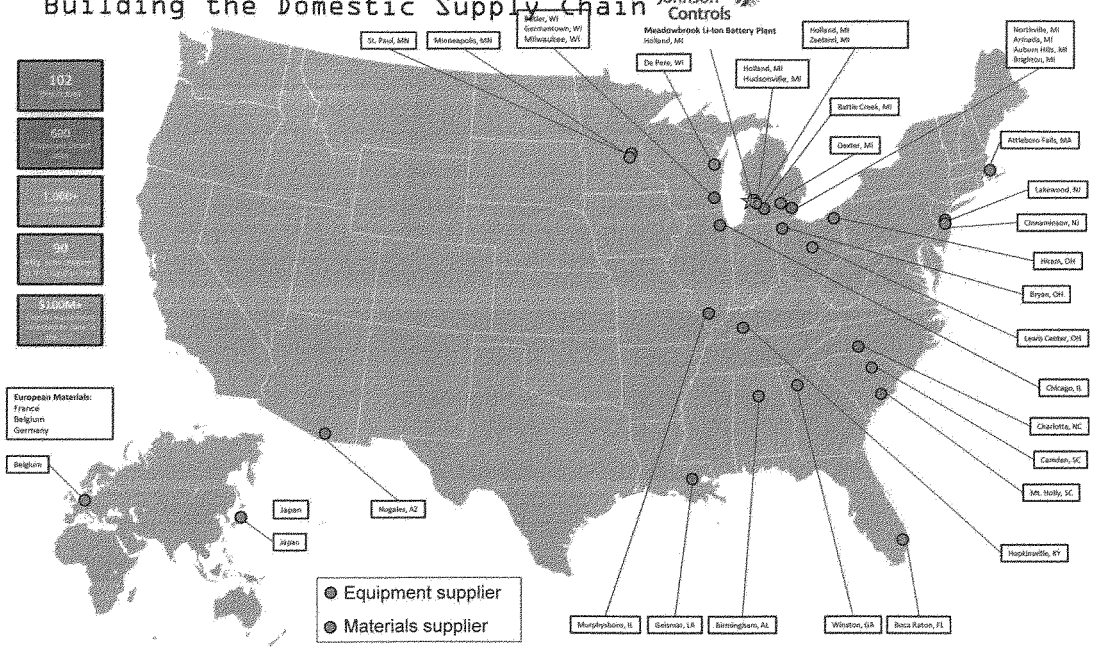
transportation. EDTA members represent the entire value chain of electric drive, including vehicle manufacturers, battery and component manufacturers, utilities and energy companies, and smart grid and charging infrastructure developers. Collectively, EDTA members are committed to realizing the economic, national security, and environmental benefits of displacing oil with hybrid, plug-in hybrid, battery and fuel cell electric vehicles.



Advanced battery applications across the entire spectrum of powertrains

Building the Domestic Supply Chain

Johnson Controls



Mr. SHIMKUS. Thank you very much, and I thank the second panel for your statements. I would now like to recognize myself for 5 minutes.

You know—and Eliot is still here. I think the main focus of the Open Fuels Standard was to be technology and feedstock neutral. I mean, I think that is the whole focus. We can bring in electric vehicles and hybrid operations, and you see that quite a bit, what better option—and the start and stop option. So you have a start and stop option with a diversified liquid transportation fuel mix that is compatible in internal combustion engines, but also is hybrid so that you can go to electric. I mean, you talk about the overall savings and changing the dynamics. I thin, Mr. Karr, that addresses your concern on R&D in the future, but we are all in this together. I think we all can benefit if we can move forward, and so my—I have got a couple of questions I am going to ask, and then we will see how the rest of the—my colleagues, and you can see they are starting to come back, which is all good.

Mr. Dolan, what is the cost of methanol today, relative to gasoline?

Mr. DOLAN. Well, the wholesale cost of methanol today in the Gulf Coast is about $1.08 a gallon. Now when you look at methanol, it does have a lower energy content than gasoline so it takes roughly 1.7 gallons of methanol as N85, which is 85 percent methanol and 15 percent gasoline, to give you the same energy content or range as a gallon of gasoline. So even accounting for the lower energy content, adding distribution and retail markup and taxes, we are still looking at a pump price to the consumer of about $3 a gallon. So you have got a margin today of about 38 cents a gallon that could be used for investment and infrastructure.

Mr. SHIMKUS. Would these come down if we moved on a public policy and there was a possibility of the economies of scale? Would you imagine that would happen?

Mr. DOLAN. Yes, and we are already seeing some of that take place today. Right now, there is about 280 million gallons of methanol production in the U.S. Most of that production is used for the chemical industry as a feedstock for hundreds of products that touch our daily lives, but within the next 3 years, we are going to see that number increase to a billion gallons.

Mr. SHIMKUS. Let me go quickly. What about consumer acceptance issues, do you think that will be of concern?

Mr. DOLAN. Well, when methanol was used in the past as N85 and a lot of fleet experiences, not only in California and other parts of the world, there were surveys that were done by fleet administrators. And they said uniformly that the methanol fuel operated very well for their consumers and their members.

Mr. SHIMKUS. Thank you. Mr. Althoff, what is the typical cost for you to convert a vehicle to flex fuel?

Mr. ALTHOFF. Today it is about $800 a vehicle, but as we grow in scale we think we can get it down to about $500.

Mr. SHIMKUS. And you made—and I was distracted when you talked about—what did the EPA decide or announce today? In your opening statement I think you talked something about the EPA?

Mr. ALTHOFF. Oh, I was saying that the technology is EPA certified. The technology can be placed on any light—any car or light truck that is street legal, maintains the warranty——

Mr. SHIMKUS. And for full disclosure, Mr. Engel has been pushing me on the Open Fuel Standard, but you all came down and drove, what is it, a Doge Hemi—a big Dodge Charger came down and with the technology involved with the sensor read and the oxygen content, and it was very impressive and not overly engineered with it right on the engine.

Mr. ALTHOFF. And today Chrysler doesn't make a flex fuel Dodge, so this is the only way you can get—and we created this model for law enforcement, so we have got Dodge Chargers that in flex fuel service today in Illinois and Iowa.

Mr. SHIMKUS. And let me move to Mr. Karr. It is my understanding dealerships will often charge the same amount for a flex fuel vehicle as they do a standard model. Ford, for example, has mass produced FFVs in the past. Given this demonstrated ability in the past to produce and do so at similar costs, what hurdles or technological barriers do you believe are out there?

Mr. KARR. One thing I definitely want to make clear is that, you know, from a technological standpoint we can do it and we are doing it. And today, anybody who wants to buy a flex fuel vehicle can buy a flex fuel vehicle.

Mr. SHIMKUS. But the point of the question is the automobile manufacturers and retailers are selling vehicles that the consumer may not even know are flex fuel. The capability is there, and not even this prepared question, but my new GMC Terrain, I knew it because I could recognize the signal, but they didn't market it. When they sold the vehicle then they went through you could use this. But our point is, this is something we think we could do.

I guess if the deadlines in the Open Fuel Standard cannot be met, what do you believe is a realistic deadline?

Mr. KARR. I think the question is less one about deadlines than about, you know, where do you want to go?

Mr. SHIMKUS. We know where we want to go, so yes. Let me move to—and I am burdening my colleagues. Let me move to Tom for a second. Talk about liquid versus dry natural gas and using liquid in internal combustion engines. Can you?

Mr. HASSENBOEHLER. Well, I mean, there really are no differences in dry natural gas in an internal combustion engine. The same performance enhancements that can be done for liquid fuels can be done for natural gas vehicles. In fact, in the new CAFE regs that are currently pending, we make some of those same arguments that fuel economy—it is all about optimizing performance for the particular fuel, and if it is a dedicated fuel, it can be optimized on a similar level.

Mr. SHIMKUS. Great, I appreciate it.

Now I would like to turn to my colleague from Illinois, Mr. Rush, for 5 minutes.

Mr. RUSH. To each of you, in regards to alternative fuels and our ability to realistically meet new demands for the alternative fuels safely, what is the status of our infrastructure? Are we on track, and if not, what will it take for us to be on track? Are we—as we

move forward in supplementing initial fuels—alternative fuels? Do each one of you want to take a stab at it?

Mr. DOLAN. Sure, I can jump in. On the methanol side, we have had not only the experience in California where they had 100 fueling stations, but we now have a lot of experience in China where they are using, by last count, about 2 billion gallons of methanol was used in transportation fuel in fuel dispensers selling M85, M100, and M15. So the technology is there. We know how to do it. We know the materials to use in those pumps that cost about $20,000 to $60,000 per pump for methanol, similar to the cost for an ethanol fueling facility.

Mr. ALTHOFF. On the ethanol side, it is growing, especially in the Midwest, but is still not as robust as it needs to be. The good news is a large piece of the supply chain is in good shape, so most of the gasoline retailers can haul ethanol around in their trucks, 100 percent compatible there. Retail gas stations are relatively low cost to convert, typically the traditional three tank retail outlet can add E85 or a blender pump for $75,000. So I think what is missing is either the support to put the infrastructure in place, or a way to build scale on the vehicles so that there is demand for it.

Mr. KARR. Your question is a very good one, and I think the important context is to remember we use about 130-odd billion gallons of gasoline a year. So when you are talking about making significant shifts to alternative fuels, you are talking about very significant investments, both in resources and time. It has taken us over 30 years to get to 10 percent with ethanol, and so you know, we just need to go into that. It is not that we can't do it, it is just that we need to go into that with kind of eyes open understanding with the broader context of, you know, the U.S.—the fuel pool and the motor vehicle pool situation.

Mr. HASSENBOEHLER. I would agree on the natural gas side. While there is momentum, the challenges are still enormous, so competing with over 120,000 gasoline stations. There are currently 1,000 CNG stations in the U.S. with about 94 that are currently planned all over the country, and we are trying to develop corridors around that. And then on the LNG side, we have got 53 LNG fueling stations with another 100 that are in the planning stages as well.

Ms. WRIGHT. And on the battery side, it is really beautiful because we are very fuel agnostic. You mentioned start-stop, which is complimentary to a gas or a diesel engine, or natural gas or any other fuel that you want to build, but as you think about higher levels of electrification where electricity is your fuel, 80 percent of all the charging is done at home today, and there is over 4,000 fueling infrastructures in place now. The technology—this is an area where the technology is really progressing quite quickly to help be able to recharge in a timeframe that is acceptable to a customer, similar to what they do in a gas station today.

Mr. RUSH. So what I am seeing from each of you is that we have a long way to go, except in the battery area. We have a long way to go in terms of helping to bring the infrastructure on par with what we think the future of alternative fuels is, and should be. What do you suggest that we in Congress do in relation to that?

Mr. DOLAN. I think one solution is the Open Fuel Standard Act. We have got the chicken and the egg conundrum here where the retailers aren't going to be putting any infrastructure until the vehicles are capable of using alternative fuel. The Open Fuel Standard Act would break that by having the cars capable of running on something other than gasoline, and then you have the ability with the free market competition to determine which fuels and which technologies can really make it in the marketplace. We think methanol would offer some real economic advantages to the consumer.

Mr. ALTHOFF. Yes, I would double down on the Open Fuel Standard as well, and also talk about some focus in where it goes. So although the gasoline market is huge, and to take a big piece of it into alternate fuels would be significant, 85 percent of the ethanol that the U.S. consumes is made in the Midwest. I mean, that all can move around the U.S., you just need to change the retail sites to be able to accommodate it. And that is a relatively low cost, compared to other components in it, and it also creates another revenue stream for the retailers. So you know, if the focus were to start in the Midwest where the fuel is abundantly available, the big transportation pieces are in place, and we could get the vehicles out there to create demand. So the retailers put it on their lots and they price it competitively, I think the competition will take over and it will grow itself.

Mr. SHIMKUS. The gentleman's time is getting close.

Mr. RUSH. My time isn't up. Thank you.

Mr. SHIMKUS. Thank you. Now the chair recognizes the gentleman from Texas, Mr. Olson, for 5 minutes.

Mr. OLSON. I thank the chair and would like to welcome the second panel. Thank you for your patience, your persistence through the votes.

My initial question is going to be for you, Mr. Karr, and you, Mr. Hassenboehler. I hope I pronounced that correctly, sir. I apologize if I didn't. But you both in your testimony seem concerned about government mandates, like the RFS standards replacing market driven policies, and I assure you, I share your concerns. I have an example of a market driven use of natural gas for transportation which works. It is my home school district, Clear Creek Independent School District there in the—right around the NASA and the Johnson Space Center. With a generous private sector donation from BP, they purchased 43 school buses powered by compressed natural gas, CNG. And to add to this, they had their own refilling facility right there, so the buses go out with the bus driver during the day, make their runs, come back at night, park it up. Nobody is on-site there. They get out, open the door, plug the thing in, shut it off, go home, come up the next day, take it out and do it again. What it has done for the school district, you can imagine the price of natural gas now, they are saving $300,000 a year because they are converting compressed natural gas. That is money that is not being spent on transportation for diesel fuel or fossil fuels. That is money that is now being spent in the classroom.

So there are private sector examples out there, and I just want to talk about, you know, what are some of the lessons learned from the RFS that we can use as we can look for ways to encourage use of domestic natural gas for transportation, like the Clear Creek

Independent School District has done? Mr. Hassenboehler, you first, sir.

Mr. HASSENBOEHLER. Some of the lessons from the RFS, you know, I think looking back from 2005 when natural gas supply and demand was in a much different state than it is now, you have the advent of shale gas production, hydraulic fracturing which has really revolutionized the natural gas industry in this country. You have got a much more robust industry that can actually meet some of this new demand from transportation; however, you have got existing mandates and existing policies that favor one fuel over the other. They aren't technology neutral. You know, what we would recommend is going through the entire Federal Government, looking at all the different pathways to—that the government incentivizes alternative fuel use and just strike it when it says one over the other, and just put alternative fuels. Let everyone compete and then if you want to send a policy signal to get off foreign oil or use more domestic resources, let that be the real driving signal, not pushing one over the other.

Mr. OLSON. Mr. Karr?

Mr. KARR. I think the primary lesson that we have learned is that we have to pay attention to implementation. You know, at the time I think we thought that large part of the renewable fuel pool would go into the E10 and the national, and the rest would be picked up in E85, and that obviously did not develop. So now, even the first panel spent a lot of time talking about the blend wall. I will tell you all, you know, we ran the numbers really just this past week in preparation for this hearing. If the flex fuel vehicles that are already on the road today, if the owners of those vehicles were using E85 once out of every three times that they go to the pump, so 1/3 of the time that they go to the pump, we wouldn't be having a conversation about the blend wall. With E10, not even with E15, with E10.

So, you know, I don't necessarily know the answer, you know, exactly why the E85 uptake hasn't been what we expected in 2005 and '06 and '07. A lot of my guys expected it to be more significant than it has been. But it is definitely an issue that, you know, we have to look at going forward.

Mr. OLSON. Thank you. One more question. Is our country globally competitive in the manufacturing of natural gas vehicles? Do you think other countries do a better job? Anybody?

Mr. HASSENBOEHLER. I would defer to the Auto Alliance there, but certainly most of the auto manufacturers who operate in the U.S. produce natural gas vehicles overseas. There are some that have shown renewed interest in doing so going forward, and so I would leave it at that and defer to the Auto Alliance on anything else.

Mr. KARR. Yes, I think he is right, you know, most of the production has been focused overseas, based on the markets. But as others have indicated, you know, a lot of my guys are taking a second look at the U.S. market on the basis of all the natural gas here. I am certain the heavy duty guys are moving quickly and the light duty guys are looking to expand their offerings as well.

Mr. OLSON. Thank you. That is my last question, but Clear Creek Independent School District is a great example of private

sector money to utilize compressed natural gas. One thing to mention, my home State of Texas now is building what they call the energy corridor or natural gas corridor with—Houston to my region where I live, up to San Antonio/Austin, up to Dallas/Ft. Worth, building the CNG facility, so maybe if we can get some long haul trucks going on there and eventually get passenger vehicles and build it out. That is our future. Natural gas will be the transportation fuel for our future.

Thanks for the time, and I yield back.

Mr. SHIMKUS. The gentleman yields back his time. The gentleman will be proud to hear that I drove a natural gas big Ram pickup just in the last 2 weeks ago here. If you missed that opportunity, that was a great experienced produced. So we are just for all of the above and for energy security.

Mr. OLSON. If you drive a pickup truck, Mr. Chairman, you are welcome in Texas.

Mr. SHIMKUS. It was a big one, so—it wasn't even a baby one.

Chair now recognizes the other gentleman from Texas, Mr. Green, for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman. Feedstocks for alternative fuels are weather dependent and subject to weather conditions. Just look at the current drought plaguing the Midwest. The news reports nightly show how the price of corn is going to go up and affect food prices and other industrial feedstocks. That is why I am a huge supporter, like my colleague and neighbor from Texas, of natural gas. Natural gas vehicles are currently most widely used alternative fuels incorporated in government fleets, and given the continued discovery of natural gas plays around our country, I think we seriously need to look at how we can support these vehicles.

Mr. Hassenboehler, I would like to ask you some questions. Last summer Texas Governor Rick Perry signed into law the first of its kind legislation designed to help create a sustainable network of natural gas refueling stations along interstate highways connecting Houston, San Antonio, Austin, and Dallas. We may not be able to get our fast train from—in the Texas triangle, but we might be able to get natural gas facilities on those. Can you briefly describe the program?

Mr. HASSENBOEHLER. Yes, I had it in my testimony but I can just briefly say that it is——

Mr. GREEN. Repetition means that we learn.

Mr. HASSENBOEHLER. It is based on—it is a sustainable network of fueling stations that connects the four major corridors. The legislation allocates funding from the Texas Emissions Reduction Plan to support the development of new stations and deployment of NGVs. It was a broad stakeholder effort. It is a combination of State dollars, highway dollars, congestion mitigation dollars, and private funding to really take and transform, plan a few areas of real development of real stations across—you know, near access for the highways. And this is really designed to get the LNG and the CNG trucks on the road, that will eventually lead to more medium duty and light duty vehicles to penetrate as well.

So right now, we are working through it. They just had a grant from—a grant program that actually—I believe there was about

100 applicants that actually signed up for some of these stations, and so we are going to wait and see how they develop, but we are very optimistic and it is a very successful program so far.

Mr. GREEN. Given the initial success so far of the program, what would a greater effort like the Natural Gas Act mean for expanding use of natural gas vehicles, not just in Texas but around the country?

Mr. HASSENBOEHLER. Well certainly if we had consistency within Washington with the tax code generally on what alternative fuels are going to be extended, which incentives are going to be extended, that would allow for greater planning for some of these end users to invest in their alternative fuels. Similar efforts can be looked at recently in the highway bill, the Congestion Air Mitigation Air Quality Program, allocated funding towards natural gas and electric vehicle charging infrastructure. Those are great ways to help incentivize and move forward the program. So it is not just the tax code or cost saving issues, there are other ways of doing it besides costing money.

Mr. GREEN. Well, and it seems like—I know my colleague from Illinois has a preponderance of E85 stations in his district. I think I have one that is not in our district, but I only know of one in the Houston area. So are we going to end up being location emphasis, I guess, because obviously in the Midwest you are going to see more corn-based ethanol with E85, whereas in an oil and gas area you will see more options for natural gas. Those stations that the State envisions along those corridors, that is both for over-the-road trucking but also for individual vehicles.

Mr. HASSENBOEHLER. Yes, they are opening—they are prioritizing public access stations and yes, especially in areas of shale gas production and along the Marcellus, the Rocky Mountain regions, they are doing similar initiatives to really—it is a great way for the public to see the tangible benefits of the increased natural gas production is it touches everyone to be able to fuel their vehicle with natural gas.

Mr. GREEN. Well, in the air emissions I know that is why some of the funding has come from the air reduction emissions from natural gas vehicles. We are talking about reinventing the wheel. I know in the 1960s I had an electrical contract with three trucks who used CNG in his trucks and obviously his maintenance went down and, you know, but he was doing it just for the savings because at that time gas was pretty low, too, as we are seeing now that with the discoveries in natural gas.

Can you discuss how current levels of Federal support for natural vehicles are not on par with the other alternatives?

Mr. HASSENBOEHLER. Well, the Nat Gas Act certainly brought that debate up, you know, and that was focused on the tax code and whether tax policy—currently there are still incentives for some other alternatives over NGVs, but beyond that, you have got programs—you got R&D programs, you have got CAFE credits, you have got, you know—you can look at the Renewable Fuel Standard as another example. Many of these programs—it depends on how you define a mandate, depends on how you define a program, but if one were to take a look at a technology neutral, feedstock neutral approach across the Federal Government's programs, both from the

R&D side to the grant side to the mandate side, the Clean Air Act side, I think you could do better than what is currently existing now.

Mr. GREEN. One last question, I know I am over my time, Mr. Chairman. What do you think the Open Fuel Standard mandate on auto makers would not create a level playing field for natural gas?

Mr. HASSENBOEHLER. The main concern with that, I mean, ANGA is not supporting mandates, but we—the main concern that we share is with the Auto Alliance is the timeframes are not on par. It is the lowest cost option for compliance would likely lead to flex fuel and compliance, and that isn't something that would cerate a level playing field, in our opinion.

Mr. GREEN. OK. Thank you, Mr. Chairman.

Mr. SHIMKUS. Thank you. Now the chair recognizes the gentleman from New York, Mr. Engel, for 5 minutes.

Mr. ENGEL. Well thank you, Mr. Chairman.

First of all, let me say what a pleasure it has been working with you on our Open Fuel Standards bill. I have been pushing this for many, many years and I must say that I feel progress is being made, and much of it is through your good work, so I want to thank you for that.

You know, some are criticizing the Open Fuel Standard as a mandate, when it reality it is just the opposite. It is opening the market up to competition, in contrast, doing nothing to—is equivalent to mandating a monopoly by a single fuel whose price is set by a foreign cartel. OPEC and the car manufacturers have essentially told us that we have no choice. We will drive on oil. The object is to break that.

I must tell you, Mr. Karr, I am really infuriated over the automobile manufacturers. When Democrats were in the Majority, we passed a bill in this committee and on the floor that the comprehensive bill—which we tried to put an Open Fuel Standard in the bill and were fought tooth and nail. This was the so-called Cap and Trade bill. Tooth and nail by the automobile industry—I mean, given the way that we bailed out the automobile industry, I would think that there should be a little bit more of an open mind from the automobile industry about the Open Fuel Standard. I think Mr. Shimkus's point about how people are buying flex fuel cars, but it is not being marketed as it. So people have it, they don't know that they have it really. It hasn't been a factor in them buying it because it is sort of the best kept secret in town.

You talked about estimates of what it would cost to manufacture cars at the beginning with flex fuel cars. Massachusetts Institute of Technology says $90 per car. Former Director of the CIA Jim Woolsey cites General Motors as saying it is $70 per car. One expert, Dr. Robert Zugren, who has run extensive tests, has concluded it is 41 cents per car. In any case, we are talking about $100 or less. I do not understand why there is opposition, and quite frankly, I think the automobile industry is being quite ungrateful in terms of that they would have been gone if we didn't bail them out. I supported the bailout. I voted for it. I was criticized for it, because I think it is important to have a vibrant and strong American automobile industry. But frankly, I do not understand the opposition. If you worked with us, if you don't like the dates, if you

think it is mandating too much, I can tell you Mr. Shimkus and I will adjust those dates. We are not looking to penalize the automobile industry, but on the other hand, the arguments that you are using and to some degree that I have heard today from Mr. Hassenboehler, are arguments that anybody uses to oppose any kind of change or anything that is new. If you worked with us, we would work with you. We would modify our bill. The goal here is not to penalize you guys. The goal here is to make—give Americans choices, so the choices are bring down cost and if the American consumer, you know, can do more.

We talk about, you know, China was mentioned before by Mr. Dolan. I agree with Mr. Dolan's testimony, obviously. China is taking notice. It is already blending 15 percent methanol in its automotive fuel, and auto makers there, like Sherry Dealing and Shanghai Maple, have all introduced vehicles that are capable of running on methanol. And methanol is so much less costly per mile than gasoline that illegal fuel blending is rampant in China. The Chinese have buses, taxis, fleets, and passenger vehicles on the road that are running on M15, M85, and even M100 fuel. That is, of course, a concern for me.

So Mr. Karr, I would like you to answer this. I hope you don't think I am attacking you personally. By the way, you have a great name for your position. But I am just really frustrated.

Mr. KARR. Sure. Let me start by saying that, you know, I admire you and the place that you come from, and the fact that, as you say, you have been on this for multiple Congresses, and I know that your intentions are pure and I know that your goal is to, again, reduce the dependence on oil. Fair. Let us take that as a starting premise.

The question is if we mandate, you know, E85 and M85 capable vehicles, does that get you to your goal, and the experience to date is no. Again, we don't even produce methanol as a transportation fuel in the United States, so literally if every vehicle today was capable of running on methanol and gas prices shot to $10 a gallon, there is no methanol for people to switch to.

Mr. ENGEL. But let me just tell you, that is like what came first, the chicken or the egg? It is like on our side sometimes, we argue against drilling in Alaska because we say well, we are not going to get that oil for another 10 years, so why should we even bother with that? Well, 10 years has passed. If we had done it 10 years ago, we would have the oil. So those arguments don't really cut water in my estimation.

Mr. KARR. The thing about—I mean, I think it was OK to make the chicken and the egg argument, you know, 7 or 8 years ago, but the fact is we do have States in the Midwest, like Minnesota, where there are more than 400 E85 pumps. You know, Mr. Shimkus can hit one any place in his district. We are still seeing E85 usage at basically the equivalent of one tank full per year. So again, I don't have all the answers. I don't know necessarily why the E85 uptake hasn't been better, hasn't been even what we as manufacturers projected it would be, but we are kind of past the chicken and the egg argument——

Mr. ENGEL. But let me just ask you this. I know my time is up. Hasn't hydrofracking changed the game here in the United States? We are now producing more natural gas than we can use.

Mr. KARR. We talked to natural gas manufacturers. Obviously, my guys want to know what to build and they want to know what direction the market is going, and what we hear is what you are hearing here and what you are seeing in legislation in terms of the Nat Gas Act. The focus is all on LNG and CNG, and not making natural gas into methanol. I don't know why that is, necessarily, but—well, I suppose LNG and CNG are significantly cheaper, even than methanol from natural gas——

Mr. ENGEL. I will stop, I promise. MIT, there was a study called "The Future of Natural Gas," and it determined that the most economic way to utilize natural gas in transportation is to convert it to the liquid fuel methanol. We should stop fighting it and we should go with the flow. It will be better for the American consumer, and it will reduce a U.S. need for foreign oil.

Mr. SHIMKUS. I want to thank my colleague for his passion, and I am glad he is on my team. I will just segue real quick and say on the retail locations, if you listen to SIGMA, their folks, recertification of the—and liability issues are one of the inhibiting reasons for that.

So I would like to turn to my colleague from California, Mr. Bilbray, for 5 minutes.

Mr. BILBRAY. Thank you, Mr. Chairman, and thank you for giving the lead-in. I hope my colleague on the other side of the aisle, both of them recognize that government obstructionism is a major challenge to innovative technology. The gentleman from New York was talking about methanol. Methanol has been outlawed in my home State of California. It was outlawed for environmental reasons. In fact, I have the latest greenhouse gas regulation, AB 32, is going to outlaw domestic ethanol from being brought into California. They are going to import the ethanol from Brazil. So there is this issue.

Mr. Karr, what is the largest automobile market in the United States?

Mr. KARR. California is roughly 10 percent of the total U.S. market.

Mr. BILBRAY. OK. And my—I just want to point out that we need to look at what we are doing for obstruction. I mean, and this goes way back to a lot of stuff. I mean, California has some of the most restrictive environmental regulations, has—the air is twice as clean now as it was in the '60s with twice the population. We also have the highest gas prices in America, with the environmental regulation. But when someone sits here and says that available domestic supply doesn't affect price, let me remind everybody, we have—we import more in California from overseas than any other State, and it is reflected in the price of gasoline.

So I want to go back over to the natural gas issue. In '92, I was driving a natural gas vehicle, and unlike electric, when I ran out of natural gas I didn't have to stop and recharge, I flipped a switch and went to gasoline. One of the government barriers I saw at the time in the '90s was that the public utilities commissions were not allowing the public utilities to rate base the home dispensing

pumps. And I bring this up, in California, 85 percent of the homes are plumbed with natural gas. People park their cars 3 feet from their water heater in their garage, but we have not figured out how to allow the consumer to fill up at home.

With that barrier that people couldn't lease the home dispensing pump—what was the price of the home dispensing pump—do you know what the price was around before the company went under?

Mr. HASSENBOEHLER. Three thousand, roughly.

Mr. BILBRAY. Yes, so my frustration is while we spend half a billion dollars subsidizing thin film photovoltaic technology, we ignored the fact that we had a 3-foot gap that not 20 years from now, 30 years from now, but could give the consumer the choice today to either fill up at home while they are sleeping with 100 miles range of natural gas, or go to the gas station. But we have sort of taken natural gas and it has been the orphan fuel out there, and that flexibility was a Federal—I mean, a local or a State government regulatory obstructionism. And oh God, I hear about the safety of it being at home, and I always say we will burn a candle next to the pump so it will be just like a water heater.

I just want to raise that issue that the government barriers to the next—giving consumers choices is a major problem, even in California where my scientists developed the algae strains to produce true gasoline, true diesel, the State employees who developed that technology have to leave California to go into production, because they couldn't get the permits under—for 7 to 10 years. That is the kind of urgency. There is no urgency at us changing government regs to be able to get into it.

The electric car issue, what percentage of future vehicles, efficient electric vehicles do you think are going to be using rare earth brushless motors?

Ms. WRIGHT. So I want to be sure that I understand your question, you want to know what percent——

Mr. BILBRAY. What percentage do you think is—you know, are we dependent on that cutting edge technology for efficiency?

Ms. WRIGHT. Well, today's motors depend upon the rare earth and for the magnetic motors. There is significant research going into alternative materials to allow us to get away from these rare earth——

Mr. BILBRAY. Right, isn't it true that Toyota, because of the embargo, is now thinking of going over to the traditional AC, which doesn't have the efficiency, loses efficiency substantially?

Ms. WRIGHT. Yes, the AC brushless type of a motor.

Mr. BILBRAY. Mr. Chairman, this is another issue where I say that if we want to have wind generation, if we want to have electric cars, then both sides of the aisle have got to be willing to say we need to open up our public lands for mining so this country has the resource to be able to do the environmentally responsible thing. If there is one slogan that I want this committee to know why I wanted to come back here, as an environmental regulator, both sides have to understand that environmental regulations are standing in the way of environmental options, and we both should take the responsibility. This is something that we can't point fingers at the auto industry or the oil industry or the electric car industry. We should look at what are we doing, more than just writing

checks and subsidizing, what are we doing to make our regulatory system compatible with innovative technology, rather than opposing it?

And I will leave you with one example. You had an automobile that was designed to get 110 miles to 115 miles per gallon. The Federal Government would not give them a grant or a loan guarantee because it had three wheels, not four, and the government regulation said it is not a car if it doesn't have four, even though it carried two persons, two golf clubs, and two surfboards—in California, which is important. I just hope that all of us on both sides of the aisle look at this of what isn't government doing to make—give the consumer the choice? I don't blame the Federal Government—I mean, don't blame the private sector for not giving the choices if we are not willing to meet—you know, change the way we operate. That is why we need the rare earth, we need to allow natural gas to be an option. We need to be able to have the technologies being available before we start mandating more. Maybe we should mandate ourselves.

Ms. WRIGHT. So you raise a really important point, and that is not just on the rare earth, but it is just the materials we are using for any of our advanced technologies. And I think this is where the Department of Energy should be getting some credit in terms of engaging the universities and national labs and the private industry to come together to collaborate on what are the scientific breakthroughs that we need in order to ensure that we don't become dependent upon materials that are in places where it may not be friendly to U.S. interest.

Mr. BILBRAY. Mr. Chairman, let me point out, too, that every study that we did at AR Resources Board show that it was better to burn the natural gas in the car than it was to burn it at the power plant, generate electricity, and transform—I think even the electric car people understand that. And so we really have missed not just an economic opportunity, but an environmental one that if you are going to generate electricity, to generate—to run the electric, you want a zero emission generator and use natural gas at onsite, which is very low technology, as the auto industry knows, but that home dispensing is absolutely an essential part. I yield back.

Mr. SHIMKUS. Gentleman's time is expired. Previously we asked unanimous consent for Mr. Cassidy to have questions in the first panel. I ask that again. Hearing no objections, Mr. Cassidy, you are recognized for 5 minutes.

Mr. CASSIDY. I want to thank Mr. Engel to the oil state caucus. Thank you all for being here. Great, great committee. Let me just first promote a bill I have, 1712, which actually seeks to promote the use of natural gas as a transportation fuel. In this bill, we say that the independents who are currently finding the natural gas will not lose their independent tax status if they were to invest in the infrastructure to use natural gas as a transportation fuel. It is agnostic how they do that. It can be methanol, it can be gas-to-liquids, it can be methanol. But nonetheless, I would encourage you all to look at that, and if you support it, let us know.

Mr. Karr, I am kind of a methanol guy. I do look at this, and so—and there is actually a question of fact here. Frankly, I am hearing different things from you than your fellow panelists. So let

me just kind of go through some stuff where I think—first we heard that FFVs were being produced at the same cost as non-flexible fuel vehicles, and yet you mentioned it will cost $1 billion more, and yet Shimkus tells us that his FFV cost no more than a non-FFV. So where is the discrepancy between——

Mr. KARR. Not produced—and I don't think Mr. Shimkus produced either, he said sold, which is true in a lot of cases. Manufacturers are essentially eating the difference or dealers are eating the difference. The—as I say, the numbers kind of range—and the numbers are going to vary a little bit for very large manufacturers who are going to be able to produce a little more cheaply.

Mr. CASSIDY. So economy of scale begins to work, so theoretically it is $1 billion, but in reality that may come down to either negligible or something the industry would find acceptable?

Mr. KARR. You know, even if you are talking about $50 on a per vehicle basis, at 15 million vehicles, you know, you get up to——

Mr. CASSIDY. I understand that, but it also helps you meet your CAFE standards, so there are some benefits.

Let me ask you as well. You also mentioned—I think this is a little disingenuous as a guy from Louisiana, there is no production facilities in the U.S. making methanol for use as a transportation fuel. I will say, by 2014 there will be a plant in Louisiana making large scale methanol, and I have a friend who actually takes petrochemical plants and moves them overseas or back here, dependent upon the price of natural gas. I think the market would quickly respond. I just mention that not as a question, but an observation.

Mr. KARR. Out of curiosity, because I did see that announcement, and you know, a lot of this is—Greg and I have had multiple conversations about kind of where they are going, and I just wasn't clear whether they—that company intends to actually make methanol as a transportation fuel or whether they were going to——

Mr. CASSIDY. I think they are going to make it for the market. Yes, they are going to make it for the market. I mean, they are not owned by some vertically integrated plastic maker, are they going to sell it to the highest bidder, but I also know my friend Rotenberg, you give him a plant someplace else to move back here, he will do so and all of a sudden our cheap natural gas as an input is going to change that.

You mentioned the environmental issues regarding methanol. What I read previously about methanol in California is that—first of all, methanol is that if it gets into water, it typically dissolves. It is CO, water is H20. It quickly disperses and is not an environmental risk. Then you also mentioned the formaldehyde, so I found a Web site, whatever it is worth, that on the whole, methanol is actually a better, cleaner burning fuel. Greenhouse gas is comparable to gasoline, nitrogen oxide, usually comparable or less, particulate matter, significantly less than diesel, formaldehyde, much higher but still low. So although it is much higher, it is still low. And then it goes on about these other things, which it is either the same or a little bit less, relative to ground level ozone, for example. Now do you feel as if the environmental hazards of methanol would be so damning that we could not consider its use, or do you have different facts than what this——

Mr. KARR. No, no, and to be clear, you know, I am not necessarily making a representation about the environmental benefits or not of methanol; rather, we have a practical problem, which is that we have emission standards that we have to certify to, and that is where the formaldehyde——

Mr. CASSIDY. So then let me go to my next question——

Mr. KARR. Sure.

Mr. CASSIDY [continuing]. Because this I kind of open up to the panel. You may have heard my previous question to the previous panel. I was told by a fellow from the major oil and gas company exactly what you wrote in your testimony, Mr. Karr, that the testing required to get this through EPA is so onerous and long, hoops to jump, et cetera, that he was just like—it was like existentialism, like he couldn't live until tomorrow if he had to face, you know, having to go through EPA's hoops on this issue, saying that they are still testing the E85 and they have been doing that for 15 years.

Now I see a lot of heads nodding. Would we say we have met the enemy and it is EPA, or what would we say about that? Mr. Karr, start with you and then work down towards Mr. Dolan.

Mr. KARR. Mr. Althoff can speak kind from even more personal experience. Again, we have made tremendous environmental strides in terms of emissions from vehicles, and that is a good thing. So I am, you know, not going to say that that is a bad thing. The fact is that we as auto makers have to certify our emissions systems to last for what would be the effective life of the vehicle. It is a very long time and we are, these days, certifying extremely low emissions levels. And yes, that is a difficult thing and you do have to do it, you know, with each different fuel.

Mr. CASSIDY. And with each different engine, or can you say this engine is only tweaked, so therefore, it is OK? Mr. Althoff?

Mr. ALTHOFF. So it can be a challenge. Our experience was that they weren't very flexible, so we—the EPA's first flex fuel vehicle they ever tested in their own labs was our retrofit kit. They had never, at that point, tested any of the major auto maker's vehicles. We ran it at an independent lab, it ran great. We sent it to the EPA and it failed. We brought it back, we worked on it. About 9 months later we figured out the problem, and the problem was that they never made the fuel before, so what they did was they took mead alcohol and mixed it with 85 percent gasoline and ended up with an off-spec fuel that didn't actually start very well. That was 9 months of working with the EPA to get to that point.

I mean, I think that if they were more flexible and more open to it, I think that would be a big advantage. One of the studies that talked about $100 per vehicle—and now I am in Mr. Karr's territory—said that $80 of it was for the EPA certification cost, even though the auto industry self-certifies to get the certificate from the EPA, they pay a fee per car. And then the one study I read said that $80 out of the 100 was the EPA's fee to certify the car, even though they never tested the car, never made it into their labs.

So I think that in this space, it would behoove them to figure out a new pricing mechanism to really help with the cost side of it.

Mr. CASSIDY. Mr. Chairman, could I indulge and have Mr. Dolan respond, and I will be through?

Mr. DOLAN. I just wanted to suggest one other potential environmental benefit of legislation like the Open Fuel Standard Act. The OFS calls for the introduction, among other technologies, vehicles that can operate in alcohols up to 85 percent. A recent paper published by Ford indicated that, you know, in the U.S. we haven't increased our octane for our transportation fuel in 30 years, and they suggested one way of doing that is to going to higher levels or mid-levels of alcohol, going from E10 to 20 or 30 percent alcohol. What that will do is increase the octane of the fuel. Once you increase the octane of the fuel, the auto makers can increase the compression ratio of the vehicles, they can take greater advantage of turbo charging, and significantly increase the fuel economy of today's vehicles. That will not only help them meet the CAFE requirements, but will also help introduce more alcohol fuels in the marketplace to meet the RFS requirements as well.

Mr. CASSIDY. Thank you. You all have been a great panel. I appreciate it. Thank you for your indulgence.

Mr. SHIMKUS. Thank you very much. We want to thank the second panel. We also want to ask unanimous consent that three letters that have already been viewed by the Minority, one from Growth Energy, one from American Fuel and Petrochemical Manufacturers, another one from Celanese, be submitted for the record. Without objection, so ordered.

[The information follows:]

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PHONE 202.545.4000 FAX 202.545.4001 GrowthEnergy.org

July 10, 2012

Congressman Edward Whitfield
Chairman
Subcommittee on Energy and Power
2125 Rayburn House Office Building
Washington, DC 20515

Congressman Bobby L. Rush
Ranking Member
Subcommittee on Energy and Power
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Whitfield and Ranking Member Rush:

Thank you for allowing us to submit a statement for the record with regard to your hearing on alternative fuels and alternative fuel vehicles. We appreciate the opportunity to comment.

Growth Energy is the nation's leading association of ethanol producers and supporters. We represent 79 American biorefineries that produce over4 billion gallons of ethanol annually. Overall, America's ethanol industry sustains $50 billion in economic activity, supporting more than 400,000 U.S. jobs by producing nearly 14 billion gallons of American-made, renewable fuel in 200 plants nationwide.

American ethanol stands ready to add even more jobs and economic activity. We remain focused on providing America's ethanol producers access to the American vehicle fuels marketplace. Two important issues – a Clean Air Act fuel waiver for a 15 percent ethanol blend (known as E15), and the Renewable Fuel Standard (RFS) – are under the jurisdiction of the Energy and Commerce Committee. They are also key components to ensure that the American ethanol industry can access drivers, giving them a voluntary choice at the pump.

Right now, the distribution of liquid transportation fuels is a captive market, controlled by the oil industry. Flex Fuel pumps, which blend gasoline and ethanol at the pump, provide consumers the opportunity to choose between more affordable, cleaner, American ethanol, or more expensive, dirtier, foreign oil.

We also strongly support maintaining the RFS. The RFS – the only major energy policy our country has had in the last 40 years - is only 5 years into a 15 year plan. And it is working. Since the first RFS was enacted in 2005, American dependency on foreign oil has decreased by 25 percent while ethanol production has increased 257 percent. Because of the energy stability created by the RFS, the American ethanol industry is leading the way in fuel innovation, developing vehicle fuel from waste materials. Ethanol produced from substances such as corn stover, switchgrass, and municipal waste will further diversify the potential resources to make fuel for American consumers.

Additionally, ethanol is a more affordable motor fuel than regular gasoline, and with the ability to compete head to head, we feel ethanol will win. However, we lack access to consumers. Allowing the

ethanol industry to compete on a level playing field, creates certainty in the vehicle fuel marketplace and offers the opportunity for good paying jobs in small communities and rural areas across the country.

With an open fuel market with Flex Fuel pumps and vehicles, consumers will choose ethanol. They will choose ethanol because it is cleaner, providing for 59 percent fewer greenhouse gas emissions when compared with regular gasoline. They will choose it because it is less expensive than regular gasoline. Study after study proves that ethanol reduces gas prices. On the low end, the reduction is 17 cents per gallon. On the high end, some estimate that ethanol reduces gas prices by well over a dollar per gallon. Further, as automakers move towards the next generation of vehicle production to meet CAFE standards in 2017-2025, higher octane levels will be essential to downsize engine displacement and increase compression ratios and turbocharging. Ethanol is the cheapest and cleanest source of octane. We look forward to working with the auto manufacturers in designing next generation fuel for next generation vehicles.

Lastly, and most importantly, political instability and military conflict in the Middle East do not negatively disrupt the American ethanol supply.. While today's flawed energy policy mandates that we import energy that is costly, dirty and risky, ethanol is the only viable alternative that is available, affordable, clean and creates U.S. jobs.

By allowing consumers a choice at the pump, we give them the power to choose between clean, inexpensive, American-made energy versus dirty, costly, imported energy. We recommend you put forward policies on alternative transportation fuels and vehicles that incentivize the installation of Flex Fuel pumps at our gas stations and encourage the production of Flex Fuel vehicles. Protecting the RFS, adopting higher blends of home-grown American ethanol like E15, and providing consumers with a choice at the pump are key ways to reduce our nation's dangerous dependence on foreign oil, improve our economy by creating jobs right here in the U.S. that cannot be outsourced, improve our environment, and provide real savings for Americans.

Thank you for holding this important hearing. We look forward to working with Committee on these important issues.

Sincerely,

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CEO, Growth Energy

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July 9, 2012

The Honorable Ed Whitfield
U.S. House of Representatives
2368 Rayburn House Office Building
Washington, DC 20515

The Honorable Bobby Rush
U.S. House of Representatives
2268 Rayburn House Office Building
Washington, DC 20515

Re: Committee Hearing Entitled: "The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities"

Dear Chairman Whitfield and Ranking Member Rush:

AFPM, the American Fuel & Petrochemical Manufacturers (formerly National Petrochemical & Refiners Association) respectfully submits this letter for the record regarding the House Energy and Commerce Subcommittee on Energy and Power hearing titled, "The American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and Opportunities."

AFPM is a trade association representing high-tech American manufacturers of virtually the entire U.S. supply of gasoline, diesel, jet fuel, other fuels and home heating oil, as well as the petrochemicals used as building blocks for thousands of products vital to everyday life. Our primary principle is that free markets, not mandates, should and can drive sensible integration of alternative fuels into the consumer marketplace. Our members have been significantly affected by the increasing amounts of alternative fuels mandated under federal law. The challenges the federal Renewable Fuels Standard (RFS) is posing highlight the problem with government mandates and highlight the need for a different approach to alternative fuel development and commercialization.

Under the Renewable Fuels Standard (RFS), refiners have to blend increasing amounts of biofuels into the fuel supply, reaching 36 billion gallons by 2022. However, the increasing volumetric mandates under the RFS are creating significant challenges for refiners as the current size and scope of the ethanol mandate is costly, unworkable, and could make refiners less competitive in a growing global marketplace. The breadth of these challenges show that the RFS needs to be repealed, or at the very least, significantly reformed. Refiners currently are facing challenges with the following aspects of the RFS:

E15

Currently, most cars and light trucks in the U.S. are built to run on gasoline containing 10 percent ethanol, or E10. However, EPA recently approved a partial waiver that will soon allow

gasoline blends containing 15 percent ethanol (E15) for sale into the general fuel supply in vehicle model years 2001 and later, a 50 percent increase. The increase in ethanol could lead to consumers misfueling their vehicles, causing damage and voiding their vehicle warranties. Automobile manufacturers have expressed concerns that E15 could damage vehicles model year 2001 and later, warning that putting E15 in their vehicles could void consumer warranties because their cars and trucks are designed to use a maximum of E10. A recent Coordinating Research Council (CRC) study issued in May shows that even the use of E15 in EPA *approved* vehicles can cause significant damage. In addition to concerns over misfueling, increasing the amount of ethanol blended into gasoline reduces fuel economy and makes fuel more expensive, even in higher oil price environments. AAA's "Fuel Gauge Report" shows the BTU adjusted price for E85, which takes into account the fact that the fuel gets approximately 30 percent less fuel economy than gasoline, is about 60 cents more expensive for E85 compared to gasoline.

Impending "Blendwall"

Refiners are soon to reach a point where the mandated amounts of renewable fuels blended into the fuel supply will soon reach the limits of what fuel and vehicle infrastructure can handle, which is known as the "blendwall." Our businesses will not be able to blend the amount of ethanol mandated under the RFS without significantly causing consumer disruption. The blendwall will be reached when nearly all of the gasoline in the U.S. contains 10 percent ethanol and a portion of E85 (fuel containing 85 percent ethanol, 15 percent gasoline) is sold for use in Flex Fuel Vehicles (FFVs).

Unfortunately, recent increases in CAFE standards compound this problem. According to analysis by the National Association of Convenience Stores (NACS), by 2022 every gallon of fuel sold in the United States will need to contain nearly 40 percent renewable fuels to legally meet both the RFS and CAFE. In particular, NACS found that because CAFE standards will cause fuel demand to drop while the volumetric mandates of the RFS will continue to rise, obligated parties will likely be mandated to force more biofuels into an infrastructure unable to accommodate higher blends. Such a scenario would cause significant problems for consumers and their vehicles, which underscores the unintended consequences of government crafting fuel policies in a vacuum.

Cellulosic

Under the RFS, refiners are mandated to blend cellulosic biofuel into the fuel supply. However, no cellulosic biofuel has been produced in commercial quantities. Despite this fact, EPA increased the amount of cellulosic biofuel refiners are supposed to blend into the fuel supply from 6 million gallons in 2011 to 8.65 million gallons for 2012. While these mandated volumes are a reduction from the statutory requirement of 500 million gallons, cellulosic still does not exist and EPA has the authority to reduce the volumes to zero if no cellulosic fuel is available. Despite such authority, the Agency required refiners to purchase waiver credits to comply with

the cellulosic mandate for 2011. Increasing the volume from 2011 will equate to a tax $8.2 million tax for refiners, as they will again have to purchase waiver credits from EPA if no cellulosic biofuel is produced in 2012.

RINs

In order for refiners to demonstrate compliance with the RFS, they must submit renewable identification numbers (RINs) to EPA. In practice, RINs act as credits that are attached to each gallon of renewable fuel produced. RINs can be bought and sold among biofuel producers, brokers and obligated parties. Refiners can only purchase RINs from parties that EPA has registered to sell these credits. In the last year, some refiners unknowingly purchased fraudulent RINs from EPA registered entities. In fact, EPA has already discovered at least 140 million fraudulent RINs, approximately 5-12 percent of the biodiesel RIN market. In total, the cost of replacing all RINs (essentially forcing refiners to double comply with the RFS) is nearly $200 million, with additional cost to settle Notices of Violations, effectively punishing refiners who are the victims of fraud.

Natural Gas as a Transportation Fuel

In addition to the problems with the RFS, AFPM has concerns with proposals to create massive subsidies and mandates for further use of natural gas as a transportation fuel. A recent IHS CERA report found that low natural-gas prices make natural gas powered vehicles economical in the transportation sector without federal incentives, and that any upfront investment costs could be recovered in three years. Moreover, natural gas is an important feedstock for petrochemical manufacturing, power generation, and many other products such as fertilizer. Distorting the market through mandates and subsidies will have unintended consequence, much like the RFS. Markets, not mandates and subsidies, should determine the highest and best use of our natural resources.

AFPM looks forward to working with you and the other members of Congress to find common sense solutions to the use of alternative fuels in the fuel supply in a manner that does not pick winners and losers through government mandates and subsidies. If you have any additional questions, please do not hesitate to contact me directly or have the appropriate staff person contact AFPM's Director of Government Relations, Geoff Moody, at 202-457-0480.

Sincerely,

Charles T. Drevna

STATEMENT FOR THE RECORD
House Committee on Energy and Commerce
Energy and Power Subcommittee

Hearing on the American Energy Initiative: A Focus on Alternative Fuels and Vehicles, Both the Challenges and the Opportunities
July 11, 2012

Mark W. Oberle
Senior Vice President, Corporate Affairs
Celanese

As Senior Vice President, Corporate Affairs of Celanese Corporation (Celanese), I commend you both for the July 10 "American Energy Initiative" hearing before the Energy & Power Subcommittee. As this committee assesses a variety of options to encourage domestic alternative energy solutions and ways to reduce our dependence on foreign sources of oil, we would ask that you consider an approach that has the potential to improve our nation's energy security profile and spur production of American-made alternative fuels at significantly less cost than oil or corn-starch ethanol. The potential of these technologies, however, is hampered by many of the restrictive regulatory policies that your committee is reviewing.

These technologies do not need government support in the form of subsidies or tax credits to be competitive. They do not require government loans or grants to provide sufficient funding to begin construction. They do not require either a massive makeover of the national fueling infrastructure or a retrofit of existing engine technology. They just need access to a fair market where technologies can compete fairly to meet existing demand.

These technologies represent American ingenuity and innovation at its best, and they make use of abundantly available domestic resources.

With this background, we respectfully request that you consider our involvement as you proceed with discussions surrounding potential policy solutions to higher gasoline prices.

Celanese is a leading global technology and specialty materials company that makes a broad range of products essential to everyday living. The company, headquartered in Dallas, Texas, employs 7,600 people across the globe – including 2,600 employees at 13 facilities in Illinois, Kentucky, Michigan, Minnesota, North Carolina, South Carolina, Texas and Virginia. Our products are essential building blocks in the conveniences and components that make up modern life – everything from cell phones and food ingredients to medical products, packaging and vehicle components.

In November 2010, Celanese announced that we had developed a new advanced technology, branded TCX®, that converts basic hydrocarbons such as natural gas into ethanol. While the science behind this conversion is not new, Celanese was able to build upon its industry-leading expertise in acetyl chemistry to develop a process that is highly efficient and cost-competitive.

Based on current economics, Celanese is capable of producing this fuel at $1.50 per gallon, which is significantly less than the cost of ethanol produced by corn fermentation. It is important to note that we can do this without subsidies or any federal funding.

While the announcement of this technology is exciting, its full potential is limited by laws governing the development, distribution and use of domestic alternative and renewable fuels, which are in serious need of review and reform by Congress. In particular we would ask that you consider revising the Renewable Fuel Standard (RFS), which establishes the market for ethanol in transportation fuel. The RFS requires covered entities to blend an increasing percentage of renewable fuel into their transportation fuel stocks and establishes the criteria for what constitutes an eligible fuel.
When Congress updated the RFS under the Energy Independence & Security Act of 2007 (EISA), it significantly increased the mandate for blending of renewable fuels. Congress, however, did not account for predictable technological advancements in the fuels market. Under the current framework, qualifying fuels must be produced from renewable biomass and must fit into one of a few narrow fuel categories. This rigid approach falls short of a true "all of the above" energy strategy.

Celanese believes that if ethanol produced using a variety of feedstocks like natural gas were eligible to compete on a level playing field in the current fuels market, it could substantially improve energy security in the U.S. by diversifying ethanol production. It also could help reduce the negative effects of diverting food and feed crops to the fuel market. In addition, natural gas to ethanol technology offers greater energy efficiency in the conversion of feedstocks to fuel while using substantially less water than traditional fermentation technology and producing almost no waste.

A primary mission of this Congress has been to establish safe and effective ways to generate new domestic sources of energy. Modification to the RFS along with a comprehensive vision for America's energy future is one way to open doors to new technological advances. Congressional leadership is needed to spur innovation and ensure that viable alternative technologies can enter and compete in an open market. Immediate benefits could accrue from the diversification of qualifying feedstocks under the RFS, which would enable more local and regional production of fuels. Currently, most eligible fuels are made from agricultural crops grown primarily in the Midwest. Regions that cannot efficiently grow these crops are at a significant cost disadvantage. The current RFS also creates logistical issues by effectively requiring these fuels to be transported from a largely centralized location to blending facilities across the country, which can be time-consuming, complex and expensive. Broadening the eligibility requirements of the RFS would level the playing field, enable all regions to participate in their transportation fuel future and reduce the infrastructure development needed.

Finally, expanding the eligibility requirements for feedstocks and manufacturing processes will help advance the science and technology needed to meet the country's growing energy needs. It is no secret that the advanced biofuels mandated under the RFS have been slow to commercialize. Technologies that convert natural gas to ethanol utilize different approaches that may eventually be able to be applied to biomass, algae oils, cellulosic materials or even waste. Unless these developmental technologies are allowed to compete fairly, they may never fully develop into the technologies that were the original focus of the RFS.

For these reasons, Celanese and a broad cross-section of agricultural, small business and community based organizations from all over the US joined together to support H.R. 3773, the *Domestic Alternative Fuels Act*, introduced by Rep. Pete Olson (R-TX). This legislation would broaden the eligibility requirements of the RFS to allow innovative, home-grown, new fuel technologies like natural gas to ethanol to compete with corn-based ethanol. We believe this is the appropriate approach given the mature nature of the corn-based ethanol industry and the generally accepted view that the advanced biofuel segment needs considerably more time to develop.

Again, we commend the Committee's ongoing efforts to address our energy concerns. We would encourage you to conduct hearings on the eligibility requirements of the RFS, and to consider H.R. 3773 as another part of the solution to addressing our long-term energy needs.

We would be happy to answer any questions you might have regarding our particular technology or views on these issues. Should you be interested in such a discussion, I can be reached at the numbers above.

Thank you for your consideration.

Mr. SHIMKUS. Again, thank you very much. The hearing is adjourned.

[Whereupon, at 2:07 p.m., the subcommittee was adjourned.]

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