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THE AMERICAN ENERGY INITIATIVE, PART 26: THE ROLE OF FEDERAL AGENCIES IN ALTERNATIVE TRANSPORTATION FUELS AND VEHICLES

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND POWER

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

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THE AMERICAN ENERGY INITIATIVE, PART 26: THE ROLE OF FEDERAL AGENCIES IN ALTERNATIVE TRANSPORTATION FUELS AND VEHICLES

TUESDAY, JULY 17, 2012

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

The subcommittee met, pursuant to call, at 3:02 p.m., in room 2123, Rayburn House Office Building, Hon. Ed Whitfield (chairman of the subcommittee) presiding.

Members present: Representatives Whitfield, Shimkus, Terry, Burgess, Scalise, Gardner, Pompeo, Griffith, Barton, Upton (ex officio), Rush, Castor, Markey, Green, and Waxman (ex officio).

Staff present: Charlotte Baker, Press Secretary; Anita Bradley, Senior Policy Advisor to Chairman Emeritus; Maryam Brown, Chief Counsel, Energy and Power; Andy Duberstein, Deputy Press Secretary; Cory Hicks, Policy Coordinator, Energy and Power; Heidi King, Chief Economist; Ben Lieberman, Counsel, Energy and Power; Mary Neumayr, Senior Energy Counsel; Chris Sarley, Policy Coordinator, Environment and Economy; Charlotte Savercool, Executive Assistant; Lyn Walker, Coordinator, Admin/Human Resources; Michael Aylward, Democratic Professional Staff Member; Phil Barnett, Democratic Staff Director; Greg Dotson, Democratic Energy and Environment Staff Director; Caitlin Haberman, Democratic Policy Analyst; and Alexandra Teitz, Democratic Senior Counsel, Environment and Energy.

OPENING STATEMENT OF HON. ED WHITFIELD, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF KENTUCKY

Mr. WHITFIELD. I would like to call this hearing to order. This is the 26th day of our hearings on the American Energy Initiative. Last week we held a day of hearings on the alternative fuels and vehicles that focused on nongovernmental perspectives. We did not complete that hearing so today we are going to hear three governmental perspectives: The Energy Information Administration and projections on alternative fuel and vehicle trends from them; the Environmental Protection Agency, which implements several rules and several fuels and vehicle programs, like the renewable fuel standard and CAFE greenhouse gas standards for cars and trucks;

and the Department of Energy, which heads up the Federal research efforts on alternative fuels and vehicles.

Among the things we hope to explore today is the proper role for the government in spurring innovation in alternative fuels and vehicles. Where the Federal Government is already involved, we need to monitor its progress and make revisions if necessary. For example, I believe that the renewable fuel standard created in the 2005 bill and expanded in the 2007 bill has worked well in several respects. The Nation has successfully ramped up ethanol and biodiesel production to meet the standards. Some believe there are challenges with the RFS that require congressional review.

EPA is also involved in fuel economy greenhouse gas standards for cars and trucks, and indeed, we expect a final rule for light duty standards for 2017–2015 very soon. We do need to scrutinize the impact of these standards. While they are going to improve fuel efficiency and save money in that way, we know that they will also increase the price, the sticker price of automobiles, and we want to be sure that middle-class Americans can still afford these vehicles.

The good news is that a variety of transportation alternatives are on the table; electricity, biofuels, natural gas, propane, et cetera. Each offers its own unique mix of potential economic, environmental or national security benefits, as well as cost and technical challenges that need to be overcome. So I look forward to our witnesses today on this last panel. I will introduce them right before we will receive their opening statements. And at this time, I would like to recognize the gentleman from California, Mr. Waxman, for his 5-minute opening statement.

[The prepared statement of Mr. Whitfield follows:]

Opening Statement of the Honorable Ed Whitfield
Subcommittee on Energy and Power
Hearing on "The American Energy Initiative: A Focus on Federal Government Perspectives Regarding Alternative Fuels and Vehicles"
July 17, 2012
(As Prepared for Delivery)

This is the 26th day of our hearing on the American Energy Initiative. Last week, we held a day of the hearing on alternative fuels and vehicles that focused on non-governmental perspectives.

Today, we will hear three governmental perspectives: the Energy Information Administration, whose projections on alternative fuel and vehicle trends are a very valuable resource for us all, the Environmental Protection Agency, which implements several fuels and vehicles programs like the Renewable Fuel Standard and CAFE/greenhouse gas standards for cars and trucks, and DOE, which heads up the federal research efforts on alternative fuels and vehicles.

Among the things we hope to explore today is the proper role for the government in spurring innovation in alternative fuels and vehicles.

Where the federal government is already involved, we need to monitor its progress and make revisions if necessary. For example, I believe that the Renewable Fuel Standard, created in the 2005 bill and expanded in the 2007 bill, has worked well in several respects. The nation has successfully ramped up ethanol and biodiesel production to meet the standards. Some believe there are challenges with the RFS that require Congress' review.

EPA is also involved in fuel economy/greenhouse gas standards for cars and trucks, and indeed we expect a final rule for light duty standards for 2017-2015 very soon. We need to carefully scrutinize the impact of these standards to ensure they avoid undue costs, such as an increase in sticker prices that would put a new car purchase out of reach for many.

The good news is that a variety of transportation alternatives are on the table - electricity, biofuels, natural gas, propane, coal-to-liquids, and others. Each offers its own unique mix of potential economic, environmental, or natural security benefits as well as costs and technical challenges that need to be overcome.

I might add that while several of these alternative fuels and vehicles look promising, the best news of all is the fact that there is much more oil right here in America than we assumed just a few years ago.

The most sensible policy of all is to make good use of that domestic oil, as well as approving projects like the Keystone XL pipeline that would allow additional oil to come into the country from Canada.

Alternatives should be in addition to - and not instead of - plentiful and affordable supplies of North American oil. A genuine all-of-the-above approach to fuels and vehicles will best serve the interests of the American people in the years ahead.

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

Mr. WAXMAN. Thank you, Mr. Chairman.

We are holding our 26th day of hearing on the American Energy Initiative. And what we will hear from the Republican majority I think will be disconnected from reality as have the other 25 previous hearings. For 18 months, the Republicans have tried to talk about energy policy without even mentioning, let alone addressing, the problem of carbon pollution and climate change.

Climate change is inextricably linked to our energy choices, and sound energy policy is critical to strengthening our energy security, boosting our economy, improving our international competitiveness, growing jobs, reducing pollution and protecting public health. We must tackle climate change and our other energy challenges together, or we will inevitably fail to achieve these goals.

The Republicans' approach is like trying to make America more secure without acknowledging the threat of terrorism. It is like trying to improve our international competitiveness while pretending China doesn't exist. It is doomed to failure.

And that failure has a very high price. We are now starting to get a clear picture of the cost of unchecked climate change. The recent wildfires, drought, heat waves and extreme weather events, even in Kentucky, are exactly the types of extreme events that scientists have been predicting and that this committee has been ignoring.

According to the National Oceanic and Atmospheric Administration, more than 40,000 hot temperature records have been set this year. The past 12 months were the warmest 12-month period ever recorded in the United States. At the end of June, more than 100 million people in the U.S. were in areas under extreme heat advisories. Two-thirds of the country is experiencing drought. And last week, the Agriculture Department declared a Federal disaster area in more than 1,000 counties covering 26 States, making it the largest disaster declaration ever made by the USDA. More than 2 million acres have burned in wildfires this year.

A recent study by NOAA and the U.K. Hadley Center found that due to climate change, the odds that Texas will experience an extreme heat wave like it did last summer are now 20 times higher compared to the 1960s. According to economists at the Texas Agri Life Extension Service, last summer's drought caused Texas agriculture $7.6 billion. That is just a portion of the cost of one extreme event that was made far more likely by climate change.

But instead of tackling this problem, the Republicans have refused to acknowledge it. Representative Rush and I have written to Chairman Upton and Chairman Whitfield 15 times this year to request hearings on various climate change reports and topics. We have yet to get a response.

And the Republicans have done worse than just ignore climate change. They are actually pushing policies that would make it worse. The House Republicans have voted 81 times on the House floor to block action to address climate change and establish clean energy policies. Republicans have even voted to block the EPA carbon pollution tailpipe standards, which we will hear about today.

As proposed, those standards will save consumers on average $4,400 at the pump, net a vehicle cost, as well as reduce carbon pollution by 2 billion metric tons and save about 4 billions barrels of oil.

Only an extreme ideology can view these standards as a bad idea that Congress needs to stop.

Mr. Chairman, 26 hearings in this subcommittee, and we continue to ignore the real and urgent problem of climate change. As Americans across this country continue to experience devastating extreme events which are becoming far more frequent as the earth warms, it is increasingly clear that we don't have any more time to waste. And I am not going to waste any more time and yield back my 19 seconds.

Mr. WHITFIELD. Thank you very much.

At this time, I recognize the gentleman from Illinois, Mr. Shimkus, for 5 minutes.

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

Mr. SHIMKUS. Thank you, Mr. Chairman. And thank you for holding this hearing today and the follow-up with the hearing that we had last week on really the renewable fuels portion of our national energy security and standard.

It was in this hearing room in 2005 that we established the renewable fuel standard, which has credibly helped in reducing our reliance on imported crude oil, and it has helped change the liquid transportation market to something other than totally a crude-oil-based economy.

So the question is, Where do we go from here? We are still importing 60 percent of the crude oil to meet our needs for transportation. That is why in 2007, then again later, we continued to move the renewable fuel standard and portfolio even further. That is why always this is an opportunity to take advantage to highlight the bipartisan bill that Mr. Engel and I have dropped, H.R. 1687, which is the open fuel standard.

And I think the hearing that we had last week really helps build on that piece of legislation. Because as I have been thinking about the hearing—and we all know there is a plentiful supply of natural gas available, and that is really going to help on electricity generation, on emissions and the like. Being from a coal State, I have obviously some concerns that my coal will be disenfranchised, but I do believe in the competitive marketplace. If the EPA wasn't making the additional cost so high, it would still be competitive, but that is an argument for another time.

On the liquid transportation front, why can't we take the natural gas, move it into methanol, add methanol, add ethanol, encourage, incentivize, plead with the auto industry to have a one fuel standard for vehicles and then have real competition at the refilling stations, so that the individual consumer could go up and decide what is the best fuel at the best price and let market competition take over? As my friend said last week, we really have—we are still constrained, and I think some of the opening statements by our panelists will highlight, that we are still constrained and reliant on crude oil as a base feed stock for transportation fuels.

What the open fuel standard says is, let's break that, we are still going to be highly reliant on crude oil, but let's bring other feed stocks and let the individual consumer choose, choose at the pump and fight. So I want to take this opportunity to highlight H.R. 1687, thank my friend Mr. Engel, who has actually been carrying this a lot longer than I was the primary sponsor. We appreciate the associations and the national defense folks, who are really involved with this because our reliance on imported crude oil throughout the world and the Strait of Hormuz, and we understand the firing from yesterday, so this is always a timely thing to discuss.

And with that, Mr. Chairman, I do appreciate having this hearing, and I yield back the balance of my time.

Mr. BURGESS. Mr. Chairman, would you mind yielding to me?

Mr. SHIMKUS. I would yield time to my friend from Texas.

OPENING STATEMENT OF HON. MICHAEL C. BURGESS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF TEXAS

Mr. BURGESS. And I appreciate the gentleman for yielding. I just want to point out this last weekend we had our annual energy efficiency summit in my district back at the University of North Texas. Constituents are concerned about what they see as the increasing cost of electricity in their fuel bill, so this hearing is timely today. The keynote speaker for our event was our railroad commissioner, David Porter, who has the responsibility for regulating the oil and gas industry in the State of Texas, and he provided a great deal of insight how Texas is leading the way in energy technologies, particularly in the alternative shale formations, which are now so prevalent in our State and has been a boon to the region and much of the rest of the country. Lower costs to consumers are driving more people to drive hybrid vehicles and make their homes more energy efficient, all good things, without the need for government incentives to do so. That is how the market was designed to work, and we should be cautious at any moves that might distort the market.

For the same reason, I have been concerned about the EPA's mandates in the renewable fuel standard. I have legislation out there, H.R. 424, The LEVEL Act, to keep the EPA from fast-tracking the use of E15 in our fuel systems. The cost of consumers from this move both at the pump and at the mechanic shop is going to be significant. And we have yet to provide any satisfactory liability protection for the small retailer. I thank the chairman for the recognition and I yield back.

Mr. SHIMKUS. And I yield back the time.

Mr. WHITFIELD. That gentleman yields back the balance of his time.

At this time, I recognize the gentleman from Illinois, Mr. Rush, for 5 minutes.

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

Mr. RUSH. Why, thank you, Mr. Chairman, for holding yet another hearing ad infinitum on this subject. Mr. Chairman, this is our 26th hearing on this particular subject matter, and we have not had a law passed yet, nothing has been signed into law yet. So,

Mr. Chairman, at some point, this subcommittee needs to move away from holding partisan doomed-to-fail political messaging votes and get on with the business of working together to actually enact policies that will help move this country's energy policies forward and help move us away from the point of no return in regards to the serious matter of climate change.

Yet another hearing, Mr. Chairman, and during last week's industry hearing, we heard that we faced most significant opportunities and challenges as we started to meet the goal of $36 billion of biofuels by the year 2022 as mandated by the renewable fuel standards, which was included in the Energy Independence and Security Act back in 2007.

And Mr. Chairman, today more than ever, we see why it is extremely necessary to move our country towards a greater reliance on alternative and renewable sources of energy as opposed to carbon-intense fossil fuels that emit dangerous levels of greenhouse gases and contribute enormously to ever-present climate change.

Over the past few years, we have seen an uptake in severe wildfires and extreme weather events associated with global climate change that is occurring all around this Nation and indeed around the world. According to NOAA, the United States has set more than 40,000 high temperature records this year alone. And the last 12 months have been the hottest ever recorded in the history of this Nation. And at the end of June, Mr. Chairman, more than 113 million people in the U.S. were in areas under extreme heat advisories. And just last week, the U.S. Department of Agriculture declared a Federal disaster area in more than 1,000 counties, covering 26 States, making it the largest disaster declaration ever made by the USDA. Today two-thirds of the country is experiencing drought in States from your home State of Kentucky to the Midwest, where I live, facing severe losses of corn and other crops due to lack of rain.

On my way in from the airport earlier, one of the airport employees bemoaned the fact that corn, the corn crop this year would be disastrous and thereby was driving up the cost of enormous amounts of consumer goods to the American people that is hurting already under this economic times that we live in. Mr. Chairman, at least half of the Nation's grazing pastures are in poor or very poor condition, and up to 30 percent of the Nation's corn crop is in poor or very poor condition, which will impact, again, the price of food, consumer goods and ethanol. Dry conditions are taking a toll on the Great Lakes where water levels in four of the five lakes have plummeted this summer due to high evaporation rates and insufficient rainfall, which of course may pose a significant challenge for us who rely on the lakes for drinking water and other economic activities.

Even here in the Nation's Capital two weeks ago, a storm caused over 1 million homes to lose power in the DC Region, while States from Florida to Minnesota have experienced some of the most damaging floods in history due to torrential downpours.

Mr. Chairman, this is not about party. Regardless of party or geography or whether you like President Obama and/or his policies, this committee and this subcommittee can no longer afford to stick their heads in the sand and pretend that mother nature is not

showing us the signs that we need to act. The scientists are also increasingly sounding alarms and informing us that these natural catastrophes are anticipating consequences of climate change and are expected to continue.

Mr. Chairman, what are we doing here, when are we going to stop the charade, when are we going to move to bring forth meaningful bipartisan legislation to deal with real problems and real issues? With that, I yield back the balance of my time.

Mr. WHITFIELD. The gentleman didn't have any time to yield back, but we appreciate your opening statement.

I would like to introduce the witnesses on the first panel this afternoon. First of all, we have Mr. Howard Gruenspecht, who is the deputy administrator, U.S. Energy Information Administration. We have Ms. Margo Oge, who is director, Office of Transportation and Air Quality, U.S. Environmental Protection Agency. And we have Dr. Kathleen Hogan, who is the deputy assistant secretary for energy efficiency at the Department of Energy.

We genuinely appreciate your being here today, we look forward to your testimony. And each of you will be given 5 minutes for an opening statement, and then, at the end of that time, there will probably be some questions.

STATEMENTS OF HOWARD K. GRUENSPECHT, DEPUTY ADMINISTRATOR, ENERGY INFORMATION ADMINISTRATION, DEPARTMENT OF ENERGY; MARGO T. OGE, DIRECTOR, OFFICE OF TRANSPORTATION AND AIR QUALITY, ENVIRONMENTAL PROTECTION AGENCY; AND KATHLEEN HOGAN, DEPUTY ASSISTANT SECRETARY FOR ENERGY EFFICIENCY, DEPARTMENT OF ENERGY

Mr. WHITFIELD. So, Mr. Gruenspecht, you are recognized for 5 minutes for your opening statement.

STATEMENT OF HOWARD K. GRUENSPECHT

Mr. GRUENSPECHT. Chairman Whitfield, Ranking Member Rush, members of the subcommittee, I appreciate the opportunity to appear before you today.

The Energy Information Administration is the statistical and analytical agency within the Department of Energy. EIA does not promote or take positions on policy issues and has independence with respect to the information and analysis we provide. Therefore, our views should not be construed as representing those of the Department or other Federal agencies.

The transportation sector and the use of petroleum fuels are tightly linked. In 2010, 71 percent of total U.S. petroleum consumption occurred in the transportation sector, while petroleum products provided 93 percent of total transportation energy. Light duty vehicles, both passenger cars and light duty trucks, accounted for 60 percent of total transportation energy use in 2010, with petroleum based fuels providing 94 percent of that. Gasoline-only nonhybrid vehicles had an 86 percent market share out of 10.8 new vehicles sold in 2010 followed by flex fuel, hybrid electric and diesel vehicles at 9 percent, 3 percent and 2 percent respectively.

EIA's annual energy outlook 2012 provides projections for the U.S. energy system through 2035. The reference case is a business-

as-usual trend estimate using known technology and technological and demographic trends and the assumption that current laws and final regulations, including any applicable sunset dates, remain unchanged. Annual energy outlook 2012 also includes several alternative cases with market technology or policy assumptions that can significantly change the outlook for light duty energy use, including high and low oil price cases, a case that includes the fuel economy standards proposed by NHTSA and EPA for model years 2017 through 2025, an extended policy case that raises fuel economy standards beyond 2025 and a case that considers cost breakthroughs and battery technology.

Although growth in the number of drivers and vehicle miles per driver results in a projected 35 percent growth in light duty vehicle miles of travel between 2010 and 2035 in the referenced case, projected light vehicle petroleum use in 2035 is about 7.2 million barrels per day, 11 percent lower than in 2010, due to changes in the fuel mix and improved fuel economy. In the CAFE standards case, overall light vehicle energy consumption decreases by 20 percent over the same time period with petroleum use falling to only about 5.8 million barrels per day.

In both cases, petroleum products remain the dominant fuel for light duty vehicles, but biofuels are projected to provide a growing share of their energy use, driven primarily by the renewable fuel standard mandate that has been discussed in the opening statements. Electricity usage begins to grow but remains quite small. It grows much more rapidly in the high technology battery case.

Our fuel economy case analysis indicates a marked increase in the efficiency of gasoline engines both with and without microhybrid technologies. My testimony discusses several challenges surrounding the Federal renewable fuel standard targets. First, since the Energy Independence and Security Act was first enacted, EIA has projected that rates of technology development and market penetration for cellulosic biofuels would likely fall short of the specified targets and timetables. We do believe that you get there 25 years from now, but you don't get there as quickly as the timetables are set up.

Our near-term projections for cellulosic biofuels have been further reduced in this current addition of the outlook. Second, nearly all U.S. motor gasoline already contains 10 percent ethanol, so increased absorption of ethanol into a fuel pool that is not growing fast requires market acceptance of ethanol blends up to 15 percent, which EPA has approved for use in model year 2001 and new or nonflex fuel vehicles or the increased use of E85 in flex fuel vehicles, both of which face some significant market obstacles.

Another pathway involves the development and market penetration of drop in renewable fuels or renewable fuel components, such as biobutanol. Four key areas of uncertainty in the annual energy outlook projections, including fuel prices, technology costs, consumer acceptance and potential changes in policies, are addressed in my testimony. The impact of alternative assumptions about technology costs are particularly striking for battery technologies. Success in attaining DOE goals leads to a very significant increase in projected market penetration of hybrid electric vehicles, plug-in hybrids and electric vehicles compared to the sales projected in the

referenced case using our default cost assumptions and would likely be even more significant in the CAFE standards case.

That concludes my statement, Mr. Chairman, and I would be happy to answer any questions that you or the other members may have.

[The prepared statement of Mr. Gruenspecht follows:]

STATEMENT OF HOWARD GRUENSPECHT

DEPUTY ADMINISTRATOR

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

before the

SUBCOMMITTEE ON ENERGY AND POWER

COMMITTEE ON ENERGY AND COMMERCE

U. S. HOUSE OF REPRESENTATIVES

July 17, 2012

Mr. Chairman and Members of the Subcommittee, I appreciate the opportunity to appear before you today to address the outlook for light duty vehicles and the fuels used in those vehicles.

The U.S. Energy Information Administration (EIA) is the statistical and analytical agency within the U.S. Department of Energy. EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding regarding energy and its interaction with the economy and the environment. EIA is the Nation's premier source of energy information and, by law, its data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government. The views expressed herein should therefore not be construed as representing those of the Department of Energy or other federal agencies.

Petroleum dominates energy use in transportation

The transportation sector and the use of petroleum fuels are tightly linked. In 2010, 71 percent of total U.S. petroleum consumption occurred in the transportation sector, while petroleum products provided about 93 percent of total transportation energy. Light-duty vehicles (LDVs), including both passenger cars and light-duty trucks, accounted for 60 percent of total transportation energy use in 2010.

LDVs are almost entirely fueled by petroleum, with the petroleum content of motor gasoline accounting for 92 percent (7.9 million barrels per day (mmbd)) of energy use and diesel fuel representing another 2 percent (0.1 mmbd). Biofuels account for essentially all remaining LDV energy use.

The *Annual Energy Outlook 2012*

EIA recently released the *Annual Energy Outlook 2012* (*AEO2012*), which presents projections for the U.S. energy system through 2035. The *AEO2012* Reference case is a business-as-usual trend estimate, using known technology and technological and demographic trends, and is prepared under the assumption that current laws and regulations remain unchanged throughout the projection period. The large share of U.S. energy and petroleum use by LDVs has made them a focal point for legislation, regulation, and tax policies to both improve fuel economy and promote the sale of alternatively-fueled vehicles and alternative fuels. Higher fuel economy standards reduce both petroleum and energy consumption, while the use of alternative fuels displaces petroleum without necessarily reducing overall energy use.

The *AEO2012* Reference case includes the jointly issued Corporate Average Fuel Economy (CAFE) and greenhouse gas emissions standards for model year (MY) 2012 to 2016 LDVs promulgated by the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA). It also assumes a further increase in CAFE standards to 35 miles per gallon (mpg) by MY 2020, as required by the

Energy Independence and Security Act of 2007 (EISA). In addition, the Reference case incorporates other provisions impacting the transportation sector, such as the Renewable Fuels Standard (RFS) for biofuels, waivers allowing the use of E15 in MY 2001 and newer vehicles, existing emissions standards for conventional criteria pollutants from LDVs, and existing tax credits for alternative/advanced vehicles and fuels. Tax credits for vehicles and fuels are assumed to sunset at the dates specified by laws in effect as of the start of 2012.

Beyond the Reference case, *AEO2012* includes analysis of several alternative cases with market, technology, or policy assumptions that can significantly change the outlook for LDV energy use. These include high and low oil price cases that impact fuel costs, a CAFE Standards case that incorporates the fuel economy and greenhouse gas emission standards for MYs 2017 to 2025 that have been proposed by NHTSA and EPA, and a case that considers the impacts of a breakthrough in battery vehicle technology. The "Market Trends" and "Issues in Focus" sections from *AEO2012* that address LDV issues are enclosed in this testimony.

My testimony briefly summarizes highlights of the *AEO* projections and then discusses some key uncertainties affecting both the near-term and longer-term outlook.

Projected Vehicle Mix and Efficiencies

Although sales of LDVs that use diesel, alternative fuels, and/or hybrid electric systems have increased in recent years, gasoline-only non-hybrid vehicles have maintained a dominant sales share. In 2010, gasoline-only non-hybrid vehicles had an 86 percent market share out of 10.8 million new LDVs sold, followed by flex fuel, hybrid electric, and diesel vehicles at 9, 3, and 2 percent, respectively.

Vehicles using alternative fuels and/or hybrid technologies are projected to play a growing role over time, due to policy, rising fuel prices, and technology advances. In the *AEO2012* Reference and CAFE Standards cases, gasoline-only non-hybrid vehicle sales are, respectively, 65 percent and 36 percent of projected new LDV sales in 2035. Micro hybrids, vehicles that combine gasoline internal combustion engines with larger batteries and electrically powered auxiliary systems that allow the engine to be turned off when the vehicle is coasting or idling and then quickly restarted, account for 46 percent of projected new LDV sales in the CAFE Standards case.

Flex-fuel vehicles (FFVs), which can use ethanol in blends of up to 85 percent, account for roughly 17 percent of projected new LDV sales in 2035 in both the Reference and CAFE Standards cases. The share of FFVs in both cases rises as the model seeks to accommodate the RFS mandate for increased biofuels use. Drop-in biofuels also play an important role in response to the RFS.

The projections show significant fuel economy improvements for gasoline-only vehicles with conventional drivetrains. The fuel economy of gasoline-only passenger cars, including micro hybrids, increases from 32 mpg in 2010 to 38 mpg in 2025 in the Reference case or 51 mpg in 2025 in the CAFE standards case. The fuel economy of gasoline powered light trucks, including micro hybrids, rises from 24 mpg in 2010 to 31 mpg in 2025 in the Reference case or 37 mpg in the CAFE standards case.

Projected LDV Energy Use

Growth in the number of drivers and vehicle miles per driver results in a projected growth of 35 percent in total LDV vehicle miles of travel between 2010 and 2035 in the Reference case. However, due to rising fuel economy, overall LDV energy consumption is projected to decrease by 3 percent, or 0.5 quadrillion British thermal units (Btu), between 2010 and 2035 despite rising travel demand. Projected LDV petroleum use in 2035 is about 7.1 mmbd, about 0.9 mmbd lower than the level in 2010, reflecting both changes in the fuel mix and improved fuel economy. In the CAFE standards case, overall LDV energy consumption decreases by 20 percent, or 3.2 quadrillion Btu, between 2010 and 2035, while projected LDV petroleum use in 2035 is about 5.8 mmbd, 28 percent lower than its 2010 level. (**Table 1**)

Petroleum products remain the dominant LDV fuel in both the Reference and CAFE Standards cases, with the motor gasoline (excluding ethanol) share falling to between 80 and 82 percent (from 92 percent currently) while the diesel share remains relatively stable

at around 4 percent (from 2 percent) by 2035. Biofuels play a growing role and are projected to provide almost 13 percent of energy used by LDVs by 2035 in the Reference case, up from 7 percent in 2010 driven primarily by the RFS mandate (**Figure 1**). Electricity usage begins to grow but remains small at about 0.3 percent while natural gas accounts for less than 0.2 percent. This is due partially to the fact that electric vehicles are very efficient and for the same amount of travel use significantly less fuel. Electricity usage grows much more rapidly in the *AEO* High Technology Battery case.

Biofuels Issues

There are several challenges under the RFS which, as modified by EISA, sets separate volume requirements for several specific biofuel categories including cellulosic biofuels. The total volumetric requirement for all renewable biofuels increases annually from 15.2 billion gallons this year to 36 billion gallons in 2022, including a target for cellulosic biofuels that grows from 500 million gallons this year to 15 billion gallons in 2022.

First, all EIA projections since the enactment of EISA have reflected a view that rates of technology development and market penetration for cellulosic biofuel technologies would not support attainment of its cellulosic biofuel targets. EIA projections for cellulosic biofuels supply have been further reduced in *AEO2012*, as progress towards large-scale commercial production has slowed.

Second, the average concentration of ethanol in the U.S. gasoline supply, including all blends, reached 10 percent in the summer of 2011. While EPA has approved the sale of blends up to 15 percent ethanol for use in MY 2001 and newer non-flex fuel vehicles, prospects for widespread market acceptance are uncertain.

Third, in the *AEO2012* projections, FFVs are assumed to use significant volumes of renewable fuel in the form of E85 beyond 2015. EIA estimates that about 9.8 million FFVs were already in use as of 2011, but those vehicles were almost entirely fueled with gasoline and consumed just over 0.002 million barrels per day of E85. Widespread use of E85 is likely only if its pump price is low enough to make it economically attractive relative to gasoline after taking account of the difference in energy content between the two fuels. Economically attractive fuel pricing could also help to encourage the build out of ethanol refueling infrastructure. There are currently only about 2300 publicly accessible E85 refueling stations across the country, and these are heavily clustered in the upper Midwest.

Uncertainty in the *AEO2012* projections for the LDV vehicle mix and fuel use

The *AEO2012* Reference case projections for LDVs and their fuel use are inherently uncertain. This section discusses four key areas of uncertainty: fuel prices, technology costs, consumer acceptance, and potential changes in policies.

First, all vehicle types face uncertainty regarding future fuel prices. Higher or lower fuel prices can change the relative attractiveness of all vehicle types, either making more fuel-efficient vehicles more attractive to consumers in a high oil price case or relatively less attractive in a low oil price case. For example, in the *AEO2012* High Oil Price case, the gasoline-only non-hybrid vehicle sales share declines to about 56 percent in 2035 compared to 65 percent in the Reference case, while in the Low Oil Price case, it rises to about 68 percent. Higher or lower fuel prices also affect projected vehicle efficiencies and growth in travel, which also affect the fuel mix and the level of fuel use. In the *AEO2012* High Oil Price case, overall LDV energy consumption decreases by 10 percent between 2010 and 2035, while LDV petroleum use in 2035 is 6.2 mmbd, 1.9 mmbd below its 2010 level.

Second, future costs will play a critical role in determining the future market penetration of advanced vehicle technologies. For example, plug-in hybrid and plug-in electric vehicle incremental cost is dependent primarily on the cost of its battery. In the AEO High Technology Battery Case, which assumes attainment of DOE's cost goals for high-energy batteries and non-battery traction drive systems in 2015 and 2030, sales of electric vehicles with a 100 mile range (EV100) are projected to reach 1.3 million in 2035, roughly four times their projected level in the Reference case. In addition, projected sales of plug-in hybrids reach 1 million units in 2035, more than four times their projected level in the Reference case, while sales of regular hybrids exceed 1.9 million, more than twice their projected sales in the Reference case.

Third, consumer acceptance is also a critical area of uncertainty regarding future market success of new vehicle technologies and alternative fuels. Vehicle attributes, such as cost and performance, as well as alternative fuel prices and availability, will play key roles in the future success of these alternatives. The availability of refueling infrastructure is a key factor affecting the future role of biofuels, natural gas, hydrogen, and electricity as vehicle fuels.

Finally, the future regulatory environment is also uncertain. CAFE and greenhouse gas emissions standards for LDVs are currently set in final rule through MY 2016 and have been proposed for MYs 2017 through 2025. The final standards for MY 2017 through MY2025, any standards that would be applied beyond MY 2025, or any changes to the RFS program are likely to have significant implications for projections of the LDV vehicle fleet and its fuel use.

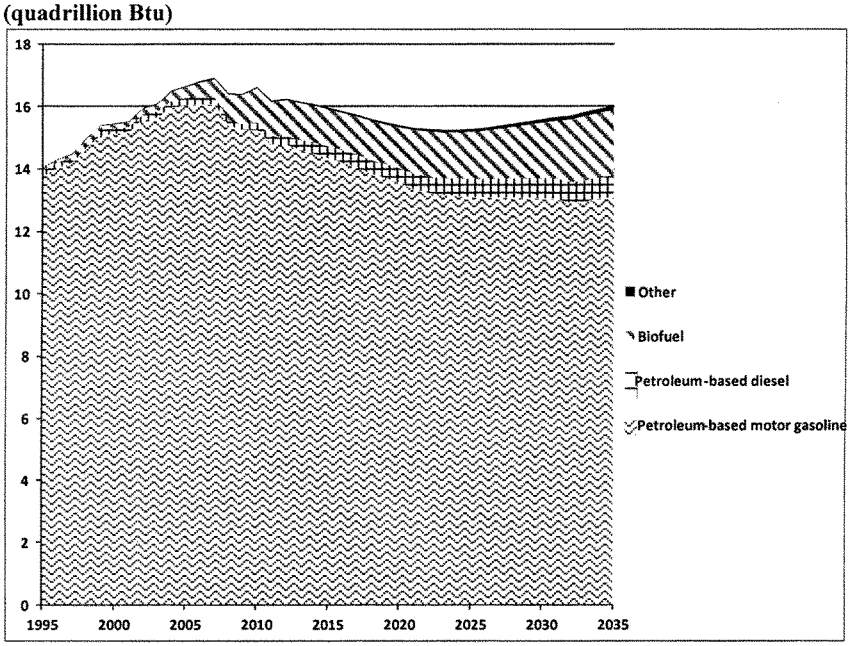
This concludes my statement, Mr. Chairman, and I will be happy to answer any questions you and the other Members may have.

Table 1: Growth in LDV Fuel Consumption and its Underlying Drivers, 2010-2035

	2010	2035	Growth (2010-2035)
Reference case			
Fuel consumption (quadrillion Btu)	16.6	16.1	-3%
Number of licensed drivers (millions)	210	269	28%
Miles per licensed driver	12,700	13,300	5%
Efficiency of vehicle stock (mpg)	20.4	28.2	38%
CAFE Standards case			
Fuel consumption (quadrillion Btu)	16.6	13.4	-20%
Number of licensed drivers (millions)	210	269	28%
Miles per licensed driver	12,700	13,600	7%
Efficiency of vehicle stock (mpg)	20.4	34.5	69%

Source: EIA *Annual Energy Outlook 2012*, Reference case run d020112c and CAFE Standards case run d032112a.

Figure 1. Light-duty vehicle energy use by fuel in the *AEO 2012* Reference case (quadrillion Btu)



Source: EIA *Annual Energy Outlook 2012*, Reference case run d020112c

SUMMARY OF TESTIMONY OF HOWARD GRUENSPECHT, DEPUTY ADMINISTRATOR
ENERGY INFORMATION ADMINISTRATION
U.S. DEPARTMENT OF ENERGY

Petroleum products provided about 93 percent of total transportation energy in 2010, 60 percent of which was for light-duty vehicles (LDVs) -- passenger cars and light-duty trucks. In 2010, gasoline accounted for 92 percent of the LDV fuel use, followed by biofuels and diesel. Of new LDVs sold in 2010, 86% were gasoline-only non-hybrid, followed by flex fuel, hybrid electric, and diesel vehicles at 9, 3, and 2 percent, respectively.

Under the Annual Energy Outlook for 2012 (*AEO2012)* Reference case 65 percent of projected new LDV sales in 2035 will be gasoline-only non-hybrid. Under the CAFE Standards case, by 2035 that share falls to 36 percent with micro hybrids accounting for 46 percent of projected new LDV sales. In both cases, flex-fuel vehicles (FFVs), which can use ethanol in blends of up to 85 percent, are up to roughly 17 percent of projected sales in 2035 due in large part to the mandates under the Renewable Fuels Standard (RFS).

Growth in the number of drivers and miles per driver results in an increase of 35 percent in total LDV miles traveled between 2010 and 2035. Yet, in the Reference case, by 2035 overall energy consumption falls by 3 percent fuel due to economy improvements; petroleum is down over 10 percent (reflecting changes in the fuel mix.) In the CAFE standards case, LDV energy consumption falls by 20 percent, petroleum demand falls 28 percent. While the diesel share remains relatively stable at around 4 percent (from 2 percent), biofuels play a growing role and are projected to provide almost 13 percent of energy use by 2035, up from 7 percent in 2010. Electricity usage begins to grow but remains small at about 0.3 percent with much more rapid growth in the *AEO* High Technology Battery case. Natural gas accounts for less than 0.2 percent.

There are several challenges under the RFS, EIA projections for cellulosic biofuels supply have been further reduced in *AEO2012*, as progress towards large-scale commercial production has slowed. Nearly all U.S. motor gasoline already contains 10-percent ethanol, so increased absorption of ethanol into a fuel pool that is not growing requires market acceptance of ethanol blends up to 15-percent, which EPA has approved for use in model year 2001 and newer non-flex fuel vehicles, or the increased use of E85 in flex-fuel vehicles, both of which face significant market obstacles. Another pathway involves development and market penetration of drop in renewable fuels or renewable components such as biobutanol.

Finally, the *AEO2012* Reference case projections for LDVs and their fuel use are inherently uncertain. This section discusses four key areas of uncertainty: fuel prices, technology costs, consumer acceptance, and potential changes in policies.

Mr. WHITFIELD. Thank you very much.

And Ms. Oge, you are recognized for 5 minutes.

STATEMENT OF MARGO T. OGE

Ms. OGE. Thank you.

Chairman Whitfield, Ranking Member Rush, and other members of the subcommittee, thank you so much for the opportunity to testify today. I would like to give you a brief overview of EPA's efforts implementing the renewable fuel standards and our efforts in developing the vehicle and truck greenhouse gas centers.

In November 2011, EPA and NHTSA proposed vehicle standards for model years 2017 through 2025, calling for a CO2 standard of 160 grams per mile or equivalent 54.5 miles per gallon by 2025. Now this builds upon greenhouse gas and fuel economy standards for model years 2012 through 2016. These regulations provide incentives for manufacturers to produce and sell the most advanced vehicle technologies. These standards will save an estimated $1.7 trillion for consumers and businesses in our country and cut our country's oil consumption by 12 billion barrels of oil while reducing greenhouse gas emissions by 6 billion metric tons. Consumers on average will see fuel cost savings of about $8,000 for an average 2025 vehicle compared to an average 2010 vehicle over that vehicle's lifetime.

Last year, the agencyalso completed the first greenhouse gas and fuel economy standard for model years 2014 through 2018 for trucks and buses. These standards will reduce CO2 emissions by about 2 70 million metric tons and save about 530 million barrels of oil over the life of the vehicles that are built from 2014 through 2018.

Now, I want to note that owners of a 2018 truck will enjoy net savings of $73,000 over the vehicle lifetime with a payback period for that cost for about a year.

Also recognition of the introduction of advanced technologies in our vehicles and alternative fuel vehicles, EPA and DOT in 2011 jointly issued an overhaul of the EPA fuel economy label. These new labels have a lot of new information, but I want to highlight that for the first time, the labels will highlight the fuel savings or increased cost that the consumers will experience as compared to fuel costs for an average vehicle in the marketplace, whether that fuel is gasoline, diesel, electricity, hybrids and/or CNG. Now shifting over to biofuels, these fuels are a critical part of the evolving alternative fuel landscape.

In 2010, EPA finalized regulations to implement the EISA revisions to the RFS program. Congress, as you know, set the target of 36 billion gallons by 2022. EISA requires EPA each year to publish an annual standard for total advanced biomass based diesel and cellulosic renewable fuels. As directed by Congress, each year EPA conducts a thorough review of the cellulosic industry including one-on-one discussions with each producer to determine its individual production capacity.

We also consulted with our colleagues from EIA, our colleagues from DOE and USDA before we proposed the annual volume standards. As a result of these reviews, EPA reduced the cellulosic standard to about 6.5 million gallons for 2010 and 2011 and 8.6

million gallons for 2012. That is about 98 percent below the EISA target for those years.

This summer, we plan to finalize the 2013 biodiesel volume levels and propose the other 2013 RFS volume standards.

I want to note that the biofuel sector is a dynamic one. We already have a significant list of qualified advanced and cellulosic biofuels for the oil transportation sector as well as jet fuel and heating oil uses. Last year, we added canola-based biodiesel and a number of other new technology based pathways. Most recently, we took comments on a number of advanced and cellulosic biofuels, including grain sorghum, camelina, Napier grass, sugarcane and others, and we hope to finalize this analysis later this year. We are currently evaluating dozens, I want to say over 30 additional petitions for new biofuels, both feed stocks and different pathways.

EPA recognizes the value of these fuels and the value of advanced vehicle technologies and we look forward to a successful development introduction of these new fuels and advanced technology to the marketplace. Thank you.

[The prepared statement of Ms. Oge follows:]

Margo T. Oge
Director
Office of Transportation and Air Quality
Office of Air and Radiation
U.S. Environmental Protection Agency

Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
July 17, 2012

Written Statement

Chairman Whitfield, Ranking Member Rush and other members of the Committee, I appreciate the opportunity to testify on the subject of alternative fuels and advanced technology vehicles.

In accordance with the requirements of the Clean Air Act and the Energy Independence and Security Act of 2007, EPA is playing an important role in the development of alternative fuels and advanced technology vehicles. EPA's light- and heavy-duty vehicle greenhouse gas rules under the Clean Air Act, in conjunction with the National Highway Traffic Safety Administration's (NHTSA) fuel economy standards, will drive production of a new generation of cleaner, more efficient vehicles that will save consumers money and help reduce our dependence on oil. Through the issuance of updated fuel economy labels developed jointly with the Department of Transportation (DOT), EPA also plays a role in helping consumers to make informed choices about new vehicle purchases. In addition, the renewable fuel standard program administered by EPA reduces oil consumption, helps strengthen rural economies and has the potential to achieve significant reductions in greenhouse gases. Finally, EPA is taking a number of other actions, including our recent alternative vehicle fuel conversion rulemaking that will broaden the availability of alternative fuels and alternative fuel vehicles.

Vehicle Greenhouse Gas Emission Standards

In 2010, EPA and NHTSA finalized a national program setting standards to cut greenhouse gas emissions and increase fuel economy of cars and light trucks for model years (MY) 2012-2016. Consistent with the auto industry's recommendation to extend the national program beyond 2016 to support the industry's ability to do long-range planning,[1] the two agencies developed and, in November 2011, proposed additional light-duty vehicle standards for MY 2017 through 2025. The MY 2017-2025 proposal calls for vehicle manufacturers to meet, by 2025, a CO_2 standard projected to be equivalent to 54.5 miles per gallon on an average fleet-wide basis, if the standard were met through fuel economy improvements alone. The agencies identified wide-ranging opportunities for reducing greenhouse gas emissions and improving fuel economy, and the proposals allow for long-term planning by manufacturers and suppliers to continue development and deployment of fuel-saving and emissions-reducing technologies. The proposed program provides compliance flexibility to manufacturers through a credit banking and trading system to reduce the overall cost of the program, and to provide incentives for manufacturers to produce and sell the most advanced vehicle technologies.

These programs, based on intensive consultation between the federal agencies, auto makers, the State of California, and other stakeholders, provide substantial benefits that far outweigh their costs. Over the life of MY 2011-2025 vehicles, the light duty standards (including NHTSA's 2011 CAFE standards) will save an estimated $1.7 trillion for consumers and businesses and cut America's oil consumption by 12 billion barrels, while reducing greenhouse gas emissions by 6 billion metric tons. The standards are estimated to reduce demand for oil by 2.2 million barrels/day by 2025. Consumers, on average, will see fuel cost savings of about $8,000 for an

[1] Dave McCurdy, President and CEO, Automobile Alliance, April 1, 2010 press release. See also November, 2009 comments on the 2012-2016 rule by several auto manufacturers.

average 2025 vehicle (compared to the average 2010 vehicle) over that vehicle's lifetime. Importantly, many auto manufacturers have publicly expressed their support for the new standards.

EPA's and NHTSA's recently issued heavy-duty vehicle standards provide similar types of benefits. In August 2011, EPA and NHTSA issued the first ever greenhouse gas and fuel economy standards for trucks and buses. These standards will jointly reduce fuel use and greenhouse gas emissions from medium- and heavy-duty vehicles, which range in size from the largest pickup trucks and vans to semi trucks. EPA and NHTSA developed the program for MY 2014 to 2018 with support from industry, the State of California and environmental stakeholders. Even though the regulation doesn't become binding until MY 2014, manufacturers are already certifying some models to the new standards, as a way of generating early credits under the program.

The agencies estimate that the joint heavy-duty truck standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of MY 2014-2018 vehicles, providing $49 billion in net program benefits. Owners of model year 2018 trucks will enjoy net savings of $73,000 over the lifetime of a tractor-trailer. Using technologies commercially available today, EPA estimated that many medium- and heavy-duty vehicle owners will see a payback period of less than one year; others will see payback periods of up to two years.

Updated Fuel Economy Labels

In recognition of the emergence of advanced technology and alternative-fueled vehicles, EPA and DOT in 2011 jointly issued new fuel economy and environmental labels that will be displayed in the windows of all new vehicles. These revisions represent the most dramatic overhaul in EPA's 35-year history of labeling vehicles. The new labels will provide, for the first time, comprehensive fuel economy and environmental ratings for electric, plug-in hybrid, CNG, and fuel cell vehicles, as well as the more conventional gasoline, flex-fuel, and diesel vehicles. The labels highlight the fuel savings or increased costs that consumers will experience when using

the labeled vehicle over five years, as compared to fuel costs for the average vehicle – whether that fuel is gasoline, electricity, hydrogen or CNG. This will allow people to easily factor in fuel costs as they consider what vehicle they want to buy.

Renewable Fuel Standard Program

Biofuels are a critical part of the evolving alternative fuel landscape. On March 26, 2010, in response to the Energy Independence and Security Act of 2007 (EISA), EPA promulgated regulations to implement revisions to the national renewable fuel standard program, commonly called the RFS program. These provisions established new year-by-year volume standards for renewable fuel that generally must be used in transportation fuel, reaching a total of 36 billion gallons by 2022. This total includes 21 billion gallons of total advanced biofuels, comprised of up to 16 billion gallons of cellulosic biofuel, at least 1 billion gallons of biomass-based diesel, and the remainder consisting of "other" advanced biofuels. The revised statutory requirements also include new definitions and criteria for both renewable fuels and the feedstocks used to produce them, including new greenhouse gas emission (GHG) thresholds.

The RFS program will provide both energy security and environmental benefits. If the statutory RFS targets are fully met, we estimate that the greater volumes of biofuels required by EISA will decrease oil imports by $41.5 billion dollars. The RFS is also projected to reduce GHG emissions from the transportation sector by an average of 138 million metric tons of CO_2 equivalent per year when the program is fully implemented – equivalent to annual emissions produced by 27 million vehicles.

The RFS program will help to expand the use of advanced biofuels, especially cellulosic biofuels, which under EISA must achieve at least a 60 percent reduction in lifecycle GHG emissions compared to the 2005 baseline average gasoline or diesel fuel that they replace. EISA requires EPA each year to publish the annual standards for total, advanced, biomass based diesel,

and cellulosic renewable fuels. The statute directs EPA to determine the projected volume of cellulosic biofuel production for the following year, and if that number is less than the volume specified in the statute, EPA must lower the standard accordingly. EPA also has the discretion to lower the advanced biofuel and total renewable mandate up to the same amount that the cellulosic biofuel volume is reduced.

Before proposing annual volume standards, EPA conducts a thorough review of the cellulosic industry, including one-on-one discussions with each producer to determine its individual production capacity. EPA also consults directly with the Department of Agriculture, the Energy Information Administration, and the Department of Energy's Office of Biomass to determine the status of production capacity and capabilities of the cellulosic sector. Since these evaluations are based on evolving information about emerging segments of the biofuels industry, and may result in the applicable volumes differing from the statutory targets, we propose the annual volume standard through a transparent rulemaking process, allowing for public review and comment, prior to finalizing the standards.

As a result of limited production capacity, EPA determined that it was necessary to reduce the cellulosic standard to about 6.5 million gallons for 2010 and 2011, and 8.6 million gallons for 2012 – substantially below the EISA targets of 100, 250, and 500 million gallons, respectively, for those years. However, the required volumes for total advanced biofuels and total renewable fuels were not correspondingly reduced for 2012 from the statutory target. This summer, we plan to finalize 2013 biomass diesel volume levels and to propose 2013 RFS volume standards along with 2014 biomass based diesel volume levels (because biodiesel standards are required earlier than other renewable fuel categories under EISA).

The biofuels sector is a dynamic one, and we frequently hear from companies that are in various stages of developing fuels based on innovative new production techniques or different

types of feedstocks. We recognize the importance of evaluating and qualifying such new biofuels, where appropriate, for use in the RFS program. We already have a significant list of qualified advanced and cellulosic biofuels approved in the current RFS, including biodiesel and renewable diesel from certain feedstocks; ethanol from sugarcane; biodiesel and renewable diesel from algal oil; ethanol and diesel from approved cellulosic feedstocks; and jet fuel and heating oil from certain feedstocks.

We have also established a process to evaluate new biofuels for approved use in the RFS program, including an analysis of life-cycle GHG impacts that are based on the best available science. Last year we added canola-based biodiesel as an approved pathway and approved a number of other new technology-based pathways. Most recently, we completed and made public our preliminary lifecycle greenhouse gas analysis of ethanol made from grain sorghum, and we hope to finalize that analysis later this year. Furthermore, we have a number of additional petitions requesting evaluation of new biofuel production processes and new feedstock pathways. We are currently in the process of evaluating each of these requests, working in coordination with the Department of Agriculture and the Department of Energy, and are moving as quickly as practicable to complete and issue final determinations. Further, there are other technologies and feedstock pathways that offer the potential for producing new, cellulosic or advanced fuels in the future.

E15 Status

Under the Clean Air Act, EPA may approve a waiver to allow the sale of fuel mixtures that are not "substantially similar" to gasoline if it can be demonstrated that the vehicles and engines using the fuel will continue to meet their emission standards over their "full useful life." In 2010, based on the available evidence, including extensive test data developed by the Department of Energy and other researchers, EPA granted partial waivers raising the permissible concentration of

ethanol in gasoline to 15 percent for use in MY 2007 and newer. A second partial waiver was granted in January 2011 for MY 2001 and newer light-duty motor vehicles. These waivers did not approve the use of E15 in any other gasoline-powered vehicles or engines such as lawnmowers and boats. EPA placed several conditions on the waivers to reduce the potential for misfueling with E15 (meaning using E15 to fuel a vehicle that has not been approved to use this fuel), including labeling pumps dispensing E15, tracking E15 distribution on product transfer documents and conducting retail station surveys. EPA also issued regulations that apply more broadly, to fuel marketers as well as fuel producers, that prohibit anyone from misfueling with E15. EPA has now registered over 65 companies to market E15 and has approved over 50 companies' misfueling mitigation plans, and over 80 companies have enrolled in an approved national compliance survey program.

Alternative Fuel Vehicle Conversions

In addition to the foregoing, EPA also has taken steps to simplify and streamline the approval process for the introduction of alternative fuels and vehicles into the auto sector. While the vast majority of vehicles in the United States are designed to operate on gasoline or diesel fuel, clean alternative fuel conversion systems allow gasoline or diesel vehicles to operate on alternative fuels such as natural gas, propane, alcohol, or electricity. EPA recognizes the value of clean aftermarket technologies that enable broader transportation fuel choices. At the same time, EPA is responsible for ensuring that all vehicles and engines sold in the United States, including clean alternative fuel conversion systems, meet emission standards.

Last year, we finalized an "alternative fuel conversion" rulemaking to simplify and streamline the process by which manufacturers of clean alternative fuel conversion systems may demonstrate compliance with these vehicle and engine emissions requirements. The new

options established through this rulemaking have reduced economic and procedural impediments to clean alternative fuel conversion systems while maintaining environmental safeguards to ensure that acceptable emission levels from converted vehicles and engines are maintained. Already, EPA has deemed some 240 conversion systems compliant under the new program. EPA is also working with the nonroad industry to determine how to facilitate alternative fuel conversions under existing authorities for the legacy fleet of diesel engines.

Conclusion

We are currently witnessing a period of unprecedented innovation with respect to the development and introduction of new fuels and new vehicle technologies that hold the potential to reduce our dependence on foreign oil, save consumer dollars, and reduce environmental impact. EPA recognizes the value of these fuels and technologies and is playing a supportive role through the implementation of our statutory responsibilities under the Clean Air Act and EISA.

Mr. WHITFIELD. Thank you.

Dr. Hogan, you are recognized for 5 minutes.

STATEMENT OF KATHLEEN HOGAN

Ms. HOGAN. Thank you Chairman Whitfield, Ranking Member Rush, and members of the subcommittee. I do thank you for the opportunity to be here today.

As part of the President's all-of-the-above approach to American energy, the department is advancing transportation innovations to do a number of things. That is to reduce our dependence on foreign oil and the nearly $1 billion we send out of the country for oil each day; helping our vehicle manufacturing industry, that accounts for 5 percent of GDP and millions of jobs, compete in this global industry; and then to provide consumers with more transportation choices and cost savings, as transportation is the second biggest monthly household expense.

The DOE portfolio is broad spanning light, medium and heavy duty vehicles, and including advanced combustion electric drive biofuels, hydrogen fuel cells, lightweight materials and other efforts, and we are making important progress. Electric vehicles is one important focus. Electricity is cheaper than gasoline. At about $1 per gallon equivalence, it offers competitive performance at-home charging convenience, less pollution and is almost oil free. Other countries, of course, recognize these benefits and are making their own investments, and we here have a critical opportunity to grow U.S. manufacturing building upon our past successes.

Today DOE-developed battery technology is in nearly every hybrid vehicle on the road. We have achieved a 35 percent cost reduction in the next generation of batteries, and we expect an additional 50 percent reduction by 2014. President Obama has announced a new EV everywhere grand challenge just this last March to enable U.S. companies to lead the world in producing plug-in EVs that are as affordable and convenient as gasoline-powered vehicles, and to truly spur the U.S. to further reduce costs, extend vehicle range and improve performance and convenience. Biofuels are also important to reducing our dependence on foreign oil and developing a home-grown industry, and again we are making great strides with cellulosic ethanol production.

In the past 2 years, four DOE supported commercial cellulosic ethanol biorefineries broke ground, and we have also developed the know-how to produce cellulosic biomass at about $2 per gallon when it is scaled, having reduced these costs by a factor of four over the last 10 years.

Beyond ethanol, we are working to reduce the cost for cellulosic and algal based drop in biofuels, so that we can overcome some of the infrastructure issues, use our existing infrastructure and displace diesel, jet fuel and gasoline. Our goal here is $3 per gallon drop ins by 2017.

Integrated biorefineries are a critical part of our work to help commercialize first-of-a-kind approaches. Currently 20 of 24 DOE supported biorefineries are in construction or operating with an overall combined total of nearly 100 million gallons per year of advanced biofuel capacity expected by 2014.

We also continue to work with hydrogen fuel cells to make them cost competitive. Here the global market has doubled in the last 3 years and offers important opportunities for U.S. manufacturing. Our goal is for automotive fuel cells to be cost competitive with internal combustion engines by 2017 and for renewable hydrogen to be competitive with conventional fuels by 2020.

Progress here includes the cost of automotive fuel cells being down 80 percent since 2002; hydrogen delivery costs down 40 percent; 3 million monitored miles for fuel cell electric vehicles demonstrating good durability and more than twice the efficiency of today's gasoline vehicles; and manufacturers on track to commercialize some fuel cell electric vehicles by 2015 in that timeframe; and many States developing stationery applications and infrastructure.

Here—so I guess broadly the President has proposed the National Community Development Challenge to enable local communities around the country to accelerate the deployment of clean alternative fuel vehicles and infrastructure, helping communities use the technologies that best fit their local needs, whether it is electric drive, natural gas, biofuels or another fuel.

So, just in summary, the transportation sector does offer a number of critical opportunities for the U.S. to meet major national objectives, such as reducing our dependence on oil, keeping America on the cutting edge of advanced manufacturing, as well as environmental issues. And so thank you for the opportunity to discuss this, and we welcome your questions.

[The prepared statement of Ms. Hogan follows:]

WRITTEN STATEMENT OF

DR. KATHLEEN HOGAN

DEPUTY ASSISTANT SECRETARY FOR
ENERGY EFFICIENCY

OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY
U.S. DEPARTMENT OF ENERGY

BEFORE THE
SUBCOMMITTEE ON ENERGY AND POWER
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES

JULY 17, 2012

Chairman Whitfield, Ranking Member Rush, and Members of the Subcommittee, thank you for the opportunity to discuss the Department of Energy's (DOE's) transportation portfolio—specifically our vehicle technologies and alternative fuels programs. As part of the President's sustained, all-of-the-above approach to American energy, the Department is working to develop advanced vehicle technologies that can secure our energy future and provide consumers with greater choice while saving energy and reducing costs.

As Deputy Assistant Secretary for Energy Efficiency in the Office of Energy Efficiency and Renewable Energy (EERE), I am responsible for overseeing DOE's portfolio of energy efficiency research, development, demonstration, and deployment (RDD&D) activities, including those related to advanced vehicles technologies.

Today, with the help of the Department's vehicles and alternative fuels programs, the automotive industry is reinventing itself—expanding the number of new, more fuel-efficient and environmentally sustainable vehicles and helping to create jobs throughout the vehicle supply chain. By supporting manufacturers building everything from advanced combustion engines and turbochargers, to cutting-edge batteries and more efficient tires, the Department is strengthening the global competitiveness of America's automotive industry.

The transportation sector accounts for approximately two-thirds of the United States' oil consumption and contributes to one-third of the Nation's greenhouse gas (GHG) emissions.[1] Net expenditures for imports of crude and petroleum products have been hundreds of billions of dollars every year. After housing, transportation is the second biggest annual expense for most American families.[2] Improving fuel efficiency of vehicles and developing alternative fuels represents one of the best opportunities we have to reduce our dependence on oil and lower our transportation costs. The economic, national security and environmental costs of our existing vehicles and transportation infrastructure make developing advanced, more fuel-efficient vehicles and alternative fuels an imperative for the Nation.

The Department is investing in a broad portfolio of near- and long-term vehicle-related technologies that includes electric drive, advanced combustion, advanced fuels and lubricants, biofuels, and hydrogen fuel cells, as well as technologies such as advanced lightweight materials that benefit vehicles regardless of size or propulsion technology. We have set aggressive goals and targets. We have mapped out the strategies to achieve them. And we are making significant progress, demonstrating the real promise of all of these technologies and justifying our investment.

Today I will address the work and progress of three vehicles and alternative fuels programs in EERE:

1. The Vehicle Technologies Program, with a specific focus on electric drive vehicles,
2. The Biomass Program, and,
3. The Hydrogen and Fuel Cells Program

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[1] http://www.eia.gov/totalenergy/data/annual/pecss_diagram.cfm and http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2012&subject=0-AEO2012&table=17-AEO2012&region=1-0&cases=ref2012-d020112c

[2] http://www.bls.gov/news.release/cesan.nr0.htm

1. The Vehicle Technologies Program

EERE's Vehicle Technologies Program (VTP) accelerates the development of advanced, energy-efficient, environmentally-friendly transportation technologies that reduce petroleum consumption and lower GHG emissions without sacrificing vehicle performance. The VTP portfolio reflects a mix of near- and long-term technologies including advanced combustion engines, advanced fuels and lubricants, lightweight materials and propulsion materials, advanced batteries, power electronics and electric motors, and vehicle systems and enabling technologies. Program activity covers technologies applicable to a broad range of vehicles from light-duty passenger cars to heavy-duty trucks. VTP's Clean Cities initiative, a community-based deployment activity, provides technical assistance to fleets and informational resources to help consumers save money on their personal transportation, whether they are looking for a new car or tips for increasing the fuel efficiency of their current car. In tandem with the Administration's historic new fuel economy standards, DOE's work in all of these areas will help enable the continued improvement of vehicle fuel economy, provide consumers with a variety of choices to save money at the pump (or avoid the pump altogether), and strengthen our national energy and economic security by reducing our dependence on oil.

While we embrace the portfolio approach, given the potential for significant benefit to our nation and individual consumers, the Department has placed increased emphasis on vehicle electrification. Electric vehicles (EVs) – both plug-in hybrid electric vehicles (PHEVs) and all-electric vehicles – make sense for a number of reasons:

- Electricity is cheaper than gasoline for powering a vehicle (at about $1 per gallon equivalent gasoline price),
- EVs allow for convenient charging at home at night, or potentially at work,
- EVs can potentially offer the same or better driving performance compared to today's gasoline powered vehicles, and
- EVs will reduce America's dependence on petroleum, protecting consumers from price spikes and keeping the money Americans spend on energy here at home.

Other countries recognize these benefits—and recognize the economic opportunities —and are making their own investments. We face tough competition in the global race for a clean energy economy, and we must do what it takes to position ourselves at the lead for transportation technologies.

To help focus our national effort, in his 2011 State of the Union address, President Obama set a goal of being the first country in the world to have one million electric vehicles on the road by 2015. This goal is not an end point but an ambitious milestone on the path to the many millions of plug-in and battery electric vehicles needed to move U.S. transportation away from dependence on oil, build a robust domestic supply base, create high-paying manufacturing jobs, and stimulate the American economy.

With support from the American Recovery and Reinvestment Act of 2009 (ARRA), we are establishing a U.S. supply chain and building our capacity to manufacture advanced batteries and electric drive components. Our industry partners, selected through an open and competitive process, are matching

federal funds dollar for dollar. Together we have already created a total capacity of more than 140,000 EV batteries per year, and we are on track to reach our goal of having the capacity to support 500,000 EV batteries per year by 2015. Similarly, facilities for manufacturing motors and other electric drive components are expanding and now filling orders for domestically produced all-electric vehicles.

To move electric drive technology beyond initial early adopters, we must continue to reduce the cost and improve the performance of key component technologies such as advanced batteries. Technology developed with DOE support is in nearly every hybrid vehicle on the road today, and we are building on that success with research and development (R&D) of next-generation technologies. Since 2008, DOE has demonstrated a 35 percent reduction in the production cost of lithium ion batteries.[3] With recent successes, such as the development of a cathode at Argonne National Laboratory (ANL) with double the energy density of previous cathode materials, we are on track to demonstrate an additional 50 percent cost reduction by the end of 2014, bringing the modeled cost to $300/kWh, which will make these vehicles cost-competitive in the market.. This, together with expected progress in power electronics and electric motor technology, would help enable electric vehicles to be sold for a low enough price compared to gasoline-powered vehicles that they would pay for themselves in fuel savings after just a few years, without subsidy.

On the infrastructure side, the Recovery Act's Transportation Electrification initiative has enabled the largest-ever demonstration of plug-in electric vehicles and charging infrastructure, with a final projected total of 13,000 vehicles and more than 20,000 chargers. Every vehicle and charger is instrumented to collect real-world usage data that not only provides important feedback to the R&D community but also yields a first-of-its-kind public data set on charging behavior, local effects on the grid, and other lessons learned about time-of-use rates, for example, that will help local communities, manufacturers, and electric utilities effectively plan future PEV charging infrastructure.

We have made notable progress, but there is still work to be done. Transitioning our Nation's transportation sector is a formidable challenge. That is why, building on his one million electric vehicle goal, President Obama announced a new clean energy grand challenge in March of this year. The EV Everywhere Grand Challenge seeks to enable U.S. companies to be the first in the world to produce EVs that are as affordable and convenient for the average American family as today's gasoline-powered vehicles, in the next ten years. EV Everywhere calls to action American innovators to rapidly develop and commercialize the next generation of vehicle, component, and charging technologies to achieve sufficient EV cost reductions, range improvements, and infrastructure enhancements to assure widespread EV deployment without subsidies.

Another key initiative is the proposed National Community Deployment Challenge (NCDC). Announced in March as part of the President's blueprint for a new era of American energy, the NCDC is designed to provide local communities with the support needed to significantly accelerate the deployment of clean, alternative fuel vehicles and infrastructure around the country. With a fuel-neutral approach, communities can choose the technology— or combination of technologies— that best fits their local

[3] Cost estimates are based on high volume manufacturing cost projections, using a peer reviewed cost model.

needs, whether that's electric drive, natural gas, biofuels, or another alternative fuel. As envisioned, the NCDC would highly leverage private sector investments and be awarded via an open and competitive grant program with an emphasis on deployment at scale and economically-sustainable market transformation following the expenditure of federal funds. Participating communities would be asked to meet competitive goals and serve as national leaders for the implementation of these technology deployment models. Data collection would be an essential component of the effort—allowing communities to continue to replicate successes across the United States.

2. The Biomass Program

The Department of Energy's Biomass Program aims to develop and transform our renewable biomass resources into commercially viable, high performance biofuels, bioproducts, and biopower through targeted research, development, and demonstration (RD&D) supported through public-private partnerships.

Because of its potential to reduce our oil dependence and protect the environment, biofuels technology development has historically received strong bipartisan support. This Administration has prioritized developing and commercializing innovative biofuels. The previous Administration, under President Bush's Advanced Energy Initiative and "Twenty-in-Ten" initiative, also set priorities for biofuels: to make cellulosic ethanol cost-competitive with corn-based ethanol by 2012 and to increase the supply of renewable and alternative fuels. Members of both parties in Congress supported the Energy Independence and Security Act (EISA) of 2007, which expanded goals for moving biofuels into the marketplace through an expansion of the original Renewable Fuels Standard (RFS). Specifically, EISA stipulated the supply of renewable transportation fuels should reach 36 billion gallons per year by 2022. Biofuels are playing a growing role in the U.S. transportation market and are projected to provide more than 13 percent of energy used by light and heavy duty vehicles by 2035, up from 9 percent in 2010 and driven primarily by the RFS mandate.

There are three main categories of biofuels that we can use to reduce our dependence on oil: starch based ethanol, cellulosic ethanol, and "drop-in" biofuels. Technologies in each of these categories are at a different stage of commercial readiness.

Starched-based ethanol is a well-established commodity fuel with wide market acceptance through low-level blends in conventional vehicles and at higher blends in flex-fuel vehicles. The average concentration of ethanol in the U.S. gasoline supply, including all blends, reached 10 percent in the summer of 2011. The vast majority of the ethanol in the U.S. fuel market today is starch based ethanol, as cellulosic ethanol technology is currently moving through the demonstration phase into commercialization.

Cellulosic ethanol, like starch based ethanol, can be used to displace gasoline for light duty vehicles. Through R&D efforts, the cost of converting cellulosic biomass to fuel ethanol is becoming competitive. Over the past ten years, breakthroughs in biomass pretreatment and enzymatic saccharification have

helped reduce the modeled costs of cellulosic ethanol produced via biochemical conversion from over $9.00 per gallon in 2001 to a modeled minimum ethanol selling price of $2.15 per gallon in 2012. One of the Biomass Program's short term objectives is to assist in demonstrating the commercial viability of cellulosic ethanol production.

DOE and the bioenergy community are leveraging cellulosic ethanol RD&D successes to accelerate cellulosic and algal "drop-in" biofuels technologies that can be used to displace gasoline, diesel and jet fuel. "Drop-in" hydrocarbon biofuels are advantageous because they are largely compatible with existing infrastructure to deliver, blend, and dispense fuels. Also, unlike ethanol, "drop-in" fuels can be used to displace diesel and jet fuel in addition to gasoline. Through RD&D, the Biomass Program seeks to contribute significantly to making cellulosic "drop-in" biofuels competitive with petroleum-based fuels, achieving a modeled mature-technology wholesale finished-fuel cost of renewable gasoline, diesel and jet fuel of less than $3.00 per gallon by 2017. The program also expects to help support meeting the RFS volumetric requirements by deploying first-of-a-kind integrated biorefineries that can produce advanced biofuels by the end of 2014.

In addition to the efforts by the Department and its private sector partners, DOE is working closely with other federal agencies to support commercialization of "drop-in" biofuel substitutes for diesel and jet fuel. On July 2, Navy, USDA and DOE jointly announced an opportunity for up to $30 million in Navy funding for an initiative that seeks to establish one or more complete domestic value chains capable of producing drop-in replacement biofuels. This includes feedstock production and logistics, conversion facilities (Integrated Biorefineries), and fuel blending, transportation, and logistics. The contemplated effort will include the design, construction and/or retrofit, validation, qualification and operation of a domestic commercial-scale biofuel supply chain that meets a target of at least 10 million gallons per year neat biofuel production capacity.

The RD&D activities sponsored by the Department of Energy's Biomass Program are addressing technical barriers, providing engineering solutions, and developing the scientific and engineering underpinnings of a bioenergy industry. Historically, the Program's focus has been on RD&D for cellulosic ethanol production. More recent national and DOE goals require the Program to expand its scope to include the development of other advanced biofuels that could contribute to the volumetric requirements of the Renewable Fuels Standard (RFS). This includes "drop-in" biofuels such as biobutanol, hydrocarbons from algae, and biomass-based hydrocarbon fuels (renewable gasoline, diesel, jet fuel). The Program specifically focuses on advancing bio- and thermo-chemical pathways, addressing feedstock logistics, and demonstrating integrated biorefineries.

The Program's bio- and thermo-chemical conversion R&D is focused on developing technologies to convert feedstocks into commercially viable liquid transportation fuels, as well as bioproducts and biopower. Biochemical conversion efforts focus on producing sugars from biomass and fermenting those sugars into fuels or chemicals. Thermochemical conversion work is focused on producing intermediates from biomass and organic biorefinery residues via gasification, pyrolysis, and other chemical means and converting these intermediates into fuels, chemicals or power.

The Program's feedstock supply R&D is focused on developing sustainable technologies to provide a reliable, affordable, and sustainable biomass supply. This R&D is conducted in partnership with the USDA and DOE's Office of Science. The Program's primary focus is on feedstock resource assessment, feedstock logistics (i.e., harvesting, storage and transportation) and algal feedstock supply R&D.

The Biomass Program's demonstration and deployment activities focus on the Integrated Biorefineries. DOE's 24 integrated biorefineries aim to validate first-of-a-kind technologies at pilot, demonstration, and commercial scales to reduce risk of further investment. These demonstrations help to overcome key technical and economic barriers for producing advanced biofuels and better enable future scale up and replication of biorefineries by the private sector. These efforts are industry-led, cost shared, competitively awarded projects. Twenty of the 24 projects are either in construction or operating.

Integrated Biorefineries are a critical component of the Federal government's efforts to advance the commercialization of biofuels. In 2010, President Obama set a goal of breaking ground on at least four commercial scale cellulosic or advanced biorefineries by 2013. That goal has been accomplished, one year ahead of schedule. Together, these projects and associated demonstration and pilot projects will have the capacity to produce a combined total of nearly 100 million gallons per year of advanced biofuels.

3. The Hydrogen and Fuel Cells Program

EERE's Hydrogen and Fuel Cells Technology Program (FCT) supports R&D to reduce the cost and improve the durability of fuel cells, to improve the performance of technologies for producing, delivering, and storing hydrogen, and to develop and demonstrate manufacturing technologies and processes that will reduce the cost of fuel cell and hydrogen systems. The Program seeks to enable fuel cells to achieve cost-parity with internal combustion engines for vehicles by 2017 and to enable renewable hydrogen to be competitive with conventional fuels by 2020, based on modeled costs projected from component technologies to systems in high-volume production.

FCT's R&D efforts have reduced the production cost of automotive fuel cells by more than 30 percent since 2008 and more than 80 percent since 2002 (from $275/kW in 2002 to $49/kW in 2011, based on projections to high-volume manufacturing). We have reduced the capital cost of water electrolyzer stacks by more than 80%—from over $2,500/kW in 2001 to less than $500/kW in 2011—and reduced hydrogen delivery cost by tube trailer by 40% since 2005.

In addition to this significant laboratory progress, we're demonstrating these technologies in real-world applications. Through our Technology Validation efforts, we've completed demonstrations of more than 180 fuel cell electric vehicles that made 500,000 trips and traveled 3.6 million miles as well as 25 hydrogen fueling stations that provided more than 33,000 refuelings. Demonstrated refueling time was less than 5 minutes and the driving range was over 250 miles—with one vehicle achieving a 430 mile range. The vehicles demonstrated more than 2,500-hour (about 75,000 miles) durability operating under

real-world conditions, with low degradation and efficiencies of nearly 60 percent—more than twice the efficiency of today's gasoline vehicle engines. We also demonstrated the world's first tri-generation station—co-producing heat, hydrogen, and power— which had a combined efficiency of more than 50 percent for co-producing hydrogen and power from a stationary fuel cell (100 kg/day of hydrogen).

EERE has had substantial impacts on the hydrogen and fuel cell industry. Nearly 700 DOE supported fuel cell lift trucks were followed by more than 3,500 additional fuel cell lift truck deployments by industry, purchased or on order—with no DOE funding. Additionally, approximately 700 fuel cell backup power units were deployed with support from DOE that were followed by more than 1,300 units purchased or on order by industry with no DOE funding. And DOE-funded R&D has also led to more than 300 patents and more than 30 commercially available technologies.

Major original equipment manufacturers (OEMs) have stated that they are on track to begin commercializing fuel cell electric vehicles in the 2015 timeframe and several states are developing stationary applications and hydrogen infrastructure. For example, combined industry statements indicate that approximately 53,000 fuel cell electric vehicles (FCEVs) are planned for California by 2017 in order to help meet the State's zero emissions vehicle mandate, and nearly 70 hydrogen fueling stations are estimated to be needed by 2017 to service these vehicles. Global shipments of fuel cell systems more than doubled from 2008 to 2011, with more than 20,000 units shipped in 2011. This industry's progress in the U.S. could continue to help build the nation's manufacturing base, support economic growth, and keep the U.S. competitive internationally.

Conclusion

With efforts like DOE's vehicles and alternative fuels programs, the Department believes the United States can position itself as a leader in the global clean energy sector. Working with industry and state and local partners from across the country, DOE's transportation portfolio will benefit consumers, improve national security through reducing our dependence on oil, and keep America on the cutting edge of clean transportation energy technologies. Thank you again for the opportunity to discuss these issues, and I welcome any questions.

Mr. WHITFIELD. Thank you, Dr. Hogan.

And at this time, I will recognize myself for 5 minutes of questions.

We appreciate your testimony.

I want to start off with just a little editorial comment. You had mentioned that the President is committed to an all-of-the-above energy policy, which he frequently does state wherever he goes. And I know we are focusing today on fuel and transportation primarily. But when he came out with his campaign Web site on energy sources, he neglected to even mention coal. And of course, we can't remain competitive in the global marketplace, unless we can produce electricity at a competitive rate. So I just wanted to throw that out there, even though that is not our subject matter today because he sometimes says he is for all the above, but some of his actions in my view do not indicate that.

Ms. Oge, under the renewable fuel standard law, EPA is required to publish its required volume obligations for certain fuel categories on an annual basis. These obligations inform industry stakeholders as to the specific amounts of renewable fuel that must be produced, purchased, blended or imported in order to comply with the program.

Now, you all are given discretion when it relates to biomass based diesel. And I can't get all of my dates exactly right, but at one point, you all had established proposed volumes for 2012 and called I think for 1.28 billion gallons of biomass diesel in 2013. However, when EPA issued its final rule, it included the 2012 volumes but omitted the 2013 volumes for biomass diesel. And we had actually written a letter to you all about that and was asking for an explanation of why was that omitted in the 2013 year.

Ms. OGE. Mr. Chairman, you are absolutely right. We did propose a biodiesel level of 1.28 billion gallons for 2013. We received a lot of comments, especially in the area of the cost associated with increasing the volume from 1 billion gallons to 1.28. So the agency had to go back and do additional analysis. So what we decided to do was to finalize the 2012 volumes, and we are in the process of finalizing the 2013. Actually, our final action has gone over to the Office of Management and Budget, and we expect the final release very soon to establish the 2013 volumes for biodiesel.

Mr. WHITFIELD. Do you expect it to be released within a month?

Ms. OGE. I hope so.

Mr. WHITFIELD. OK. So you do intend to do it?

Ms. OGE. Yes.

Mr. WHITFIELD. And there were just some technical issues with it?

Ms. OGE. Yes.

Mr. WHITFIELD. OK. Well, thank you very much.

Mr. Gruenspecht, I noticed in your testimony you talked about that by the year 2035, you projected the use of oil for transportation purposes being in the neighborhood of 5.8 million barrels a day, which was significantly less than today. How did you conclude that that is the volume it would be in 2035? What assumptions did you all use?

Mr. GRUENSPECHT. Well, we develop estimates of the amount of travel. That is driven by the number of licensed drivers, travel per licensed driver.

Mr. WHITFIELD. And a lot of it I am assuming would be improved fuel standards would help——

Mr. GRUENSPECHT. A lot of fuel economy helps a great deal in that. So efficiency sort of offsets the growth in travel. And we also have a significant increase in the use of biofuels, so that also offsets petroleum use.

Mr. WHITFIELD. One of the things that bothers me is we talk about electric cars. We talk about fuel cells. We talk about compressed and liquid natural gas. We have a multitude of fuels that we are looking at for our transportation purposes. All of them take a significant amount of infrastructure, which really is not out there right now. And I am just concerned myself on the availability of capital, the lack of this infrastructure, going off in so many directions. I mean, within your agencies, do you all ever discuss that fact, or do you just want to continue pursuing a multi-source fuel sources for transportation?

Ms. OGE. Well, let me give you an example. We are in the process of finalizing the 2017 to 2025 greenhouse gas and fuel efficiency standard for light duty vehicles. We, again based on the Clean Air Act, we are using the Clean Air Act, our colleagues from NHTSA is using their law, we are looking at advanced technologies, existing technologies and advanced technologies that companies can use to achieve those standards. And just to give you an example, for the 2025 timeframe, we expect that the levels of standards that we have proposed, if indeed we finalize those standards, will be met, for the most part, over 90 percent of it will be met with existing technologies, gasoline and diesel. And less than 3 percent will be relied on electric power train, like electric vehicles and plug in hybrids.

Mr. WHITFIELD. Less than 3 percent.

Ms. OGE. Less than 3 percent. The remaining of it will be based on gasoline and diesel and hybrids.

Mr. WHITFIELD. Well, I had planned to ask six questions, and I am already out of time so I will recognize Mr. Rush for 5 minutes.

Mr. RUSH. I yield to the ranking member, Mr. Waxman.

Mr. WHITFIELD. I am sorry. Mr. Waxman.

Mr. WAXMAN. Thank you, Mr. Rush, for allowing me to go first with my questions.

Dr. Gruenspecht, at a similar hearing last year, I raised concerns about EIA's analysis of the vehicle fuel efficiency and tailpipe standards. At that time, many of EIA's assumptions about vehicle technologies differed substantially from NHTSA and EPA projections, and EIA appeared to not have adequately engaged with NHTSA and EPA in developing the EIA analysis. The annual energy outlook 2012 reflects improvements in this area, but there are still some outstanding concerns about the underlying vehicle technologies, data and analysis used by EIA.

For example, the California Air Resources Board has raised concerns that the EIA analysis still fails to incorporate the latest data and analysis into its models. CARB has worked very closely with EPA, NHTSA and the auto industry to develop what it describes

as a most comprehensive, accurate and up-to-date database of efficient and low-polluting vehicle technologies anywhere in the world, along with associated modeling capability to project how automakers will comply with the standards.

Dr. Gruenspecht, does EIA view the vehicle technologies data and analysis developed by NHTSA, EPA and CARB as a valuable source of information in this area, and if so, will you commit to working more closely with these agencies to inform your own models and analysis.

Mr. GRUENSPECHT. We do consider that information to be very valuable, and we do consult with our colleagues, and we also consult with nongovernmental organizations and manufacturers, and we expect to continue to do so.

Mr. WAXMAN. Thank you.

Given the remarkable joint effort on the fuel efficiency and tailpipe rulemakings and the wealth of information it has produced, incorporating such information should produce a stronger analytic product. I think it is worth spending a few minutes on the tailpipe standards themselves, given their tremendous benefits.

Ms. Oge, would you please summarize the full suite of benefits from the tailpipe standards?

Ms. OGE. So, Congressman Waxman, on my opening remarks, I have to find the papers, my opening remarks I summarized the overall benefits of the two programs. But just to give you a brief overview of the benefits of the 2017 to 2025 program, which is the program that we have proposed and we are in the process of finalizing, based on the proposal, we expect that the cost on an average for the fleet, that doesn't mean for every vehicle, but on an average would be about $2,000 per vehicle on an average for 2025. However, the benefits, the net benefits that the consumer will achieve as a result of the fuel savings will be $4,400.

Mr. WAXMAN. So, after accounting for any increased cost for the vehicle over its life, consumers would save on average $3,000 under the current standards and another $4,400 under the proposed standards. Consumers save this money because these vehicles use a lot less gasoline. The best way to save money at the pump is to drive right by it, but we are more used to thinking about savings at the pump in terms of gas prices.

So I asked EPA to calculate how much lower gas prices would have to be to save a consumer the same amount of money. For a new 2012 vehicle, the net savings experienced by a consumer are equivalent to dropping the price of gas by $0.14 per gallon, and those savings will rise over time as the new vehicles become more efficient. By 2025, the proposed standards are equivalent to lowering gas prices for the consumer by $1.13 per gallon. As the fleet turns over, eventually every light duty vehicle driver on the road will experience these savings.

Could you tell us, Ms. Oge, about EPA's heavy duty vehicle standards.

Ms. OGE. So for the heavy duty vehicle standards, as I mentioned in my opening remarks, the cost for a tractor, let's say these are the heavy duty diesel tractors that you see on our highways, in 2018 will be $6,200.

Mr. WAXMAN. These are significant benefits, but the House Republicans have already passed legislation that would block or imperil all of EPA's tailpipe standards and make Americans continue to spend more money at the pump, as well as exacerbate climate change and our dependence on oil. Next week, they are bringing a regulatory bill to the floor that would stop EPA from finalizing the proposed tailpipe standards until unemployment falls below 6 percent. This is nonsensical. Preventing Americans from saving money at the pump certainly isn't going to help our economy.

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

Mr. WHITFIELD. At this time, I recognize the gentleman from Texas, Mr. Barton, for 5 minutes.

Mr. BARTON. Thank you, Mr. Chairman, and thank you for your diligence in pursuing these hearings.

My first question is to the representative from the Department of Energy. Could you tell us what the Department of Energy thinks the purpose of the renewable fuel standard is, what is the goal? I asked DOE, but if EPA wants to comment.

Ms. OGE. I still work for EPA.

Ms. HOGAN. I believe there are multiple goals to the renewable fuel standard, and I think it includes improving our independence from imported oil, as well as addressing environmental issues.

Mr. BARTON. Does the EPA want to comment on that?

Ms. OGE. Agree.

Mr. BARTON. Well, based on that assumption, it is not a mutually conducive goal. If the goal is to reduce oil imports, then clean coal technology and more use of natural, domestically produced natural gas should be a part of any discussion about a standard, although clean coal and natural gas are not renewable in the classic sense. Both of those, certainly natural gas, would reduce emissions. I mean, I am just a little, I am a little puzzled because I read the testimony and most of the—the gentleman from the Energy Information Agency is just talking about what has happened, which is kind of what EIA's job is to do. The EPA and to some extent DOE's testimony is talking about the increased use of ethanol. The problem with ethanol is that if you are looking to reduce greenhouse gases, ethanol goes the other way. Now, I am not—I don't believe that CO2 is the danger and the enemy that some people do, but if your goal is to reduce greenhouse gases, definitely CO2 is a greenhouse gas and you can't get there with ethanol. You can't get there with ethanol on a cost basis.

So if the goal is to reduce foreign imports, then we look at natural gas as a transportation fuel, and we also look at using clean coal to produce diesel and things like that.

Dr. Hogan, do you agree with that, what I just said?

Ms. HOGAN. I believe we are trying to address multiple objectives and you are trying to address them over the period of time of the RFS, which is over some period of time. And if you do look at the fuels that the RFS is promoting, clearly one of the things you are looking to do is to address carbon.

There has certainly been a number of studies that have been brought forward on the carbon profile of ethanol. I think the most recent set of studies actually show about a 20 percent benefit from ethanol. And then what I mostly talked about in my statement was

not corn-based ethanol but really cellulosic based ethanol which really gets you a very, very, very substantial carbon benefit. And certainly we can have a conversation of the multiple objectives we are trying to advance in this country. But as I understand the RFS, it was mostly, it was for carbon as well as oil imports and it is delivering on that. And as we look at the growing, I guess, requirements for cellulosic based ethanol we would see even greater benefits going forward.

Mr. BARTON. Well, my time is about to expire, but the statistic that I have in front of me is that ethanol contains only 61 percent of the energy of gasoline. It takes 1.64 gallons of ethanol to do the same amount of work as a gallon of gasoline. That 1.64 gallons of ethanol emits 20.5 pounds of CO2. Ethanol emits 1 pound more of CO2 in the air than using a gallon of gasoline. Now, I don't know if that is a correct statement, but that is what my staff has prepared. Do you agree with that?

Ms. HOGAN. We can certainly share with you our calculations. I do know that the studies that we are engaged with take into account the energy value of ethanol versus the energy value of a gallon of gasoline, and we are happy to share our numbers with you.

[The information follows:]

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HEARING DATE:	JULY 17, 2012
WITNESS:	KATHLEEN HOGAN
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The greenhouse gas (GHG) emissions of biofuels relative to conventional fuels are most appropriately compared on a full lifecycle basis, accounting for all stages of the fuel production process. Biofuels must be credited with all of the carbon dioxide captured and stored as the biomass grows—as well as any emissions during harvest, conversion, distribution, and use. The GREET (Greenhouse gases, Regulated Emissions, and Energy use in Transportation) model developed at Argonne National Laboratory has been used extensively to examine GHG emissions of vehicle technologies and transportation fuels on a consistent basis. Published GREET results estimate that today's U.S. corn ethanol, on average, results in a lifecycle reduction in GHG emissions of 24% relative to the emissions associated with gasoline.[1] Cellulosic ethanol has the potential to reduce GHG emissions significantly further, up to 80-100%.[2,3] These analyses calculate GHG emissions per unit of energy produced, rather than per gallon, to account for the different energy content of fuels.

[1] Wang MQ, Han J, Haq Z, Tyner WE, Wu M, Elgowainy A. Energy and greenhouse gas emission effects of corn and cellulosic ethanol with technology improvements and land use changes. *Biomass and Bioenergy 2011*; 35:1885–1896.
[2] Wang MQ, Han J, Haq Z, Tyner WE, Wu M, Elgowainy A. Energy and greenhouse gas emission effects of corn and cellulosic ethanol with technology improvements and land use changes. *Biomass and Bioenergy 2011*; 35:1885–1896.
[3] Scown C D, Nazaroof W W, Mishra U, Strogen B, Lobscheid A B, Masanet E, Santero N J, Horvath A and McKone T E 2012 Lifecycle greenhouse gas implications of US national scenarios for cellulosic ethanol production *Environ. Res. Lett.* **7** 1–9.

Mr. BARTON. Well, I would encourage the department to look at both clean coal and also natural gas as a transportation fuel because they are both abundant domestic resources and, especially in the case of natural gas, definitely reduce the amount of CO2. And clean coal done properly also does that.

And with that, I yield back.

Mr. WHITFIELD. At this time I recognize the gentleman from Illinois, Mr. Rush, for 5 minutes.

Mr. RUSH. Thank you, Mr. Chairman.

Mr. Chairman, when I was in the fifth grade in a history class, I was astounded when my history lesson mentioned the fact that Emperor Nero fiddled while Rome burned.

Mr. Chairman, America is burning right now, and we, Mr. Waxman and I, have asked the Republicans 15 times in the matter of a few months to hold a hearing on climate change, and we have been rebuffed on each and every occasion.

You are out of touch, Mr. Chairman. This is the committee of jurisdiction. And this committee is out of touch with the plight of the American people. In my opening statement, I mentioned that some of the most extreme weather events that America has ever faced are occurring right now: 40,000 high temperature records set this year. For the last 12 months, they were the hottest months on record; 113 million people in the U.S. in areas of extreme health advisory. America is burning, and this subcommittee is fiddling and twiddling.

The U.S. Department of Agriculture declared a Federal disaster area in over 1,000 counties in 24 States. Two-thirds of the U.S. is experiencing a drought. One-half of U.S. grazing lands are in poor or very poor condition. America is burning, and this committee is fiddling and twiddling; 30 percent of the U.S. corn crop is in poor or very poor condition. And we are talking about burning coal when America's crops and corn, America's corn is burning. The Great Lakes have had low water levels due to lack of rain.

Mr. Chairman, when is this committee going to get in touch with what is happening in America? I would like to ask the witnesses, Ms. Oge and Ms. Hogan, why is it important that the Federal Government play a role in steering energy policy in the direction of the IFS and CAFE standards? Again, my Republican colleagues like to say that we need to leave all this to the market, and everything will work out just fine. Why is it important that we have leadership from Congress to move energy policies toward greater energy efficiency, additional alternative fuels and diversity in the Nation's energy portfolio?

Ms. Oge and Ms. Hogan.

Ms. OGE. Let me just give you an example.

Using the authority under the Clean Air Act, EPA working with our colleagues from NHTSA, we have undertaken three very significant programs in the last couple of years to address greenhouse gas emissions and improve fuel efficiency for our vehicles, our light duty vehicles, and for our trucks. I believe that these programs are a win-win situation. And you just have to take a look and see that these programs are supported—not just by the Federal Government and State government—they are supported by the industries. The car companies have supported this program, the truck companies,

the American Trucking Association. And the reason for that is because these investments that they will make, they pay back to the consumer. So it is good for the consumer. It is good for the economy, but also it is good for our environment and for energy security.

Mr. RUSH. Ms. Hogan. Go ahead.

Ms. HOGAN. And, I certainly agree with what Ms. Oge had to say, and I think another aspect that the Department of Energy works hard to bring to the table is to support our manufacturing base here in this country. There is innovation happening all the time, and we want our manufacturing base to be competitive with the activities in these global industries.

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

At this time, I recognize the gentleman from Illinois, Mr. Shimkus, for 5 minutes.

Mr. SHIMKUS. Thank you, Mr. Chairman.

And thanks again for coming. I—don't take this bad. I am friendly, friendly on this hearing.

But I do want to ask Ms. Oge a question on your on EPA estimates on the cost of—with the new CAFE and greenhouse gas standards, by 2016, it will add another thousand dollars to a cost of a car. And then by 2025, you are projecting $3,000 for an additional car; is that correct?

Ms. OGE. No, $2,000. So it is $900 for 2016 and $2,000 for 2025. I think the total probably——

Mr. SHIMKUS. Oh, yes. It is cumulative, I think, so we had one plus two, then. Then let me go on.

And you also calculated, I think this is good for the record, that you are projecting that people will buy new cars and they will keep them, their lifetime will be about 200,000 miles. Is that correct?

Ms. OGE. Yes.

Mr. SHIMKUS. OK. I think that is pretty generous, but I hope you are correct in that.

For both Ms. Oge and Ms. Hogan, I am reading, I do believe that we are on the verge of getting close to the cellulosic goals and desires. I am very fortunate to have the National Corn and Ethanol Research Center at SIU, Edwardsville. And last month, they, the researchers at Southern Illinois University Edwardsville say they have successfully produced ethanol from cellulosic portion of the corn kernel by utilizing existing technology that you can find in the commercial marketplace, and then obviously they believe it is built on cellulosic ethanol reality, which—and I tried to do this last in the last hearing of last week. I kind of portrayed a, what is a kernel of corn, for the lay people and there is about six different parts of a kernel of corn, that some go to fermented ethanol, but the benefit of cellulosic is using another portion of that.

I also tried to highlight in just the fuel food debate, that even when you are doing the fermentation, a byproduct is distilled or dried grains, which goes into the livestock feed market, and we actually ship that all over the world as a commodity product. But there is—that is why we have these hearings so that we can get out the full fact and full data and statistics on this.

Ms. Oge, I was curious on the CAFE standards and trying to rectify that with what Eliot Engel and I are trying to do with the open

fuel standard, which is that bill that I talked about. Basically it has a phase in of flex fuel vehicles, for the most part, to 50 percent by the vehicle fleet by 2014 and 80 percent by 2016. Under your ability to do that with, how would we go about that based on what you all have been able to do with CAFE and the greenhouse gas rules? How does that segue into that process?

Ms. OGE. So, for the greenhouse gas standards, we, until, through 2016, we will provide the car companies the same benefit that they will get introducing flex fuel vehicles in the marketplace that they are getting under the CAFE program. As you know, those incentives go away in 2019 for CAFE.

But EPA will continue to evaluate how much actually E–85 is used in the marketplace, and then we clearly know the car companies that they are selling flex fuel vehicles. And we will give them credit toward meeting the greenhouse gas standards for light duty vehicles.

Mr. SHIMKUS. I just want to make sure I keep on record, I love fossil fuels, so I am not anti-fossil fuels. I am concerned about the 45 percent that we import and the national security implications. And I do hope that with Keystone and coal to liquid, and other things that we can also have more local supply but my focus has always been the national security ramifications of the sea lanes closing and that then the catastrophic events that could occur. So, for all of my crude oil folks and refineries and my coal guys, don't worry, I am still on board, and I am still part of the, part of the overall team.

Ms. Oge, I want to ask—the last question is on the E–15. Can E–15 be introduced for some vehicles but not others without widespread misfueling? And then the agency has issued misfueling mitigation plan. Do you think that is adequate?

Ms. OGE. So we have looked at the Clean Air Act, our existing regulations, and we believe, again, based on the law that is in front of us we have used the best legal specifications and scientific specifications to waive E–15 for the years of 2001 and newer vehicles. However there is lack of data. To what extent E–15 could potentially impact the environmental control systems for vehicles older than 2001 and off-road equipment. And that is what we need to look when we look, when we do these waivers; it is really to what extent a new fuel will impact the pollution control systems. And based on the lack of data, we have decided that we are not going to allow E–15 to be used in the marketplace for those older vehicles and off-road equipment.

Now, what I have to say is that when we waive the use of E–15 for 2001 and newer vehicles, we are not mandating it. So we are not requiring the marketplace to use E–15, but we are telling all of the parties involved that if you use E–15, there are a number of things that you need to do. And you need to make sure that there are products that transfer data that we can evaluate from point A to point Z. We want to make sure that there is an appropriate labeling at the stations. Clearly, there are issues that go beyond my office that have to do with dispensing units and to what extent are appropriate to be used with E–15, If they have not been designed to be used for E–15 underground storage tanks. So there are a slew of issues that accompany the marketplace. We have to

decide to what extent they are going to have to meet in order to market E–15 in the market place.

Mr. WHITFIELD. At this time, I will recognize the gentlelady from Florida, Ms. Caster, for 5 minutes.

Ms. CASTOR. Well, thank you, Mr. Chairman.

And thanks to the witnesses. Actually, I think it is fairly remarkable, the chart that is attached to the EIA's testimony tells a very positive story, and frankly, you know, for decades, all you heard in America was, we are increasing our use of fossil fuels or increasing our use of oil; oil consumption has risen steadily until very recently. Until very recently, the Energy Information Administration has consistently projected that U.S. oil consumption would continue to rise into the future. And every President I can remember and past Congresses have talked about reducing our dependence on oil, but none has succeeded in doing so until now.

This year's annual energy outlook projects that America will consume less and less oil for decades to come. And this is great news for the climate. It is good news for consumers and their pocketbooks, at a time when they need a little relief. It is very positive for America's energy security, and you have to say our manufacturing sector that has been improving, improving the last couple of months, a little shakier, but I think this is going to be an area where we will be able to create jobs in the future.

Mr. Gruenspecht, how has the Obama administration's final and proposed fuel efficiency and tailpipe standards affected EIA's forecast for oil consumption over the coming years? You can get into a little more detail than your opening statement.

Mr. GRUENSPECHT. Sure. Well, again, the projections for transportation energy use depend on economic activity, depends on the number of licensed drivers, how much they travel, the efficiency of the vehicles, which the fuel economy standards definitely have an impact. Light duty truck fuel economy standards started to be raised in the previous administration and then this administration came in and proposed first the model year 2012 to 2016. That chart that you referred to in my testimony by the way is for the reference case. It would look to be even lower energy consumption with the CAFE standards case. So, again, in my testimony, there is a little table that shows what difference the efficiency standards make. Certainly energy prices are also make making a difference. Less welcome to the American people in part. You know, if one is looking not only at petroleum consumption, if one is looking at imports, then energy production is also making a contribution.

So we are both reducing our petroleum demand, if you will, both by greater efficiency and by substituting other fuels, and we are also increasing our domestic production.

Ms. CASTOR. And clearly, these projected reductions didn't just magically appear. They are in substantial part the result of the administration's fuel efficiency and tailpipe standards. I think it is a tremendous achievement for the Obama administration. But even better, these standards also save consumers money and reduce our dependence on foreign oil.

I thank my colleagues who have been here for a while that were oftentimes pushing past administrations, and a few years ago, the Congress, under Democratic control, gave a substantial push to, so

to my colleagues who were there then, my hat is off to them as well.

Ms. Oge, would you tell a little bit more about how the these standards will save Americans at the pump? And I can tell you just from personal experience, I have a relative that purchased one of these, and you see more and more of them on the road, and he loves the fact that he gets 50 miles per gallon. And, you know, when—gas prices have fallen again, but when they were up, he loved driving by the gas station and driving by it again and again because 50 miles per gallon, you know, I know that it cost a little bit more, but over the life of the vehicle and now with teenage daughters that may be looking to drive, I know they are going to save money. But go head.

Ms. OGE. So, as you said, this program collectively,the 2012 to 2016, greenhouse gas fuel efficiency improving standards for light-duty cars, 2015 to 2025 that is the proposal that we just made and the truck rule for trucks and buses are good for the users and the consumers, climate, energy security and innovation in this country.

Just to give you an example: So our greenhouse gas fuel efficiency standards started this year. So actually this year, there are about a hundred models that you can go out and buy that meets the standards of 2017 of what we propose for 2017. So that tells you the innovation that is going on in our country. Developing this technology, and as you know, the car industry is doing extraordinary well——

Ms. CASTOR. Well, my time has run out, but I do want to congratulate you and your whole team for the progress that you have made.

And to close, Mr. Chairman, I would like to encourage you to call a hearing on climate change. And I think that the committee and the Congress could benefit from the testimony of many experts that could advise us on policy and what else we should be doing to address this serious problem.

Mr. WHITFIELD. Well, I really appreciate that suggestion, and I might remind everyone over the last 5 years, we have had a multitude of hearings on climate change, and I am sure that we will in the future as well.

At this time, I would like to recognize Mr. Terry for 5 minutes.

Mr. TERRY. Thank you, Mr. Chairman.

Mr. Gruenspecht, help me with a couple of things here. First of all, as energy usage is related to economy in a sense that if the economy is growing, well, the effect will be energy use grows. Is that a correct assumption?

Mr. GRUENSPECHT. All else equal, economic growth does lead to more energy use.

Mr. TERRY. And a shrinking economy results in less usage of energy historically.

Mr. GRUENSPECHT. We have seen that.

Mr. TERRY. You have seen that. In fact, we have seen it in the last 4 years.

Mr. GRUENSPECHT. Well, I mean, well, we saw it for a portion of the last 4 years.

Mr. TERRY. Yes.

Mr. GRUENSPECHT. And I think now the economy is growing, but there was a time certainly when the economy was not growing over the last 4 years, and energy use did fall dramatically.

Mr. TERRY. Yes. So if we want to, in general, compliment the administration for bringing down usage of gasoline, we should also then compliment them for our slow in recession, slow growth economy and recession. That is a rhetorical question. You don't have to answer that.

Mr. GRUENSPECHT. Thank you.

Mr. TERRY. But you do have to answer this one. And this is, you know, when we were debating on the floor and developing the renewable fuel standard several years ago, there was an assumption that a good part of the growth would come from cellulosic ethanol. We haven't seen that yet today.

So I am going to ask you both, you Mr. Gruenspecht and you, Ms. Hogan, why haven't we? Why, why aren't we seeing mass production of cellulosic energy in July of 2012?

Mr. GRUENSPECHT. Well, I follow the data more, so I think Ms. Oge could go into the reasons, but, you know, we are, as suggested in Ms. Oge's testimony, we do every year in the legislation provide an estimate to EPA of our view of what might be produced. I think the estimate we provided them this past year for 2012 was 6.7 million gallons, which is a lot less than the 500 million that was envisioned in the statute.

Mr. TERRY. So instead of repeating back the statute, because, as you know, I have very little time——

Mr. GRUENSPECHT. Right.

Mr. TERRY [continuing]. Educated in how to use that up. But if you would just answer, why aren't we seeing it? I am asking honestly.

Mr. GRUENSPECHT. No, I am not trying to——

Mr. TERRY. I support it.

Mr. GRUENSPECHT [continuing]. But I think it is hard. I think the technology—you know, that some plants are going to come on this year we believe. It will not be as high as what we thought. It will certainly not be as high as the legislation——

Mr. TERRY. Has EIA, in regard to biofuels and ethanol and biodiesel, began to factor in the consequences of the drought hitting the corn belt this year, and is that going to in any way affect fuel prices?

Mr. GRUENSPECHT. It would affect ethanol prices to some extent. Corn is the major input to ethanol. One gets about 2.8 gallons of ethanol per bushel of corn. So if the price of a bushel of corn would, would rise, that would tend to lead to an increase in the cost of producing ethanol. Ethanol is not the only product. Distillers dried grains are also produced, and those have some value. So it is not that the full increase in the price of corn has to show up in the cost of producing ethanol, but a lot of it will.

Again, keep in mind that ethanol right now is about 10 percent of the fuel, you know, the content of gasoline by volume so an increase of you know 50 cents per gallon of ethanol, which would be more than the impact, a lot more than the impact.

Mr. TERRY. So if it is only 50 cents, I think it would be lucky.

Ms. Oge, do you have anything to add now with those two questions?

Ms. OGE. You know, I asked the same question myself. So what I did this year is I asked the major cellulosic companies to come and talk to me, and I said, let's talk, let's figure out what is going on, because like you, you said what is going on? And this is what I have learned. What I have learned is we are talking about 5 years. EISA passed in 2007, So we are talking about 5 years. And I have concluded that significant progress has been made when you consider we are talking very advanced biofuels and technologies, from R&D to pilot demonstration to commercial availability, and this year, we are going to see commercial scale cellulosic plants in this country.

The other thing that we need to keep in mind is that despite—this is what I learned from this company—despite the tough economic conditions that our country has been going through, significant private sector investments have been made in the sector. What I was told is that about $2.4 billion from venture capitalists have been, you know, invested for these fuels. And furthermore, what I am hearing is that we are moving, not only we are moving from pilot to large commercial scale, but when you talk to large companies, like BP and Dupont, that again are investing a significant amount of money, they are committed to bring large commercial scale of cellulosics in 2014 time frame.

So I think we are beginning to see a move, significant move from pilot to commercial scale, and if that continues, I think that the hope of cellulosics will be realized.

Mr. TERRY. Thank you.

Mr. WHITFIELD. At this time, I recognize the gentleman from Texas, Mr. Green, for 5 minutes.

Mr. GREEN. Thank you, Mr. Chairman, and I thank each of you for being here today.

Ms. Oge, my questions today, just to reminisce, we had a subcommittee hearing in Oversight and Investigations last week on the RIN fraud issue. And Mr. Bunker and Mr. Brooks answered some of my questions, but I understand you also are involved in finding a solution to these problems. I wanted to make sure I look at the opportunity—took this opportunity to discuss this with you as well.

The EPA maintains that petroleum refineries are expected to exercise good business judgment and use due diligence. I know that the obligated parties have been pressing the EPA for months to formally define what merits due diligence. And what do you expect from that? My first question is, will the agency be able to propose and finalize the rules so that programs can be in place before 2013?

Ms. OGE. Congressman, we are working very hard to come up with solutions. The goal is to have the final actions taken place by the end of the year. We want to make sure that both sides of the industry, the biodiesel sector and the obligated parties, which is the refining industry, are working with us. And up to date, I want to let you know is that we have had very collaborative efforts. So I am very optimistic that we are going to be able to resolve this issue.

Mr. GREEN. OK. And I know from our testimony last week by Mr. Bunker and Mr. Brooks, there is a cooperative effort. Is it possible for EPA to issue a separate expedited rulemaking to ensure that the rule becomes effective before 2013?

Ms. OGE. We will work very hard and do our best, sir.

Mr. GREEN. OK. If not, could EPA make some other type of administrative adjustment to help small biodiesel producers before 2013? We heard from some of them last week that a lot of refiners in my area are just not going to go to these folks because they don't know what due diligence is.

Ms. OGE. Yes. Clearly the solutions that we are evaluating, and you can imagine that there are solutions and proposals from both sides, we want to make sure that we are not going to have unintended consequences, which is impact of small biodiesel producers.

Mr. GREEN. OK. Aside from the notice of violations issued to three fraudulent biodiesel producers, how many invalid RIN producer investigations are ongoing? Do you know? I know we have three that are public, but do we have a number of other investigations ongoing?

Ms. OGE. I don't know, sir. I am not overseeing the enforcement office at EPA.

Mr. GREEN. OK. And do you know how many invalid RIN investigations were concluded that found no violation occurred?

Ms. OGE. I don't.

Mr. GREEN. OK. If you could, if you could check and get that back with us.

In May of 2011, we held a similar hearing to this one, and I submitted a question for the record asking EPA for its estimate for misfueling was in the first few years of the E–15s existence at gas pumps. EPA responded that you didn't have enough information on the E–15 market penetration to make an estimate. But since then, EPA has registered over 65 companies to market E–15 and has approved over 50 companies' misfueling mitigation plans. Additionally, over 80 companies have enrolled in an approved national compliance survey. Are you in a place where you could now make an estimate on that question?

Ms. OGE. My understanding is that there is only one station in the country that is introducing E–15. So, again, we don't have the data available to us given the limited introduction of E–15 in the marketplace. However, we did approve the misfueling mitigation plants from 60 to 80 of new biofuel producers, and we believe that these plants will minimize the misfueling concerns that you have expressed.

Mr. GREEN. OK. Only one station in the country has E–15?

Ms. OGE. That is my understanding.

Mr. GREEN. I assume it is in Mr. Terry's district or Mr. Shimkus's.

Mr. OGE. I believe it is in Kansas.

Mr. GREEN. OK. That is close enough.

I want to follow up on my colleague from Texas, Congressman Barton, because, again, some of the success we have had and we are seeing it slowly in natural gas to be a transportation fuel, and I know it is not a renewable fuel. But it is one that we are producing substantially in our country, and of course, 7 years ago, I

would not be talking about it because natural gas was $12.50 or $13 per million cubic feet. But now it is less than $3. Is EPA actually looking at that sustainable growth in using natural gas as a transportation fuel with the benefit of the clean air issues and the carbon issues?

Ms. OGE. Clearly, we are looking at that as part of the 2017, 2025 greenhouse gas rule. We have received a number of comments from the natural gas industry and OEM's about the potential benefits of natural gas vehicles. So we are in the process of evaluating these comments and suggestions that we have received. But natural gas is cleaner at the tailpipe, about 18 to 20 percent less carbon, so I think it can compete very well on this, for these new standards that we are planning to finalize sometime this summer.

Mr. GREEN. OK. Well, appreciate the time.

Thank you, Mr. Chairman.

Mr. WHITFIELD. At this time, I recognize the gentleman from Texas, Mr. Burgess, for 5 minutes

Mr. BURGESS. Thank you, Mr. Chairman.

Ms. Oge on that same line, there is a large tractor trailer manufacturing plant in Denton, Texas, the district that I represent, the Peterbilt Cooperation, that is actually producing an off the line natural gas vehicle for the long haul as well as short-haul applications, and my understanding is that is a little bit more expensive, but the expectation is the fuel cost recovery will happen in a very short period of time, 12–18 months, which over the lifecycle of that vehicle is very manageable. And they are doing it all without Federal subsidies, without any Federal law. They are doing it because it is the right thing to do, and people are anxious to purchase that type of vehicle, and natural gas, of course, as we have seen the story on that from 10 years ago to now, the cost has come down tremendously.

I am concerned and have been concerned since we had a briefing between Department of Energy and the Environmental Protection Energy on the E–15 gas. And you have approved that for models, automotive models that are later than 2001. But you haven't approved it for earlier engines. You haven't approved it for marine vehicles, for boats. And you haven't approved it for the small engines. So what are the problems with those pre-2001 engines, boat engines, small engines? What are the problems that occur that led you to refrain from approving the use of E–15 in those engines?

Ms. OGE. Is the question for me or——

Mr. BURGESS. Yes, for the Department of Energy.

Ms. OGE. So, clearly, when we look at the data for older vehicles older than 2001, there was insufficient data to approve it, but also our engineering judgement was that, given the technologies that those vehicles were using—and again, we are talking about the emission control systems. We were sufficiently concerned that E–15 could potentially increase the emissions from those vehicles, so the agency decided not to approve those vehicles.

Mr. BURGESS. How many did you test?

Ms. OGE. Excuse me?

Mr. BURGESS. How many did you test? Do you know?

Ms. OGE. For the testing that took place was only under the Department of Energy for 2001 and newer vehicles, and Ms. Hogan can speak about, about the work that they have done.

So when we approved the 2001 and newer vehicles, we had the data and we had significant additional data for newer vehicles. However, there is very limited information for older vehicles and off-road equipment so the agency decided, given on this lack of data or rather limited data, not to approve the use of E–15.

Mr. BURGESS. But, I mean, I am old enough to remember when unleaded gasoline became the norm, and you had the side-by-side fueling pumps, and you changed the nozzle sizes and all that stuff. But still there were mis—there were fueling accidents, misfueling applications that occurred. Do you have any experience from going back to the seventies, that serves as a template to prevent misfueling problems?

Ms. OGE. I wasn't in the agency in the 1970s, but the agency does have experience. The only thing I want to say, there is, there is a difference between the unleaded gasoline and the E–15. Back in the 1970s, there was a mandate for using unleaded gasoline for certain even vehicles. Here E–15, you know, we are not mandating E–15 be used——

Mr. BURGESS. No, you are mandating a volume of ethanol to be blended with all of the gasoline that is sold in the country, and as a consequence, every snowblower, every lawnmower, every pump is going to be contaminated with E–15 within a very short period of time, and you know that. I mean, that is going to happen. That is a sad reality of where we have gone, which is why, and I think, you know we have heard reference from Mr. Rush. This a tough summer. Grain production is way off. Why are we continuing to follow this foolhardy policy?

I mean, it was done under President Bush and I acknowledge that, but I think it is time to recognize the limitations of this and move away from what really is a, it is not, it is not a policy that follows commonsense.

Ms. Hogan, I just wanted to ask you a question. On your bio on the Web site, it talks that you were the, one of the principle overseers of $16 billion in stimulus funding at EERE, is that correct?

Ms. HOGAN. That is correct.

Mr. BURGESS. And I know you wouldn't have it with you today, but can we ask you to provide the committee with some detail on how that money has been spent, how much is left, what it was spent for? You referenced in your testimony the new law with new batteries that are going to be produced. I am having difficulty trying to calculate the cost per battery. It looked high, but I want to be fair about it. So could you provide us the line item budgetary detail on that $16.4 billion that your agency administered?

Ms. HOGAN. We absolutely can provide you with that detail.

[The information follows:]

COMMITTEE:	HOUSE ENERGY AND COMMERCE SUBCOMMITTEE ON ENERGY & POWER
HEARING DATE:	JULY 17, 2012
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Approximately $1.5 billion of EERE-administered Recovery Act funds support the establishment of battery manufacturing plants, including pack assembly facilities, battery cell production plants, and battery materials production plants. As of November 5, 2012, $1.02 billion has been spent supporting those projects. These facilities will be capable of supporting the production of up to 500,000 vehicle batteries each year once fully equipped. However, a one-to-one match of dollars per battery produced is not possible, as the cost to build the facilities will amortize over many years of plant operation. In addition, the cost to manufacture a battery is a combination of capital, labor, material, utilities, and other expenditures. As in businesses of all kinds, manufacturers consider the cost of manufacturing a technology or component to be highly proprietary. Since Recovery Act-funded battery manufacturing facilities are producing battery packs and cells of varying sizes for different vehicles, the Department's metrics for battery manufacturing capacity are based on an average 10 kWh plug-in hybrid battery.

The Department does have detailed, industry peer-reviewed cost models with which we evaluate technology status and progress toward cost-reduction targets. These models show that DOE-funded research has reduced the cost of lithium-ion batteries from $1,000/kWh in 2008 to $500/kWh today, and that we are on track to achieve our 2015 cost-reduction target of $300/kWh, or about $3,000 per 10 kWhr plug-in hybrid battery.

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EERE ARRA Funding
As of July 17, 2012.

DOE Program Office Name	DOE Project Name	Total Awarded (in dollars)	Total Outlaid (in dollars)
Energy Efficiency and Renewable Energy	Advanced Building Systems	67,032,755	47,193,468
	Advanced Materials RD&D in Support of EERE Needs to Advance Clean Energy Technologies and Energy-Intensive Process R&D	46,694,635	40,971,279
	Battery and Electric Drive Component Manufacturing	1,989,972,847	1,271,801,517
	BetterBuildings: Buildings	62,000,000	45,072,491
	BetterBuildings: EECBG	390,040,000	224,960,084
	Buildings and Appliance Market Transformation	51,751,812	46,755,210
	Clean Cities AFV Grant Program	298,500,000	207,703,717
	Combined Heat and Power (CHP), District Energy Systems, Waste Heat Recovery Implementation and Deployment of Efficient Industrial Equipment	150,480,040	94,420,972
	Commercial Scale Biorefinery Projects	81,975,766	3,690,424
	Commercial Vehicle Integration (SuperTruck) and Advanced Combustion Engine R&D	106,055,410	51,358,127
	Community Renewable Energy Deployment	21,227,468	4,070,349
	Concentrating Solar Power	24,131,229	21,390,535
	EE Appliance Rebate Programs	296,588,437	296,158,171
	EE Conservation Block Grant Program	2,802,553,302	2,248,791,008
	EGS Technology R&D	111,882,191	87,901,734
	Enabling Fuel Cell Market Transformation	41,554,259	36,938,549
	Energy, Water & Emissions Reporting and Tracking System	5,472,389	5,467,973
	Enhance and Accelerate FEMP Service Functions to the Federal Government	16,142,768	16,076,572
	Fundamental Research in Key Program Areas	106,861,310	68,911,909
	Geothermal Demonstrations	58,079,566	9,364,633
	Ground Source Heat Pumps	62,448,081	36,260,843
	High-Penetration Solar Deployment	37,609,765	34,895,646
	Hydroelectric Facility Modernization Program	30,625,643	26,790,409
	Improved Energy Efficiency for Information and Communication Technology	47,017,414	44,906,791
	Industrial Assessment Centers and Plant Best Practices	9,530,613	9,412,086
	Integrated Biorefinery Research Expansion	13,432,500	13,295,010
	Investigation of intermediate ethanol blends, optimization of E-85 engines, and development of transportation infrastructure	19,793,138	19,358,039
	Lab Call for Facilities and Equipment	93,239,851	59,856,231
	Large Wind Turbine Blade Testing Facility	24,752,779	24,752,779

	Management and Oversight (EE Program Direction)	117,363,939	109,544,168
	Modify Integrated Biorefinery Solicitation Program for Pilot and Demonstration Scale Biorefineries	509,154,294	315,420,118
	NREL Ingress/Egress Project	24,594,117	14,593,625
	NWTC Upgrades	33,650,313	15,291,298
	National Accounts Acceleration in Support of the Commercial Buildings Initiative	44,000,000	41,737,883
	National Geothermal Database, Resource Assessment and Classification System	9,950,000	9,451,663
	PV Systems Development	50,660,501	43,604,621
	Renewable Energy and Supporting Site Infrastructure	86,764,000	83,913,179
	Residential Buildings (Building America, Builders' Challenge, and Existing Home Retrofits)	23,633,230	22,579,323
	Solid State Lighting	46,168,404	38,890,632
	State Energy Program	3,084,474,000	2,797,189,287
	Transportation Electrification	386,232,871	207,967,299
	Validation of Innovative Exploration Technologies	84,469,202	36,096,380
	Weatherization Assistance Program	4,974,632,161	4,675,612,668
	Wind Energy Consortia between Institutions of Higher Learning and Industry	22,981,677	21,965,868
	Wind Energy Technology R&D and Testing	16,193,124	15,863,361
	Wind Turbine Drivetrain Testing Facility	44,555,002	38,238,558
Energy Efficiency and Renewable Energy Total		**$16,626,922,803**	**$13,586,486,487**

Mr. BURGESS. All right. Mr. Chairman, I appreciate that, and I will yield back the balance of my time.

Mr. WHITFIELD. At this time, the chair recognizes the gentleman from Kansas, Mr. Pompeo, for 5 minutes.

Mr. POMPEO. Thank you, Mr. Chairman.

Thank you, witnesses, for coming out today.

Ms. Oge, I read your testimony twice and I saw precious little discussion of cost and price for consumer. It was all about mandates and department investments and that kind of thing. And that always troubles me an awful lot when you don't, when you don't trust consumers to really do what is in their best interest. And that I think is what RFS is riddled with.

Mr. Waxman mentioned price. He said that Republicans are preventing consumers from saving money. Do you think that is true?

Ms. OGE. That is not my position to say what the Republicans or Democrats are doing, sir. I am a civil servant. I am not here representing any political views.

Mr. POMPEO. Do you think if—yes, I am just repeating what he said. Do you think that folks who oppose some of the RFS standards, do you think that that is preventing consumers from saving money?

Ms. OGE. I want to remind Congress that EPA is implementing a law that Congress passed in 2007. So we are looking at the law. We are using the best science and legal interpretation to implement the law.

Mr. POMPEO. I appreciate that. I have seen some of that. An electric vehicle today, if a consumer was going to go out and purchase one, would it save that consumer money today?

Ms. OGE. A new vehicle?

Mr. POMPEO. Yes, ma'am. A new vehicle.

Ms. OGE. A new vehicle today would be more fuel efficient than the vehicle of yesterday so on based on that analysis, the answer is yes. And the data that I have that—I cannot tell you about 2012—but the data that I have is for 2016. So if you buy a new vehicle in 2016, you will pay $950 more, but you will save $3,000 from fuel consumption savings and fuel, assuming that the gasoline prices in 2016, according to EIA, will be about the same level as it is today.

Mr. POMPEO. Sure. And so consumers aren't choosing that in great numbers yet, you would agree with that?

Ms. OGE. Yes.

Mr. POMPEO. And the reason they are choosing more expensive vehicles that are available in the marketplace today is because of what set of circumstances?

Ms. OGE. I didn't say that they are choosing more expensive vehicles.

Mr. POMPEO. I will come back. They are not choosing a whole lot of electric vehicles, you would agree with that. Yet you said it was more economical for them to choose that today. How do you account for that disconnect?

Ms. OGE. What I said is that the 2012 to 2016 greenhouse gas standards and fuel efficiencies standards are good for the consumer because the consumer on an average will save money at the pump that will more than offset the upfront cost of the vehicle. And that

is the data that we have. Furthermore, what I want to note is that all the car companies have agreed on that, and they are supporting the program. So I think they know something more than I do.

Mr. POMPEO. Could be. I am just trying to figure out how come consumers don't know as much as you do about what is good for them.

How many cellulosic RINs have been generated over the life of renewable full standards?

Ms. OGE. I don't have the number, but there were a number of cellulosic RINs that were developed as part of the RFS 1; that is the 2005 program. And I believe, for 2011, 20 percent have the cellulosic RINs were used to meet the cellulosic standard. But I need to get back to the specifics. But there were cellulosic RINs that have been developed.

Mr. POMPEO. I would appreciate it if you could get that to us. I looked at the Web site. It looked to me like there had not been any during the entire course of the program. It looked like on the EPA's Web site, there had been no cellulosic RINs. So if I am wrong about that, I would appreciate you letting me and the committee know.

Mr. Gruenspecht, if the RFSs fills 36 billion gallons—I have seen estimates that that would mean that we would need 40 percent ethanol? Does that sound about right to you, assuming the CAFE standards are fully met? Sound about right?

Mr. GRUENSPECHT. If it were all ethanol. We expect a lot of you know, renewable diesel, a drop in fuels as well, but it would be about 40 percent of the fuel cooled by volume if it were all ethanol.

Mr. POMPEO. Right. And but today, the fleet can't handle on average 40 percent fuel volume; is that right?

Mr. GRUENSPECHT. Not today. That would be right.

Mr. POMPEO. And so, Ms. Oge, where are we going to put all of this extra ethanol?

Ms. OGE. Well, again, the 2007 is a rule that did not mandate ethanol to be used. Congress did not actually mandate a specific biofuel. And I think there is a lot of progress that we have seen on drop-in fuels, biobutanal, bio master liquid for both biodiesel and gasoline. Biogas and bioelectricy. As I said, in my testimony, also we have seen uses beyond the cars and trucks, jet fuel and home heating oil.

So I understand your concern, but again, I think there is a lot of innovation in fuels that are not going to be limited by this so-called blend war that has been——

Mr. POMPEO. I hope you are right. I hope it can be done affordably. I am less optimistic than you are.

Mr. Chairman, I am out of time.

I yield back.

Mr. WHITFIELD. At this time, I recognize the gentleman from Massachusetts, Mr. Markey, for 5 minutes.

Mr. MARKEY. Thank you, Mr. Chairman.

You know the thing about the auto industry is that they never knew what was good for them. Their CEOs were oblivious. They fought every year fuel economy standards in this committee. How do I know? Because I made the amendment every year, 2001, 2002, 2003, 2005, and the auto industry all sat out there all sending the signal up, no, we can't do it. It is not good for us.

And they did it very successfully until they had turned themselves into technologically obsolescent companies heading toward bankruptcy that then asked the American taxpayers with hands out to please save us from the fact that no one wants to buy our vehicles. And none of those CEOs are around any longer because they all got canned because they did not know what was good for their companies. And unemployment just kept rising higher and higher in the automotive sector because no one would by their vehicles. Then the Federal Government came in and we gave them a loan to help bail them out.

But moreover, out of this committee in 2007 and out in the House—or out of the conference committee, we passed a bill to increase full economy standards to 35 miles per gallon. By the way, all of the auto industry was saying they can't do it. So we actually gave them a couple of more years to go to 2020 in that bill. And then the Supreme Court ruled in Massachusetts v. EPA that, that the EPA had a responsibility to make a decision as to whether or not greenhouse gasses were dangerous to the planet, which it did, which then ultimately empowered the use of the California Clean Air Act.

And to President Obama's credit, he never passed any laws. Let's be honest. He never filed any suits before the Supreme Court. Let's be honest. But what did do was he took the authority that we had given him, The Supreme Court had given him, and he acted on it.

So here is where we are, ladies and gentlemen, back in 2007, I looked around, I looked around. I was really trying to find a very good American hybrid sedan, and it was hard to find; Matter of fact, nonexistent. So I bought a Camry hybrid that got 33 miles per gallon, by they way, that is the EPA standard for the purposes of NHTSA, for the purposes of reaching 54.5 miles per gallon, which is really what we should be talking about here so that everyone understands that it is the NHTSA standard, not EPA. You should NHTSA down here, Not the EPA. Then my car as it is in a 2011 version is now getting 47 miles per gallon, the Camry hybrid, today. And they have all the way until 2026 to take the single most popular sedan in the United States and figure out how to squeeze eight more miles per gallon out of it.

. Now, can the auto industry figure that out? Well, the Republicans say, no, they can't do it; it is going to paralyze them. And so they are going to have a vote next week that strips the EPA from completing the regulation from 2017 to 2025 that will get us to 54.5 miles per gallon when a Camry Sedan is already at 47 miles per gallon today, as you walk into the showroom.

Now, how sad a commentary is that on the confidence the Republicans have in the innovation and the technological capacity of the automotive industry? Sad isn't it? And by the way, they bought into this American technological inferiority arguments for all of the time I have been on the committee. They just don't think America can do it. They don't think that our auto industry can do it, even though Toyota is already up to 47 miles per gallon for a Camry today.

Now what is the consequence of them repealing this? I will tell you what. Between now and 2030, if we meet 54.5 miles per gallon, it is 3 million barrels of oil a day. You want sleepless nights for

Saudi sheiks? That will do it. And it is 4.7 million barrels by the year 2040. Why should we export young men and women over to the Middle East when we can be exporting fuel efficient vehicles all around the planet made in America. The unemployment rate is plummeting in the automotive sector because they are now making vehicles people want to buy because they are fuel efficient. And the Republicans are now going to go back to the old plan of technological obsolescence that led to the problem in the 1970s when I had to vote here to bail out Chrysler. Then I wait and I get a second chance to bail out Chrysler again in 2009. How fortunate am I that twice I get to see how little they understand about the need for continued innovation if they are going to be competitive on the open marketplace. But the tragedy is, let's be honest, it is the amount of oil that the Republicans are allowing to continue to be imported from the Middle East because that is where we put 70 percent of all of the oil we consume in our country in gasoline tanks. And the single greatest weapon we have is increased fuel economy standards, and they are going to repeal that next week? Well, you are going right at the heart of the number one national security vote that anyone is casting in Congress this year, and we are going to have a hell of a debate over whether or not that helps our country.

I yield back the balance of my time.

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

At this time, I recognize the gentleman from Louisiana, Mr. Scalise, for 5 minutes.

Mr. SCALISE. I thank the gentleman for yielding and again thank this chairman for this continued conversation as we have, as we have looked over hearing and hearings for months now about ways that we can improve this country's woeful energy policy and also work to create jobs.

I want to ask first, Mr. Gruenspecht, some of the data that comes out of the energy information administration, we have—we have viewed and you know, we look in the Gulf of Mexico at a lot of—a lot of slow down in exploration as well as production. And I understand that you all have come out with some reports recently looking at, using some data to look at production in the Gulf of Mexico. It is my understanding that you have got projections that show that this year production would be down roughly 30 percent from last year. Do you know what the data your agency has on that is?

Mr. GRUENSPECHT. I would be, I would be surprised if that number—maybe something like 30,000 barrels—but 30 percent from last year to this year, that doesn't sound right to me, but I will go back and check.

[The information follows:]

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Mr. Scalise to Mr. Gruenspecht, I understand that you all have come out with some reports recently at, using some date to look at production in the Gulf of Mexico. It is my understanding that have got projections that show that this year production would be down roughly 30 percent from last year. Do you what the data your agency has on that is? Gruenspecht, I will go back and check.

For calendar year 2011, production of crude oil in the Federal waters of the Gulf of Mexico averaged 1.32 million barrels per day. Daily production of crude oil for 2012, through August, averaged 1.24 million barrels per day, a decrease of 6.0% from 2011. Oil production in the Federal Gulf of Mexico has ranged from 1.16 to 1.56 million barrels per day over the past decade depending on the timing of major development projects and weather-related disruptions to production.

Natural gas production in the Federal waters of the Gulf of Mexico 2011 averaged 5.02 million cubic feet per day. Production for 2012, through August, averaged 4.31 million cubic feet per day, a decrease of 14.2% from 2011. Unlike oil, natural gas production in the Federal waters of the Gulf of Mexico has been on a consistent downward trend since 2001.

Mr. SCALISE. Do you have any data in front of you regarding where production is? Just start with the Gulf of Mexico, and I want to look at some other areas, too.

Mr. GRUENSPECHT. I don't really have, I don't have the detail on the Gulf of Mexico in front of me. I know that for crude oil production as a whole, and again, the Gulf of Mexico has, as you know and I know, some issues that surrounded the moratorium, but for the U.S. As a whole, crude oil production rose by about 200,000 barrels a day in 2011.

Mr. SCALISE. Now you are counting private land, Federal land.

Mr. GRUENSPECHT. Everything, right.

Mr. SCALISE. All right. If you just broke it down to Federal lands.

Mr. GRUENSPECHT. Federal lands, I think in 2011, was down a bit than 2010.

Mr. SCALISE. What is a bit?

Mr. GRUENSPECHT. I don't have it in front of me, but I would be glad to get it for you.

[The information follows:]

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WITNESS: HOWARD GRUENSPECHT

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Mr. Scalise, Do you have any data in front of you regarding where production is? If you just broke it down to Federal lands.

Mr. Gruenspecht, Federal lands, I think in 2011, was down a bit than 2010. I don't have it in front of me, but I would be glad to get it for you.

Fiscal Year	Crude oil & lease condensate (million barrels)	Natural Gas Plant Liquids (million barrels)	Natural Gas (trillion cubic feet)
2009	642	93	5.64
2010	739	115	5.42
2011	646	111	4.86

The data for total crude oil and natural gas sales of production from Federal and Indian lands are a proxy for marketed production. The data is from the Department of the Interior's Office of Natural Resource Revenues (ONRR) which is responsible for collecting, accounting for, and disbursing royalty payments on sales of minerals produced from Federal and Indian lands. For more detail see: Table 1.14 Sales of crude oil and lease condensate production from Federal and Indian Lands, FY 2003 – FY 2011 (million barrels) from the EIA Annual Energy Review 2011.

http://www.eia.gov/totalenergy/data/annual/pdf/sec1_31.pdf

Mr. SCALISE. So you know exactly how much it is up overall when you don't count Federal lands, but then you just conveniently don't know how much it is down when you actually talk about the areas that the Federal Government has control.

Mr. GRUENSPECHT. Because I have a summary of the short-term outlook before me that doesn't have all of the regional detail, but I will definitely get it for you——

Mr. SCALISE. Well, when we are making policy in Washington, you know, there are States that have their own programs in place. You have people that have private land that are able to lease that private land out, but then where we really have the purview is over those areas where the Federal Government has control through both the Department of Energy, with the EPA. You have got of course the Department of Interior and all of these agencies control Federal lands, and what we have seen is that production is actually down in the areas where the Federal Government has control. Now, do you dispute that, or do you know——

Mr. GRUENSPECHT. In 2011, it was lower than 2010.

Mr. SCALISE. And that is you know something I guess that perplexes a lot of us when we hear the President out going around the country bragging that production is higher and yet when you look at the areas where the President has control, production is actually down. The areas that he could help us to increase production, it is actually going the opposite way because of his policies.

In fact, we just saw what the 5-year lease plan that was released. I am not sure if you have evaluated this. I know EIA has looked at it, but from the reports we have seen, the latest 5-year lease plan in the Outer Continental Shelf that the President released actually closes off about 85 percent of the areas that were getting ready to come open for exploration. Have you seen that? Have you looked at that data.

Mr. GRUENSPECHT. I have not looked at. I am aware that there is going to be some drilling in the Federal offshore off of Alaska, I believe, is planned for this year. And I believe and we are projecting a growth in the Gulf of Mexico production in the future, but there is no question that the aftermath of the Macondo disaster did have an impact

Mr. SCALISE. Well, but it was the—it was the aftermath that was based on the President's policies that went against actually some of his own scientists and engineers. It was a 30-day report that the President put together a team of a scientists and engineers after the Macondo explosion to look at and evaluate what we do to increase safety. And then the President tried to use that report to impose the moratorium that you referred to. And the scientists and engineers, basically, they called a foul and said, no we did not suggest that and the White House recanted; somebody in the White House doctored the report. But the scientists and engineers actually said you will reduce safety in the Gulf. You will actually run jobs out of this country. And we have seen that. We have seen about almost 20,000 jobs, American jobs, that have been lost because of that policy, and we have lost some of our best rigs, Some of our most experienced crew base. So the President went against his own scientists and engineers by saying you will, you will reduce

safety by having a moratorium. And so that may, may have something to do with the reduced production on Federal lands.

I want to ask Ms. Oge, we have been talking about the E–10 and increases potentially coming up, do you all work with gas stations, with car manufactures that do have concerns they brought up in this committee and other places about what liability issues there would be, of the costs that would be associated with, with going to a higher level? What kind of coordination do you have with them to address those valid concerns that they have.

Ms. OGE. We have had extensive discussions with gas stations and extensive discussions with the car companies. And again the basis for the waiver is the Clean Air Act that requires the agency to evaluate the potential impacts on emission control systems and emissions from vehicles as a result of a new fuel, fuel additive. And that is the analysis that we have done.

As far as the gas stations' concerns, we have incorporated misfueling requirements for the renewable fuel producers. And for the car companies, we, when we met with them and they did express concerns, we asked them to provide to us any data, any scientific data that they have that demonstrates that E–15 will undermine emission control systems for 2001 and newer vehicles, and they have not provided any data. So based on extensive scientific data that we have received, testing from the Department of Energy and other studies, the agency has concluded that E–15 will not have any impact when it comes to emission control systems for 2001 and newer vehicles.

Mr. SCALISE. Does that address—I am out of time. I yield back the balance of my time.

Mr. WHITFIELD. At this time, I recognize the gentleman from Virginia, Mr. Griffith, for 5 minutes.

Mr. GRIFFITH. Thank you, Mr. Chairman.

Sleepless nights for Saudi sheiks. In my part of the world, you give Saudi sheiks sleepless nights by looking at turning coal into gas. And I am just wondering what thoughts have gone into that and if there is any intent to support my alt fuels bill, H.R. 2036, which would allow for the alt fuels to include coal that has been turned into gasoline, and it looks like we can do it for about $94 a barrel, and we are the Saudi Arabia of coal. So I am just wondering when are you all going to get on that ship and sail with us to a better America?

Ms. OGE. Sir, I am not familiar with your bill, but I can take your request back and take a look at it.

Mr. GRIFFITH. All right, and generally, if not my bill, some other bill regarding coal being converted into gas. What are your thoughts on that? You don't have to be familiar with my bill to have some thoughts on this, I assume.

Ms. OGE. I don't have any views.

Mr. GRIFFITH. All right.

We heard the President talk about algae and its potential and I'm just wondering if, if perhaps either of you can or any of you can give my some idea of where we stand on that. My bill also touches on algae. So it is not that I am anti-algae, I just don't know whether we are ready yet. Where do we stand on algae being converted into gasoline?

Ms. OGE. EPA has qualified algae as a feed stock to meet the renewable fuel centers as with cellulosic. I know that there are significant efforts by a number of companies, including ExxonMobil, on algae research. I don't know to what extent these efforts will allow them to bring commercial available material into the marketplace any time soon

Mr. GRIFFITH. And so do we have any idea what level of production we have at this point?

Ms. OGE. I don't believe there is any commercial available algae material.

Mr. GRIFFITH. Do we have any expectation of production by say 2015 or 2020?

Ms. OGE. I don't know, sir.

Mr. GRIFFITH. So to be putting our money on algae at this point, although it certainly should be researched, would be a foolish bet for the next 15 or 20 years. Is that a fair statement?

Ms. OGE. I am in no position to say that. Again, you know, a lot of resources have been spent, a lot of companies—maybe Ms. Hogan can speak to that. But for me to evaluate R&D efforts and to what extent they will materialize in the next 5 or 10 years, I think that is an appropriate—that is not an appropriate position for me to take.

Mr. GRIFFITH. Ms. Hogan?

Ms. HOGAN. So the algal resource is certainly a part of our biomass R&D program where we are looking at a variety of sort of bio-based sort of starters. Where we are with algae is it is part of our drop-in fuels program, and that is one of the strong areas. And where we expect is to get to sort of cost competitiveness in about 10 years.

Mr. GRIFFITH. Cost competitiveness. Competitive with what?

Ms. HOGAN. With traditional fuels, gasoline

Mr. GRIFFITH. And we have been talking a lot about or there has been a lot of talk about electric cars, and of course, the question asked in my, in my part of the world is, how are you going to have all of these electric cars if you are not producing enough electricity and obviously a big part of our coal or part of our electricity is produced by coal.

Mr. Gruenspecht, did I get close on that?

Mr. GRUENSPECHT. Very close. Perfect.

Mr. GRIFFITH. All right. If we keep raising the cost of electricity, don't you think that will cause some concern or some diminution in the advantages of going to an electric car?

Mr. GRUENSPECHT. I think my understanding is that the cost of electricity once you have the electric vehicle is very attractive relative to the cost of gasoline or diesel. The question with the electric vehicle is the cost of the of the electric vehicle.

Mr. GRIFFITH. Right but part of the advantage of the electric vehicle is that once you start using it, you have lower costs but just today, a part of my district got notice that their electric bill was going to go up because of innovations made at a new coal-fired power plant, and of course, that is state-of-the-art, but there won't be any more of those built because we are going to shift the country away. And just yesterday we had a hearing where the president of—or CEO of Dominion Power indicated that one of the ways they

have been able to keep costs down for their customers is having a wide diversity of different ways to produce their electricity, and now coal is being taken away from them, away from them in that mix and they don't think that is going to work for the American consumers, and they believe electric costs are going to go up. And in fact, Kentucky utilities indicated 10 to 14 percent in our region is going to be an increase just based on new regulations from the EPA. So when you start raising the cost of that electricity up, you are really going to damage that value, are you not?

And I see my time is up, and I will yield back.

Mr. WHITFIELD. The chair recognizes the gentleman from Colorado, Mr. Gardner, for 5 minutes.

Mr. GARDNER. Thank you, Mr. Chairman.

And thank you to the witnesses for your time and participation in today's hearing.

Dr. Hogan, I will start with you. As the Deputy Assistant Secretary for Energy Efficiency, what does that entail? Just a brief one-sentence job description.

Ms. HOGAN. Just overseeing our energy efficiency R&D and deployment portfolio.

Mr. GARDNER. And when you research study energy efficiency projects what do you take into account, aside from the energy efficiency aspect itself?

Ms. HOGAN. Certainly we are looking to find cost-effective opportunities to improve efficiency of our homes, our buildings, our transportation systems and our industry.

Mr. GARDNER. Do you take into account jobs that would be affected by the energy efficiency measures?

Ms. HOGAN. We are very interested in strategies that we can advance that will help build domestic jobs, jobs that cannot be exported overseas.

Mr. GARDNER. Do you take into account jobs that can be lost as a result of some of the measures that you are considering?

Ms. HOGAN. I think we try to look holistically at how to have a robust set of jobs in the energy efficiency field.

Mr. GARDNER. And obviously—my district in Colorado has a large agriculture base. It is the 11th largest agricultural district out of the 435 districts in Congress. A lot of the corn growers are very concerned about what is taking place around the country today. And I just got an email today from a farmer in Colorado who asked this question, and I will read the question to you; it says, a hearing talks about the EPA relaxing the ethanol mandate due to corn shortage. What are you hearing? And I know you have addressed this a couple of times. So is the EPA, do you have the statutory authority, are you considering relaxing the ethanol mandate due to the corn shortage?

Ms. HOGAN. I think I am going to share this one with my colleague.

Ms. OGE. I am EPA. We are hearing the rumors also. Clearly, there is concern that has been raised because of the drought, so we have been in discussions with our colleagues from the USDA. What we are hearing actually, although the yield, USDA has lowered the yield by 10 percent, there are more acres and more corn produced this year than was produced last year. And actually, this year, we

are going to have, based on the USDA data, the third highest of corn production in the record of the country.

Now, EISA, the Congress passed in 2007, provides an opportunity for companies that are regulated under this law, including State Governors, to petition EPA to waive the volume of the renewable fuel standards based on a lack of availability of renewable fuels and significant cost impacts to the region or the State. We have not seen any petitions today. If we receive a waiver, there is a process that the agency has, which is a 90-day process to put the waiver out for comments and potentially public hearing and will act accordingly.

Mr. GARDNER. So there is no consideration at this point?

Ms. OGE. Absolutely not.

Mr. GARDNER. And Dr. Gruenspecht, if I could ask you this question about hydraulic fracturing. Do you know what percentage of our energy production, oil and gas production, is developed or achieved through hydraulic fracturing?

Mr. GRUENSPECHT. Well, I know that we are producing—excuse me. I believe that we are producing more than a third of our natural gas now from shale gas. And I think all of that involves fracturing, and there may be some fracturing additionally in some of the oil production and some of the other gas production, so I imagine it is pretty significant.

Mr. GARDNER. Could you get back to me with specific numbers?

[The information follows:]

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Mr. Gardner: Question on hydraulic fracturing. Do you know the percentage of our energy production, oil and gas production, is developed or achieved thru hydraulic fracturing?

Mr. Gruenspecht: I know that we are producing more than a third of our natural gas now from shale gas. And I think all of that involves fracturing, and there may be some fracturing additionally in some of the oil production and some of the other gas production, so I image it is pretty significant.

Mr. Gardner: Could you get back to me with specific numbers.

EIA does not have any actual data on hydraulic fracturing by number of wells or production.

The NPC 2011 Prudent Development report (page 21; available at www.npc.org) cites, "Up to 95% of wells drilled today are hydraulically fractured, accounting for more than 43% of total US oil production and 67% of natural gas production." The estimates were derived using data from an IHS Global Insights report, Measuring the Economic and Energy Impacts of Proposals to Regulate Hydraulic Fracturing, 2009, and EIA's natural gas and oil production data, December 2010 and July 2011 (both cited in footnotes on the same page).

IHS examined service company records to determine the prevalence of hydraulic fracturing (HF) by region and resource type (shown in the report Appendences). Within the NPC study, this information was coupled with EIA data to develop a frame of reference for US energy supply.

Mr. GARDNER. You have one for the natural gas, and then on the oil side, I would be interested as well because there is a lot of fracturing, hydraulic fracturing occurring in my district, including oil and gas development. One-third of natural gas. Could you also quantify the impact if hydraulic fracturing were to be restricted? Do you know the number off the top of your head what that would mean?

Mr. GRUENSPECHT. I don't know off the top of my head but I will try to do that.

Mr. GARDNER. Could you get back to us?

Mr. GRUENSPECHT. Yes.

[The information follows:]

COMMITTEE: HOUSE ENERGY AND COMMERCE SUBCOMMITTEE ON ENERGY AND POWER

DATE: July 17, 2012

WITNESS: HOWARD GRUENSPECHT

PAGE: 80, LINE: 1-9

INSERT FOR THE RECORD

Mr. Gardner: You have one for natural gas, and then on the oil side, I would be interested as well because there is a lot of fracturing, hydraulic fracturing occurring in my district, including oil and gas development one third of natural gas. Could you also quantify the impact if hydraulic fracturing were to be restricted: Do you know the number off the top of your head what that would mean?

Mr. Gruenspecht: I don't know off the top of my head but I will try to do that.

Mr. Gardner: Could you get back to us:

EIA does not have any actual data on hydraulic fracturing by number of wells or production.

The NPC 2011 Prudent Development report (page 21; available at www.npc.org) cites, "Up to 95% of wells drilled today are hydraulically fractured, accounting for more than 43% of total US oil production and 67% of natural gas production." The estimates were derived using data from an IHS Global Insights report, Measuring the Economic and Energy Impacts of Proposals to Regulate Hydraulic Fracturing, 2009, and EIA's natural gas and oil production data, December 2010 and July 2011 (both cited in footnotes on the same page).

IHS examined service company records to determine the prevalence of hydraulic fracturing (HF) by region and resource type (shown in the report Appendences). Within the NPC study, this information was coupled with EIA data to develop a frame of reference for US energy supply.

Mr. GARDNER. I yield back my time.

Mr. WHITFIELD. The gentleman yields back the balance of his time.

There are no further members for questions, so that will conclude today's hearing.

Once again, we thank you. We appreciate you all being with us, we appreciate your testimony. And during the question and answer, there was some commitment on your part to provide some additional information, which we would appreciate. And we will keep the record open for a period of 10 days for any other material that might be inserted.

And with that, we will conclude today's hearing. Thank you very much.

[Whereupon, at 5:02 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

Department of Energy
Washington, DC 20585
August 30, 2012

The Honorable Ed Whitfield
Chairman, Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Whitfield:

Thank you for the opportunity to appear before the Subcommittee on July 17, 2012. The questions for the record received on August 10, 2012 from Rep. Pete Olson address policy matters. As the statistical and analytical agency within the U.S. Department of Energy (DOE), the Energy Information Administration does not offer views on merits of policy proposals. However, as the question was also sent to another DOE witness at the hearing, the Subcommittee can expect a response from elsewhere within the Department.

Sincerely,

Howard K. Gruenspecht
Deputy Administrator
U.S. Energy Information Administration

Enclosure

cc: The Honorable Bobby L. Rush
Ranking Member

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The Honorable Pete Olson

1. Given the abundance of viable fuel sources, has any consideration been given to moving away from the gallon mandate and moving toward an emission reduction level that would be would at least equal and maybe even exceed that achieved if ethanol was the only fuel, but at the same time help reduce dependence on imported oil?

   a. If no consideration has been given, do you think there is merit to do so?

   b. If government's role is not to pick winners or losers, but to reach the 36 billion gallon mandate, shouldn't we also consider other fuels that are abundant - especially if these fuels, such as the conversion of natural gas into CNG/LNG, are as efficient and will reduce emissions as much as ethanol?

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 14 2012

OFFICE OF CONGRESSIONAL AND
INTERGOVERNMENTAL RELATIONS

The Honorable Ed Whitfield
Chairman
Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Whitfield:

Thank you for your letter of August 10, 2012, to Margo Oge requesting responses to Questions for the Record following the July 17, 2012, hearing before the Subcommittee on Energy and Power entitled, "The American Energy Initiative."

The responses to the questions are provided as an enclosure to this letter. If you have any further questions, please contact me, or you staff may contact Josh Lewis in EPA's Office of Congressional and Intergovernmental Relations at (202) 564-2095.

Sincerely,

Laura Vaught
Deputy Associate Administrator
for Congressional Affairs

Enclosure

cc: The Honorable Bobby L. Rush
Ranking Member

Enclosure

Energy and Power Subcommittee Hearing
July 17, 2012
Follow-Up Questions for Written Submission

The Honorable John Sullivan

1. **My question concerns efforts to advance the use of aftermarket conversion systems for alternative fuel vehicles. I understand that last year the EPA took steps to amend its rules to streamline the regulatory process for gaining approval of such systems. I'm told that these changes are helping and that today more alternative fuel systems are available as a result of the changes. However, I'm also told that similar regulations have not been adopted by the California Air Resources Board and that its rules affecting alternative fuel conversions continue to be quite cumbersome. The problem as I understand it is compounded by the fact that CARB's regulations affect not only aftermarket sales in that state but also the sale of alternative fuel systems in some of the states that have adopted the California car rules. Could you please address what efforts, if any, your agency has undertaken to resolve the discrepancy between it regulations affecting alternative fuel systems and those of California's? Also could you please tell us whether California officials are required by the Clean Air Act to request a waiver to go forward with regulations affecting aftermarket systems, and whether or not it has requested such a waiver? Has it requested a waiver to continue with its regulations even though EPA has since streamlined it rules?**

Response
In April 2011 the EPA amended its regulations to simplify the compliance process for clean alternative fuel converters. The changes were designed to give converters new options and flexibility, while maintaining environmental controls. The EPA has listed more than 300 new EPA-compliant conversion systems in the 18 months since the new regulations took effect, and feedback from industry, states, and other stakeholders suggests that the new approach has been well received.

The preemption of state regulation under section 209(b) of the Clean Air Act (and the related exception enabling California to seek a waiver from preemption) applies to the "control of emissions from *new* motor vehicles or *new* motor vehicle engines [emphasis added]." Thus California regulations pertaining to aftermarket activity, including conversions, fall outside the scope of that preemption. California has not requested and the EPA has not granted a specific waiver for the alternative fuels conversions regulations applicable to California converters. The EPA is reviewing the possible implications of California's conversion regulations and maintains an ongoing technical dialogue with California about practical matters surrounding clean alternative fuel conversions.

2. **Could you please comment on how you think the upcoming light duty rules - 2017-2025 -will impact the market for alternative fuel vehicles? I am specifically interested in what challenges and opportunities exist in these rules for alternative fuel vehicles. And are there things we could be doing sooner to advance the use of alternative fuel vehicles, either in terms of regulatory incentives or helping to overcome regulatory barriers?**

Response
We anticipate the greenhouse gas (GHG) emissions standards for model years 2017-2025, which were recently signed on August 28, 2012, will be a positive development for alternative fuel vehicles. While the new GHG standards do not mandate alternative fuel vehicles (or any technology, for that matter), they offer incentives for automakers to consider alternative fuel vehicles. Take, for example, the vehicle tailpipe carbon dioxide (CO_2) standard. Vehicles operating on alternative fuels such as natural gas, ethanol, and electricity generally have lower tailpipe CO_2 emissions relative to comparable gasoline vehicles, and therefore represent promising compliance pathways for automakers. Other things being equal, a vehicle operating on natural gas typically emits about 20 percent lower tailpipe CO_2 emissions, and a vehicle operating on ethanol about 5 percent lower, than comparable gasoline vehicles. Of course, a vehicle operating on grid electricity emits zero tailpipe CO2 emissions

In order to incentivize the development and commercialization of new advanced technologies, the new GHG emissions standards provide a temporary "multiplier" for model years 2017-2021 that allow certain alternative fuel vehicles to count as more than one vehicle in automaker compliance calculations. Natural gas and plug-in hybrid electric vehicles have a multiplier of 1.6 in 2017, phasing down to 1.3 in 2021, and electric and fuel cell vehicles have a multiplier of 2.0 in 2017, phasing down to 1.5 in 2021.

One other incentive opportunity provided under the new GHG emissions standards is an extra tailpipe CO_2 emissions credit for those technologies that reduce CO_2 emissions from full-size pickup trucks. Alternative fuels are eligible for this incentive, and some automakers are considering full-size pickup trucks that operate on natural gas.

The Honorable Pete Olson

1. **Given the abundance of viable fuel sources, has any consideration been given to moving away from the gallon mandate and moving toward an emission reduction level that would be would at least equal and maybe even exceed that achieved if ethanol was the only fuel, but at the same time help reduce dependence on imported oil?**

   a. If no consideration has been given, do you think there is merit to do so?

   b. If government's role is not to pick winners or losers, but to reach the 36 billion gallon mandate, shouldn't we also consider other fuels that are abundant - especially if these fuels, such as the conversion of natural gas into CNG/LNG, are as efficient and will reduce emissions as much as ethanol?

Response
The EPA's current focus is on implementing the Renewable Fuel Standard (RFS) program, which was modified by the Energy Independence and Security Act of 2007. Though the RFS program does contain volumetric mandates, the program is neutral with respect to the type or form of renewable fuel used to meet the mandate, as long as the fuels meet the required greenhouse gas (GHG) performance standards and certain other regulatory requirements. As a result, in addition to ethanol and biodiesel, bio-butanol, bio-jet, biogas, bio-electricity, renewable diesel, renewable gasoline, and various other fuels all either currently qualify or are under consideration for qualification under the RFS.

With respect to broadening the program even further to include non-renewable alternative fuels that may also help reduce GHG emissions, the EPA's ability to qualify or consider transportation fuels under the RFS program is limited by relevant provisions of the Clean Air Act, as amended by EISA. The statute defines renewable fuel as fuel produced from renewable biomass. Renewable biomass is further defined in the statute, but as the term does not include natural gas, EPA is therefore unable to consider it as part of the RFS program. Programs that allow for the inclusion of non-renewable alternative fuels have been pursued at the State level, in particular in California. Through its Low Carbon Fuel Standard (LCFS) program, California adopted an approach that is intended to lower greenhouse gas (GHG) emissions and foster alternatives to petroleum-based fuels.

FRED UPTON, MICHIGAN
CHAIRMAN

HENRY A. WAXMAN, CALIFORNIA
RANKING MEMBER

ONE HUNDRED TWELFTH CONGRESS

Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515–6115

Majority (202) 225-2927
Minority (202) 225-3641

August 10, 2012

The Honorable Dr. Kathleen Hogan
Deputy Assistant Secretary for Energy Efficiency
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Dr. Hogan:

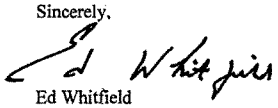
Thank you for appearing before the Subcommittee on Energy and Power on Tuesday, July 17, 2012, to testify at the hearing entitled "The American Energy Initiative." This day of the hearing focused on Federal government perspectives regarding alternative fuels and vehicles.

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for 10 business days to permit Members to submit additional questions to witnesses, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and then (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please email your responses, in Word or PDF format, to Allison.Busbee@mail.house.gov by the close of business on Friday, August 24, 2012.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



Ed Whitfield
Chairman
Subcommittee on Energy and Power

cc: Bobby L. Rush Ranking Member, Subcommittee on Energy and Power

Attachment

QUESTION FROM CONGRESSMAN PETE OLSON

Q1. Given the abundance of viable fuel sources, has any consideration been given to moving away from the gallon mandate and moving toward an emission reduction level that would be would at least equal and maybe even exceed that achieved if ethanol was the only fuel, but at the same time help reduce dependence on imported oil?

a. If no consideration has been given, do you think there is merit to do so?

A1a. The Renewable Fuel Standard (RFS), established under the Energy Policy Act of 2005 (EPACT) and amended under the Energy Independence and Security Act of 2007 (EISA), sets aggressive goals for the use of renewable fuels. The RFS sets a goal for the use of 36 billion gallons of renewable fuels by 2022, of which 21 billion gallons will be advanced biofuels. Advanced biofuels are defined in the statute as renewable fuels, other than ethanol derived from corn starch, that reduce life-cycle GHG emissions by at least 50% compared to petroleum-based fuels. It is important to point out that the RFS does not set specific volume requirements for the use of ethanol; rather, it sets volume requirements for the use of qualifying renewable fuels, which in addition to ethanol, also include biodiesel, renewable diesel, and other hydrocarbon fuels that can be produced from algae, oil crops, and lignocellulosic material derived from agricultural waste, energy crops, and other types of biomass.

The EERE Biomass Program has not undertaken a specific analysis of an alternative fuel standard based solely on GHG emission reductions, rather than on the source of the biofuel, nor taken a policy position on the merits of such an approach.

QUESTION FROM CONGRESSMAN PETE OLSON

Q1. Given the abundance of viable fuel sources, has any consideration been given to moving away from the gallon mandate and moving toward an emission reduction level that would be would at least equal and maybe even exceed that achieved if ethanol was the only fuel, but at the same time help reduce dependence on imported oil?

b. If government's role is not to pick winners and losers, but to reach the 36 billion gallon mandate, shouldn't we also consider other fuels that are abundant – especially if these fuels, such as the conversion of natural gas into CNG/LNG, are as efficient and will reduce emissions as much as ethanol?

A1b. The Department agrees that a portfolio approach is important to reducing our dependence on oil and reducing carbon and other pollutant emissions. In addition to biofuels, it is investing in a wide variety of alternative fuel and advanced technologies to improve efficiency, including advanced combustion, electric drive, light-weight materials, hydrogen and fuel cells, and natural gas. The Department is also investing in the development of advanced lubricants and energy efficient tires, as well as idle reduction and other petroleum reduction strategies.

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