

ENERGY TAX POLICY AND TAX REFORM

JOINT HEARING
BEFORE THE
SUBCOMMITTEE ON SELECT REVENUE MEASURES
AND
SUBCOMMITTEE ON OVERSIGHT
OF THE
COMMITTEE ON WAYS AND MEANS
U.S. HOUSE OF REPRESENTATIVES
ONE HUNDRED TWELFTH CONGRESS
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ENERGY TAX POLICY AND TAX REFORM

THURSDAY, SEPTEMBER 22, 2011

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON WAYS AND MEANS,
SUBCOMMITTEE ON SELECT REVENUE MEASURES,
SUBCOMMITTEE ON OVERSIGHT
Washington, DC.

The subcommittees met, pursuant to notice, at 9:34 a.m., in Room 1100, Longworth House Office Building, the Honorable Patrick Tiberi [chairman of the Subcommittee on Select Revenue Measures] presiding.

[The advisory of the hearing follows:]

HEARING ADVISORY

FROM THE COMMITTEE ON WAYS AND MEANS

Chairman Tiberi and Chairman Boustany Announce Joint Hearing on Energy Tax Policy and Tax Reform

September 22, 2011

Congressman Pat Tiberi (R-OH), Chairman of the Subcommittee on Select Revenue Measures, and Congressman Charles Boustany (R-LA), Chairman of the Subcommittee on Oversight, both of the Committee on Ways and Means, today announced that the two Subcommittees will hold a joint hearing on the intersection of energy policy and tax policy, with a focus on the dual priorities of comprehensive tax reform and a sustainable energy policy that addresses our economic, security, and environmental needs. **The hearing will take place on Thursday, September 22, 2011, in Room 1100 of the Longworth House Office Building at 9:30 A.M.**

The hearing was originally scheduled for 10:00 A.M. on Wednesday, August 3, 2011, in Room 1100 of the Longworth House Office Building, but was postponed.

In view of the limited time available to hear witnesses, oral testimony at this hearing will be from invited witnesses only. However, any individual or organization not scheduled for an oral appearance may submit a written statement for consideration by the Committee and for inclusion in the printed record of the hearing. A list of invited witnesses will follow.

BACKGROUND:

As part of the Ways and Means Committee's tax reform agenda, the Committee and its Subcommittees intend to hold hearings on how comprehensive tax reform would affect particular sectors of the economy. Given the critical economic, security, and environmental considerations surrounding the energy sector, Chairman Camp requested that Chairmen Tiberi and Boustany begin with an inquiry into energy tax policy. The current Tax Code includes numerous provisions intended to advance various energy policy goals, including provisions dealing with production, efficiency, and conservation, and ranging from transportation fuels to electricity generation.

There are three general views regarding energy tax policy. Some believe that many of these energy tax provisions are an effective and efficient way to advance important public policy goals. Others suggest that the current structure of energy tax incentives picks winners and losers, rather than applying technology-neutral tests that would encourage investment in the most promising technologies. Still others believe that the Tax Code should not subsidize energy at all, because doing so interferes with the free market and violates tax reform principles such as simplicity, fairness, and economic growth.

The American Recovery and Reinvestment Act of 2009 (P.L. 111-5) included several provisions intended to promote so-called "green" energy. Among these were the Nonbusiness Energy Property Credit, the Residential Energy Efficient Property Credit, and various Plug-in Electric and Alternative Motor Vehicle Credits. The Treasury Inspector General for Tax Administration (TIGTA) subsequently reviewed IRS's effectiveness in identifying and preventing erroneous claims for these credits during the 2010 tax return filing season. TIGTA issued two reports on its findings, which included millions of dollars in erroneously claimed credits and a lax review process that resulted in credits successfully claimed by children, prisoners, and others who did not qualify.

On April 6, 2011, Rep. John Sullivan (R-OK) introduced H.R. 1380, the New Alternative Transportation to Give Americans Solutions (NAT GAS) Act of 2011. The bill currently has 184 bipartisan cosponsors, although a number of Members of Congress have removed their names as cosponsors. Referred primarily to the Ways and Means Committee, H.R. 1380 includes tax credits related to compressed and liquefied natural gas (CNG and LNG), including credits for the fuels themselves, credits for the purchase and production of vehicles powered by CNG and LNG, and credits for refueling property related to CNG and LNG. Whether such credits represent good energy policy or an intrusion into the free market has been the subject of vigorous debate.

In announcing the hearing, Chairman Tiberi said, **“Energy security and comprehensive tax reform are two of the most important priorities we can pursue to create jobs and ensure the long-term strength of the U.S. economy. As the committee with jurisdiction over energy tax policy, the Ways and Means Committee should examine whether there sometimes can be tension between these priorities, and how this Committee can design tax policies that achieve our energy security goals while also staying true to the principles of simplicity, fairness, and growth that drive the Committee’s tax reform agenda.”**

Chairman Boustany said, **“With so much of our energy policy driven by the Tax Code, comprehensive tax reform needs to consider whether these tax incentives promote a sound energy strategy. This hearing will examine how IRS implements and enforces rules on energy credits, and it will explore the role of the Tax Code in energy policy.”**

FOCUS OF THE HEARING:

The hearing will focus on the questions of whether energy policy should be conducted through the Tax Code, and if so, how best to design provisions that advance the principles of both sustainable energy policy and tax reform. In asking these questions, the hearing will conduct oversight of the administration of certain existing energy tax provisions to determine whether they have been implemented efficiently and effectively. It also will consider how the specific case of H.R. 1380, the NAT GAS Act, stacks up against the principles of tax reform and sustainable energy policy.

DETAILS FOR SUBMISSION OF WRITTEN COMMENTS:

Please Note: Any person(s) and/or organization(s) wishing to submit written comments for the hearing record must follow the appropriate link on the hearing page of the Committee website and complete the informational forms. From the Committee homepage, <http://waysandmeans.house.gov>, select “Hearings.” Select the hearing for which you would like to submit, and click on the link entitled, “Click here to provide a submission for the record.” Once you have followed the online instructions, submit all requested information. ATTACH your submission as a Word document, in compliance with the formatting requirements listed below, **by the close of business on Thursday, October 6, 2011**. Finally, please note that due to the change in House mail policy, the U.S. Capitol Police will refuse sealed-package deliveries to all House Office Buildings. For questions, or if you encounter technical problems, please call (202) 225-3625 or (202) 225-2610.

FORMATTING REQUIREMENTS:

The Committee relies on electronic submissions for printing the official hearing record. As always, submissions will be included in the record according to the discretion of the Committee. The Committee will not alter the content of your submission, but we reserve the right to format it according to our guidelines. Any submission provided to the Committee by a witness, any supplementary materials submitted for the printed record, and any written comments in response to a request for written comments must conform to the guidelines listed below. Any submission or supplementary item not in compliance with these guidelines will not be printed, but will be maintained in the Committee files for review and use by the Committee.

1. All submissions and supplementary materials must be provided in Word format and MUST NOT exceed a total of 10 pages, including attachments. Witnesses and submitters are advised that the Committee relies on electronic submissions for printing the official hearing record.

2. Copies of whole documents submitted as exhibit material will not be accepted for printing. Instead, exhibit material should be referenced and quoted or paraphrased. All exhibit material not meeting these specifications will be maintained in the Committee files for review and use by the Committee.

3. All submissions must include a list of all clients, persons and/or organizations on whose behalf the witness appears. A supplemental sheet must accompany each submission listing the name, company, address, telephone, and fax numbers of each witness.

The Committee seeks to make its facilities accessible to persons with disabilities. If you are in need of special accommodations, please call 202-225-1721 or 202-226-3411 TTD/TTY in advance of the event (four business days notice is requested). Questions with regard to special accommodation needs in general (including availability of Committee materials in alternative formats) may be directed to the Committee as noted above.

Note: All Committee advisories and news releases are available on the World Wide Web at <http://www.waysandmeans.house.gov/>.

Chairman TIBERI. The hearing will come to order, a series of hearings on comprehensive tax reform. Today we will begin an examination of the energy tax policy and tax reform. I am glad this hearing will be a joint effort between the Select Revenue Measures Subcommittee and the Oversight Subcommittee. Both subcommittees play an important role in reviewing energy tax issues, the Oversight Subcommittee by examining the IRS's administration of existing energy tax provisions, and the Select Revenue Measures Subcommittee by examining energy tax policies.

Today's hearing will feature three panels of witnesses. The first panel will examine the IRS's administration of so-called energy green tax credits included in the American Recovery and Reinvestment Act of 2009. The second panel will examine different viewpoints on the proper role of the Tax Code in promoting energy policies. And finally, the third panel will examine H.R. 1380, the New Alternative Transportation to Give Americans Solution Act of 2011, introduced by Representative John Sullivan of Oklahoma, and fellow member of the Select Revenue Subcommittee, Representative John Larson of Connecticut.

I look forward to hearing from all three panels, so I will be brief and now yield to the ranking member of Select Revenue, Mr. Neal.

Mr. NEAL. Thank you, Mr. Chairman, and thank you for conducting this hearing.

Some may be surprised by how much the United States Government spends on energy policy through our Tax Code. According to the Energy Information Administration, for 2010 the value of direct federal financial interventions and subsidies in energy markets was estimated at about \$37 billion. Of this total, about \$16 billion, or approximately 44 percent, can be attributed to tax incentives.

In calling this hearing today, the chairman is raising an important point that warrants consideration: Should we be pursuing energy policy through the Tax Code? And if so, how do we do so in the most effective manner?

Over the years, Congress has enacted a number of energy tax incentives that have been quite successful. For example, the Recovery

Act included the 48[¢] clean energy manufacturing tax credit, providing a 30 percent credit for investments in facilities that manufacture clean energy products. According to the Department of Energy, the \$2.3 billion allocation of tax credits will result in more than 17,000 jobs. This investment will be matched by as much as \$5.4 billion in private sector funding, likely supporting up to 41,000 additional jobs.

On the other hand, when I read in late July that the largest oil companies reported another quarter of profitability, with one company reporting a 97 percent increase in profits, I had to once again question whether some profitable companies really need taxpayer subsidies. We spent about \$2 billion each year on subsidies for the largest oil companies. In this time of record deficits, do we really see this as a smart investment by the government?

In focusing on oil production today, an interesting point to note is the emerging oil boom right here in the Americas. From Brazil to Argentina to Canada, even North Dakota, the Western Hemisphere is seeing an increase in oil discovery and production. This is a significant development that may ease our country's dependence on Middle Eastern oil.

So, I am glad we are having this conversation—and I emphasize the word “conversation.” Congress once worked upon the basis of a conversation—examining our energy tax provisions. And I look forward to the testimony of all our witnesses today.

But I am also particularly pleased that we will be joined by one of my constituents, Hank Ziomek, who is the director of sales at Titeflex company in Springfield, a terrific success story. And Hank will be discussing how this formerly old-line manufacturer has benefitted from and become more dependent on growth of the natural gas vehicle market.

Thanks, Mr. Chairman.

Chairman TIBERI. Thank you, Mr. Neal. I am going to yield now to my good friend, the chairman of the Oversight Committee, Dr. Charles Boustany, for an opening statement.

Chairman BOUSTANY. Thank you, Chairman Tiberi, for holding this hearing. I would also like to welcome everybody to this morning's hearing on energy tax policy and administration.

Let there be no doubt. This country lacks a comprehensive energy strategy to achieve energy security and create good-paying American jobs.

Louisianans know natural gas will be an important part of our transition to new fuel sources for the 21st century. In addition to natural gas, we must ensure that traditional energy sources are affordable, and innovative technologies are allowed to flourish. Yet the Administration continues to advocate for job-killing tax hikes on American energy producers. And these tax hikes will hit small, independent oil and gas companies, hurting job growth in this country, and really hurting our energy security.

At today's hearing, we will consider the role of the Tax Code in our country's energy policy, as well as IRS's effectiveness in implementing existing tax incentives. In recent years, Congress has sought to promote the development and use of renewable energy by offering tax credits to businesses and individuals. Whether tax credits are an effective way of pursuing this policy, and whether

the Tax Code is the appropriate way to do so are questions up for debate. And that's why we're having this conversation.

Critics have argued that incentives included in the Recovery Act, such as the non-business energy property credit, the residential energy efficient property credit, and numerous plug-in, electric, and alternative motor vehicle credits have not only failed to stimulate the use of alternative energy, but have also become a target of fraudulent claims, leading to billions of dollars a year in improperly claimed credits.

There is the case of the residential energy efficient property credit meant to promote energy-saving home improvements. And the Treasury inspector general for tax administration found that hundreds of thousands of dollars of the credit went to prisoners and children, and nearly a third went to individuals with no proof of home ownership. The IRS was unable to verify whether tax payers that claimed these credits were indeed eligible to receive the credits, costing taxpayers hundreds of millions of dollars in 2009 alone.

Plug-in, electric, and alternative motor vehicle credits have similarly suffered from poor administration and fraud. According to a recent report, although these credits were intended to promote the purchase of hybrid and electric vehicles, a lax eligibility review resulted in millions of improper payments.

For instance, even though the credit only applied to new vehicles, IRS allowed credits when returns listed years such as 1991, 1979, and, strangely enough, the year 1300. And they even allowed plug-in and hybrid credits for vehicles such as Cadillac Escalade, Hummer H-3, and the Harley Classic. One taxpayer successfully claimed a bicycle.

Given these problems, this morning's hearing will examine whether these credits have served their intended energy policy goals, or whether these goals have been overshadowed by waste, fraud, and abuse of these credits. Further, it is our duty to ask the IRS what is it doing to detect these fraudulent claims, to ensure that taxpayer dollars spent on economic recovery are safeguarded from abuse. I look forward to hearing testimony today to help us craft responsible energy policy to unleash America's energy potential.

Thank you, Mr. Chairman, I yield back.

Chairman TIBERI. Thank you. I now yield to the ranking member of the Oversight Committee, my friend from Georgia, Mr. Lewis.

Mr. LEWIS. Well, thank you very much. I want to thank you, Chairman Tiberi and Chairman Boustany, for holding this hearing. Energy tax policy is an important topic as we work toward a greener America and the creation of jobs in the United States.

I am pleased that we will start this hearing by reviewing the administration of energy tax credits. In this context, it is important that we discuss the proper funding of the Internal Revenue Service. We need to examine whether the agency has the resources it needs to ensure compliance with these provisions. Simply put, agency funding impacts tax administration.

The testimony clearly states that the agency has limited resources to examine claims after the credits have been paid. I have serious concern that the Republican plan to cut \$600 million from

the agency's budget will further damage its ability to administer energy and other tax credits.

The Republican budget will result in the furlough of over 4,000 employees. This furlough will harm administration and hurt the agency's ability to detect and fight fraud. This cut will also increase the deficit and widen the tax gap. The agency collects between \$4 and \$7 for every \$1 of funding. The Republicans' attempt to save \$600 million actually will cost taxpayers more than \$4 billion each year.

Any serious discussion of energy policy and tax reform must begin with fully funding the agency.

Investment in agency funding and tax incentives are critical to energy policy. They result in more choices for consumers and increased competition. Most importantly, they create jobs in the United States.

I want to thank the witnesses for being here today. I would like to extend a special welcome to the gentleman from the great city of Atlanta, Commissioner Byrd. Welcome. Thank you.

Chairman TIBERI. Thank you, Mr. Chairman. Before I introduce the witnesses for the first panel, I ask unanimous consent that all Members' written statements be included in the record.

[No response.]

Chairman TIBERI. Without objection, so ordered. We will now turn to our first panel of witnesses, and I welcome the Honorable Russell George, Treasury inspector general for tax administration. And I also welcome Mr. Richard Byrd, Jr., commissioner, wage and investment division, Internal Revenue Service. Thank you both for joining us today. You will have—you each have five minutes to present your testimony. And, obviously, your full written testimony will be submitted for the record.

General George, you can begin.

**STATEMENT OF J. RUSSELL GEORGE, INSPECTOR GENERAL,
TREASURY INSPECTOR GENERAL FOR TAX ADMINISTRATION,
WASHINGTON, D.C.**

Mr. GEORGE. Thank you, Chairman Tiberi. Good morning, Chairman Boustany, Ranking Member Lewis, Ranking Member Neal, Members of the Subcommittee. Thank you for the opportunity to testify on the Internal Revenue Service's administration of energy-related tax credits.

The Recovery Act of 2009 contained 20 provisions, applicable to individual taxpayers, including a number of tax credits and deductions. The energy and motor vehicle provisions of the Recovery Act were non-refundable credits and deductions.

The Plug-in Electric and Alternative Motor Vehicle Credits provide taxpayers with a credit for the purchase or conversion to motor vehicles that operate on clean, renewable energy sources. During the period of January 1st through July 24, 2010, approximately 69,000 individuals—who electronically filed tax returns—claimed \$164 million worth of those credits.

The Act provided two types of Residential Energy Credits to individuals to install energy efficient products in their principal residence, or install alternative energy equipment in their principal or secondary residences. Approximately 6.8 million individuals

claimed \$5.8 billion in Residential Energy Credits on their tax year 2009 returns.

The Qualified Motor Vehicle Deduction provided individuals with an additional deduction for State sales taxes and excise taxes on the purchase of certain motor vehicles for tax year 2009. Approximately 4.3 million individuals claimed \$7.2 billion in Qualified Motor Vehicle Deductions.

Our reviews of the effectiveness of IRS processes to identify and prevent wrongful claims for these energy-related credits and deductions identified erroneous claims for millions of dollars in these credits and deductions. It must be stressed that these claims could have been minimized if the IRS had taken the actions I am about to describe. Importantly, these changes would also help minimize erroneous claims for other tax credits as well.

First, the IRS must establish effective processes to verify eligibility for these credits at the time tax returns are processed. Second, it needs to design the tax forms used to claim the credits and deductions in such a way as to request key information that can be used to verify eligibility. And, third, the Service must use the data it already possesses to identify non-qualifying claims.

In January, we reported that for paper-filed returns with plug-in and alternative vehicle claims, the IRS did not establish processes to record data from tax forms for the credits. This prevented the IRS from accounting for these claims, and also identifying potentially false ones. Furthermore, we identified 12,920 individuals who electronically filed their tax returns and erroneously claimed \$33 million in Plug-in Electric and Alternative Motor Vehicle Credits.

The processes used by the IRS did not ensure the plug-in electric and alternative vehicles claimed met the requirements to receive the credit. There was information on these tax forms that the IRS could have used to identify and stop these credits at the time tax returns were processed. We recommended that the IRS develop procedures to disallow credits for vehicles with non-qualifying years; initiate actions to recover faulty credits; and either develop a coding system to identify vehicles, or require the Vehicle Identification Number on the forms used to claim these credits.

Concerning the Residential Energy Credits, we reported that the IRS could not verify whether individuals claiming these credits are entitled to the credit at the time their tax returns are processed. The form used to claim these credits does not request specific information that could be used to verify the requirements of the law.

Furthermore, using data the IRS already has, we identified 362 ineligible individuals who were allowed to wrongly claim over \$400,000 in Residential Energy Credits on their tax returns. These individuals were either prisoners, or were under the age needed to enter into a contract to purchase a residence. The IRS does not have a process in place to use its data to identify these cases. We recommended that the IRS revise the form used to claim Residential Energy Credits to request specific information supporting eligibility requirements; examine the returns of the 362 individuals who appear to be ineligible to claim it; and implement processes to identify and review returns filed by prisoners or underage individuals, to verify whether they qualify for the credit.

We also identified similar issues with the Qualified Motor Vehicle Deduction. This deduction expired on December 31, 2009, and has not been extended by law.

I am pleased to report that the IRS agreed to all of our recommendations.

Mr. Chairman, we at TIGTA appreciate the opportunity to assist you in your oversight of the IRS.

[The prepared statement of Mr. George follows:]

**HEARING BEFORE THE
COMMITTEE ON WAYS AND MEANS
SUBCOMMITTEES ON SELECT REVENUE MEASURES AND
OVERSIGHT**

United States House of Representatives

“Energy Tax Policy and Tax Reform”



**September 22, 2011
Washington, D.C.**

**Testimony of
The Honorable J. Russell George
Treasury Inspector General for Tax Administration**

TESTIMONY OF
THE HONORABLE J. RUSSELL GEORGE
TREASURY INSPECTOR GENERAL FOR TAX ADMINISTRATION
before the
COMMITTEE ON WAYS AND MEANS
SUBCOMMITTEES ON SELECT REVENUE MEASURES AND OVERSIGHT
United States House of Representatives

“Energy Tax Policy and Tax Reform”

September 22, 2011

Chairman Tiberi, Chairman Boustany, Ranking Member Neal, Ranking Member Lewis, and Members of the Subcommittees, I thank you for the opportunity to testify on the Internal Revenue Service’s (IRS) administration of energy-related tax credits.

The energy-related tax credits and deductions I address in this testimony are the ones that we have evaluated and reported on this year as part of our evaluation of the IRS’s administration of the tax provisions in the American Recovery and Reinvestment Act of 2009¹ (Recovery Act).

The Recovery Act contained 20 provisions which were applicable to individual taxpayers, including a number of tax credits and deductions. Some of the tax credits were refundable, such as the Making Work Pay Credit and the First-Time Homebuyer Credit, while others were nonrefundable. Refundable credits result in a payment from the government when the amount of the credit exceeds the taxpayers’ liability for tax. A nonrefundable credit can only be used to offset the tax liability and cannot result in a payment from the government for the amount of the credit that exceeds the liability for tax. Refundable credits are at higher risk for fraud and abuse because they result in a payment from the government. These payments can be substantial. For the First-Time Homebuyer Credit, the payment could be up to \$8,000. Nonetheless, all credits and deductions reduce tax liability and are subject to error and abuse.

The energy and motor vehicle provisions in the Recovery Act were nonrefundable credits and deductions to encourage individuals to purchase motor vehicles that operate on clean, renewable sources of energy; encourage the purchase of energy-efficient property for an individual’s principal residence that is designed to reduce heat loss during cold months or heat gain during warm months; encourage the

¹ Pub. L. No. 111-5, 123 Stat. 115 (2009).

purchase of renewable sources of energy for use in a home; and provide an additional deduction for State sales taxes and excise taxes for qualified new motor vehicle purchases.

The Plug-in Electric and Alternative Motor Vehicle Credits provide taxpayers with a credit for the purchase of or conversion to motor vehicles that operate on clean renewable sources of energy. The specific amount of this credit varies by the type of vehicle. Approximately 69,000 individuals who filed electronically claimed \$164 million in plug-in electric and alternative motor vehicle credits during the period January 1 through July 24, 2010.

The Nonbusiness Energy Property Credit allowed individuals to take a credit of 30 percent of the costs paid or incurred in Calendar Year 2009 for energy efficient products for their principal residence with a maximum total credit of \$1,500 for Tax Years 2009 and 2010. The Residential Energy Efficient Property Credit allows individuals to take a credit for investments in alternative energy equipment for their principal residence or secondary residence. This Credit generally equals 30 percent of qualifying alternative energy equipment costs with no dollar limit. Approximately 6.8 million individuals claimed \$5.8 billion in Residential Energy Credits on their Tax Year 2009 tax returns processed through December 31, 2010.

Furthermore, the Qualified Motor Vehicle Deduction provided individuals with an additional deduction for State sales taxes and excise taxes on the purchase of certain motor vehicles. For Tax Year 2009 only, individuals could deduct State sales taxes and excise taxes for qualified motor vehicle purchases after February 16, 2009, and before January 1, 2010. The amount of qualified taxes was limited to the first \$49,500 of the purchase price of the new vehicle. Individuals could take this deduction for more than one vehicle. For Tax Year 2009,² approximately 4.3 million individuals claimed \$7.2 billion in Qualified Motor Vehicle Deductions.

Once tax legislation is enacted, the IRS reviews the law to determine what actions it must take to correctly implement the law to ensure that legislated requirements will be satisfied. Actions the IRS takes in response to new legislation often include creating new tax forms, updating publications, revising internal operating procedures, and updating computer programs for processing tax returns.

Because credits and deductions have specific objectives and have a significant cost in terms of forgone tax revenue, it is important that the IRS have processes in place to help ensure that associated claims meet the criteria set forth in the law. The

² Through November 12, 2010

IRS uses certain methods to verify the accuracy and eligibility of tax benefits and credits claimed on tax returns. The validation process can occur before a tax return is processed and before funds have been released or after a tax return is processed and after funds have been released. Verifying the accuracy of claims and eligibility for tax deductions and credits before a tax return has been processed and prior to the release of funds is the most efficient and effective approach for the IRS to prevent erroneous or improper claims. These preventive identification efforts include the development of computer programs to detect errors. When errors are detected, the tax returns are rejected and sent back to the transmitter to be corrected. Once a tax return is received (if paper filed) or accepted (if electronically filed) by the IRS, selected information from the tax return is validated and/or verified by the IRS. If a tax return does not pass validation/verification, the tax return is forwarded to the IRS Error Resolution function to be manually reviewed and corrected.

After the IRS has processed a tax return and released funds, it has limited means by which it can validate the accuracy of tax benefits and credits previously claimed. One way the IRS can validate information on the return at this point is by matching third-party documents to information listed on the tax return. In addition, the IRS can perform an audit of the taxpayer's records by a correspondence audit, office audit, or field examination. During these audits, taxpayers are asked to provide the documentation necessary to verify a variety of selected issues that may include certain tax deductions and credits claimed on a tax return.

Our reviews of the effectiveness of IRS processes to identify and prevent erroneous claims for these energy-related credits and deductions identified erroneous claims for millions of dollars in energy credits and qualified motor vehicles deductions. These erroneous claims could have been minimized if the IRS had taken the following actions which would also help minimize erroneous claims for other credits as well:

- Establish effective processes to verify eligibility for these credits up front at the time tax returns are processed.
- Design the tax forms used to claim the credits and deductions to request key information that can be used to verify eligibility.
- Use the data the IRS already has to identify non-qualifying claims.

The President and the Congress announced their commitment to spending Recovery Act dollars with an unprecedented level of transparency and accountability. Five requirements were established for all agencies to follow in order to meet accountability objectives. One of these requirements is that agencies ensure Recovery Act funds are used for authorized purposes and take every step to prevent instances of

fraud, waste, and abuse. We believe that the IRS could have been better positioned to achieve these objectives and mitigate the risk of fraud, waste, and abuse.

A summary of the issues we identified and the associated recommendations that we have made follows. Overall, we made 16 recommendations to help the IRS improve its administration of the Recovery Act energy and motor vehicle credits for individual taxpayers. The IRS agreed to take action on all 16 of these recommendations. If the IRS follows through with these corrective actions, we believe they will be in a better position to administer such tax credits in the future.

Plug-in Electric and Alternative Motor Vehicle Credit – In January 2011, we reported that for paper-filed tax returns with Plug-in Electric and Alternative Motor Vehicle Credit claims, the IRS did not establish processes to record data from the taxpayers' forms into the IRS data files related to the Plug-in Electric Vehicle Credits claimed. As a result, the IRS is unable to track and account for Plug-in Electric Vehicle Credits claimed on paper-filed tax returns. This also prevented the IRS from identifying potentially erroneous claims.

As of July 24, 2010, we identified 12,920 individuals who electronically filed their tax returns and erroneously claimed \$33 million in Plug-in Electric and Alternative Motor Vehicle Credits. IRS processes did not ensure the plug-in electric and alternative motor vehicles claimed met the requirements for vehicle year, placed-in-service date, and make and model. Information was provided on the tax forms used to claim these credits which the IRS could have used to identify and stop these erroneous credits at the time tax returns were processed.

We recommended that the IRS develop procedures to disallow credits for vehicles with nonqualifying years; initiate actions to recover erroneous credits; and either develop a coding system to identify vehicle makes and models or require the Vehicle Identification Number on the forms used to claim Plug-in Electric and Alternative Motor Vehicle Credits. The IRS agreed with the recommendations and plans to update procedures to require a review of the make, model, and date vehicles were placed in service to ensure that credits are being claimed for qualifying vehicles. IRS management plans to add a new line on the forms used to claim the credits to require a Vehicle Identification Number and has requested that e-file software providers implement programming changes to allow taxpayers to select the make, model, and year of qualifying vehicles from a drop-down menu. The IRS also plans to recover erroneous claims by conducting audits.

Residential Energy Credits – In April 2011, we reported that the IRS cannot verify whether individuals claiming Residential Energy Credits are entitled to the credit at the time their tax returns are processed. The IRS does not require individuals to provide any third-party documentation supporting the purchase of qualifying home improvement products and/or costs associated with making energy efficiency improvements and whether these qualified purchases and/or improvements were made to their principal residence. The tax form used to claim these credits does not request specific information that could be used to verify that requirements were met.

We identified 362 ineligible individuals who were allowed to erroneously claim \$404,578 in Residential Energy Credits on their tax returns. These individuals were prisoners or were under the age needed to enter into a contract to purchase a residence. The IRS has data that could have been used to identify these erroneous credits at the time the tax return was processed; however, the IRS did not have a process in place for this.

We recommended that the IRS revise the tax form used to claim Residential Energy Credits to request specific information supporting key eligibility requirements; examine the tax returns of the 362 individuals who appeared to be ineligible to claim the credit; and implement processes to identify and review tax returns filed by prisoners or underage individuals to verify whether they qualify for the Residential Energy Credits claimed. IRS officials agreed to revise the tax form and develop processes to identify claims submitted by prisoners or underage individuals and agreed to review the returns of the individuals we identified and audit those returns if warranted.

Qualified Motor Vehicle Deduction – In April 2011, we reported that the IRS cannot verify whether individuals claiming a Qualified Motor Vehicle deduction are entitled to the credit at the time their tax returns are processed. Individuals do not have to provide third-party documentation to support that they actually purchased a qualified motor vehicle and the amount paid in sales and excise taxes.

The IRS implemented controls to identify and freeze refunds of individuals who claim a Qualified Motor Vehicle deduction in excess of a specific dollar amount. Once the freeze is applied, the tax return is sent to the Examination function for review to determine if the deduction is correct. Although the IRS recognized the potential for abuse, the process for identifying and working the potentially abusive deductions was not effective. During the period January 1 through November 12, 2010, we identified 4,257 individuals with more than \$150 million in deductions that met the IRS dollar amount criteria for identifying the deduction as potentially excessive. However, the refunds were not frozen and the tax returns were not sent for review.

In addition, for cases that were identified and sent to the Examination function, the IRS did not request or receive documentation to support the purchase of a qualified motor vehicle before closing these tax returns without reducing the deduction and associated tax refund. As a result, even individuals whose tax returns were examined by the IRS received more than \$73,418 in questionable tax refunds.

Our review of a judgmental sample of 120 of the 944 tax returns reviewed by the Examination function and closed with no reduction to the Qualified Motor Vehicle deduction identified that 53 (44 percent) of 120 tax returns were incorrectly closed without requesting and/or receiving documentation to support the purchase of a qualified motor vehicle. IRS management indicated that tax examiners did not follow the procedures when examining these tax returns.

Finally, we identified 473 cases for which information that the IRS maintains identifies these individuals as ineligible to claim about \$1 million in Qualified Motor Vehicle deductions they were allowed. These individuals were in prison, deceased, or under the age needed to enter into a contract to purchase a motor vehicle. The IRS did not develop procedures to identify these claims for further scrutiny.

The Qualified Motor Vehicle deduction expired on December 31, 2009, and has not been extended by law. If similar legislation is enacted in the future, the IRS should require individuals to provide enough information on their tax returns to support the vehicle deduction. For example, the IRS could require individuals to provide a vehicle identification number or the name and address of the dealer from which the vehicle was purchased. Requesting additional information could serve as a deterrent for those individuals who may intend to claim erroneous vehicle-related credits and/or deductions.

We recommended that the IRS review the excessive Qualified Motor Vehicle deduction claims we identified. In addition, the IRS should review all tax returns with an excessive deduction that met examination criteria but were closed without reducing the amount claimed to ensure tax examiners are taking the correct actions before closing cases. Finally, the IRS should review the tax returns of the 473 individuals who, based on IRS records, appear to be in prison, deceased, or underage to evaluate whether these individuals qualify for the deduction. The IRS agreed with all of the recommendations.

In conclusion, because the IRS has limited resources to examine questionable claims for credits and deductions after the fact, it needs to do a better job of putting processes in place to help verify claims during the processing of tax returns. This

includes designing tax forms to capture information that could be used to validate the claims; recording appropriate information from paper tax returns into its data systems; and using information it already has, such as information from third parties, to help validate eligibility.

Chairman Tiberi, Chairman Boustany, thank you for the opportunity to share my views. I hope my discussion helps the Congress to ensure accountability of the IRS and assists you with your oversight duties.

Chairman TIBERI. Thank you so much, General George.
Mr. Byrd, you may proceed with your testimony.

**STATEMENT OF RICHARD E. BYRD, JR., COMMISSIONER, WAGE
AND INVESTMENT DIVISION, INTERNAL REVENUE SERVICE,
WASHINGTON, D.C.**

Mr. BYRD. Thank you, and good morning. Chairman Tiberi, Ranking Member Neal, Chairman Boustany, and Ranking Member Lewis, my name is Richard Byrd, and I am Commissioner of the Wage and Investment Division at the Internal Revenue Service.

I appreciate the opportunity to testify before the subcommittees on the residential energy property tax credits and plug-in electric and alternative motor vehicle tax credits, and the ongoing efforts by the IRS to ensure proper administration of the laws relating to them.

The number of tax credits affecting individuals and businesses has grown in recent years. For example, the Recovery Act contained more than 50 tax provisions, including tax credits, which cover a broad spectrum of tax relief. However, it is important to note that the tax credits being discussed today are not refundable tax credits.

The residential energy property tax credits and the plug-in electric and alternative motor vehicle tax credits reduce, dollar for dollar, a person's tax liability. While such credits could not reduce a person's tax bill to less than zero, they can increase a taxpayer's refund if he or she paid too much in estimated tax, or had too much tax withheld over the year, as many people do.

In administering tax credits, the IRS must deliver the benefits that the legislation provides in the intended time frame, while ensuring that appropriate and prudent controls and filters are in place to minimize errors and fraud. This is not an either/or proposition. We must do both well.

During 2010, the residential energy property credit and the resident energy efficient property credit provided nearly \$6 billion to 6.7 million homeowners who weatherized their homes and made them more energy efficient. Both credits include multiple types of eligible expenditures with differing restrictions and unique criteria.

Over the same time period, 34,724 individual taxpayers took advantage of the plug-in vehicle tax credits for personal and business use, for a total of \$150 million, with each credit subject to different and complex eligibility requirements.

As with any new tax provision, we continually adapt our programs to improve the screening process as we gain experience with them. Over the course of administering these energy credits, a number of compliance concerns were identified. The IRS took quick action to correct these issues, and continues to make additional improvements for the future. We have put in place procedures to prevent taxpayers from receiving credits in excess of the limitations, and are revising forms to request more specific information. We have also worked with the software providers to better improve information related to these credits.

As part of our ongoing examination program, we are reviewing the energy credit claims, including returns of prisoners and underage taxpayers to ensure that their credit claims are proper. The IRS also continues to audit claims as we need to. The IRS continually assesses and evaluates present and emerging compliance risk across all taxpayer segments.

And as part of the IRS's ongoing research and its 2011 examination plan, we will review a sample of residential energy credit cases in a post-refund environment. Those that warrant examination will be selected for audit, and the results will be factored in to future examination plans.

In conclusion, tax credits such as the residential energy and plug-in vehicle tax credits play an important role in fulfilling congressional energy policies and intent, but are inherently subject to a number of administrative challenges. As with all aspects of tax administration, the IRS must determine the proper balance of taxpayer service and enforcement to ensure that the benefit is afforded only to those taxpayers who are eligible. We are committed to that goal.

That concludes my testimony. I would be happy to take your questions.

[The prepared statement of Mr. Byrd follows:]

**PREPARED TESTIMONY
OF
RICHARD E. BYRD JR.
COMMISSIONER
WAGE & INVESTMENT DIVISION
INTERNAL REVENUE SERVICE
JOINT HEARING BEFORE
THE HOUSE WAYS & MEANS
SUBCOMMITTEES ON SELECT REVENUE MEASURES and OVERSIGHT
ON
ENERGY TAX POLICY AND TAX REFORM
SEPTEMBER 22, 2011**

INTRODUCTION AND SUMMARY

Chairman Tiberi and Ranking Member Neal; Chairman Boustany and Ranking Member Lewis, my name is Richard Byrd and I am Commissioner of the Wage & Investment division at the Internal Revenue Service. I appreciate the opportunity to testify before the subcommittees on the residential energy property tax credits and plug-in electric and alternative motor vehicle tax credits and the ongoing efforts by the IRS to ensure proper administration of the laws relating to them.

The number of tax credits affecting individuals and businesses has grown in recent years. For example, the American Recovery and Reinvestment Act (ARRA or Recovery Act) contained more than 50 tax provisions, including tax credits, which cover a broad spectrum of tax relief, ranging from higher education to energy efficiency incentives. It is important to note that the tax credits being discussed today are not refundable tax credits.

The residential energy property tax credits and the plug-in electric and alternative motor vehicle tax credits have the potential to reduce dollar-for-dollar a person's tax liability. Such credits cannot reduce a person's tax bill to less than zero but they could increase a taxpayer's refund if he or she paid too much in estimated tax, or had too much tax withheld over the tax year – as many people do.

In administering tax credits, the IRS must deliver the benefits that the legislation provides in the intended time frame, while ensuring that appropriate and prudent controls and filters are in place to minimize errors and fraud. This is not an either/or proposition. We must do both well.

From the first day after ARRA was signed into law, the IRS worked quickly and effectively to ensure that taxpayers and businesses received, as soon as possible, the benefits of ARRA tax-related provisions while protecting against fraud. In addition to the energy credit discussed today, the IRS also implemented a wide variety of other tax provisions; quickly made procedural changes and modifications to numerous systems; and through December 2010, speeded delivery of an estimated \$260 billion in ARRA-related tax benefits to taxpayers.

The IRS also conducted a very successful filing season in 2010. The IRS processed 142 million individual tax returns and issued 109 million refunds totaling over \$328 billion, which is especially significant given the additional workload generated by the enactment of ARRA and the Worker Homeownership and Business Assistance Act of 2009.

To summarize, the IRS is running a balanced program for Recovery Act tax-related provisions. We have processed tax credit claims as quickly as possible while working to deter fraud. The IRS has stopped many questionable claims and audited others, while putting additional protections in place for future claims that may be made. The IRS seeks and continues to make improvements in this area.

SUMMARY OF CONSUMER ENERGY TAX CREDIT INCENTIVES

The American Recovery and Reinvestment Act provided incentives for individual taxpayers to invest in energy-efficient products. In many cases, ARRA extended consumer energy tax incentives originally introduced in the Energy Policy Act of 2005 and amended in the Emergency Economic Stabilization Act of 2008.

Residential Energy Property Credit (Section 1121). ARRA increased the energy tax credit for homeowners who made energy efficient improvements to their existing homes. The credit rate was increased to 30 percent of the cost of all qualifying improvements and raised the maximum credit limit to \$1,500 for improvements placed in service in 2009 and 2010.

The credit applied to improvements such as adding insulation, energy efficient exterior windows and energy-efficient heating and air conditioning systems to existing homes.

A similar credit was available for 2007, but was not available in 2008. The standards contained in ARRA for products that qualified as “energy efficient” for purposes of this tax credit were higher than those for the credit that was available in 2007. The new credit took effect after December 31, 2008 and the IRS issued guidance (Notice 2009-53) on June 1, 2009 that allowed manufacturers to certify that their products placed in service after February 17, 2009 met these new standards.

However, until guidance was released, homeowners could generally continue to rely on manufacturers’ certifications that were provided under the old guidance. For exterior windows and skylights, homeowners could continue to depend on “Energy Star” labels in determining whether property purchased before June 1, 2009 qualified for the tax credit.

Residential Energy Efficient Property Credit (Section 1122). This energy tax credit was intended to help individual taxpayers pay for qualified residential alternative energy equipment, such as solar hot water heaters and solar electric systems, geothermal heat pumps, small wind systems, residential fuel cells and “microturbine” system turbines. The new law removed some of the previously

imposed maximum amounts and allowed for a credit equal to 30 percent of the cost of qualified systems placed in service before December 31, 2016.

Plug-in Electric Drive Vehicle Credit (Section 1141). The Recovery Act modified the credit for qualified plug-in electric drive vehicles purchased after December 31, 2009. To qualify, vehicles must be newly purchased, have four or more wheels, have a gross vehicle weight rating of less than 14,000 pounds, and draw propulsion using a battery with at least four kilowatt hours that can be recharged from an external source of electricity. The minimum amount of the credit for qualified plug-in electric drive vehicles is \$2,500 and the credit tops out at \$7,500, depending on the battery capacity. The full amount of the credit will be reduced with respect to a manufacturer's vehicles after the manufacturer has sold at least 200,000 vehicles in the United States. The credit will then phase out over a year.

Plug-In Electric Vehicle Credit (Section 1142). ARRA also created a special tax credit for two types of plug-in vehicles: (1) certain low-speed electric vehicles; and (2) two- or three-wheeled vehicles. The amount of the credit is 10 percent of the cost of the vehicle, up to a maximum credit of \$2,500 for purchases made after February 17, 2009, and before January 1, 2012.

To qualify, a vehicle must be either a low-speed vehicle propelled by an electric motor that draws electricity from a battery with a capacity of 4 kilowatt hours or more, or be a two- or three-wheeled vehicle propelled by an electric motor that draws electricity from a battery with the capacity of 2.5 kilowatt hours or more. A taxpayer may not claim this credit if the plug-in electric drive vehicle credit is allowable.

Plug-In Hybrid Conversion Kits (Section 1143). In addition, ARRA provided a tax credit for plug-in electric drive conversion kits. The credit is equal to 10 percent of the cost of converting a vehicle to a qualified plug-in electric drive motor vehicle. Vehicles placed in service after February 17, 2009 are eligible for this credit, but the credit does not apply to conversions made after December 31, 2011. The maximum amount of the credit is \$4,000. A taxpayer may claim this credit even if the taxpayer claimed a hybrid vehicle credit for the same vehicle in an earlier year.

Treatment of Alternative Motor Vehicle Credit as a Personal Credit Allowed Against AMT (Section 1144). Starting in 2009, the Recovery Act allows the Alternative Motor Vehicle Credit, including the tax credit for purchasing hybrid vehicles, to be applied against the Alternative Minimum Tax (AMT). Prior to the new law, the Alternative Motor Vehicle Credit could not be used to offset the AMT. This means the credit could not be taken if a taxpayer owed AMT or was reduced for some taxpayers who did not owe AMT.

PROCESSING OF RETURNS WITH TAX CREDITS

The IRS takes very seriously the need to prevent erroneous and fraudulent claims for tax credits. To the extent possible, it is important to process returns in such a way that identifies problems at an early stage. Tax returns that contain claims for tax credits first go through standard processing procedures we have established for all returns, whether they are filed on paper or electronically. Returns with tax credit

claims are also subjected to various filters during return processing to identify potentially erroneous credits.

Our normal processing for all returns involves matching them with certain pieces of information. Returns are "rejected" and not allowed to enter the system for a number of reasons. For example, we reject over 1.7 million returns because an invalid or duplicate Social Security number was used.

If a return is accepted, it is sent to our Submission Processing Function. We next determine if math error issues exist. Math error authority under the Internal Revenue Code allows IRS to make adjustments to a return without performing an examination. Specific math error authority has been granted for the certain specific credits (e.g., the Earned Income Tax Credit and the First Time Homebuyer's Credit).

Math error authority is also available for tax provisions generally for errors in computation, use of incorrect Social Security numbers, claims for more than the statutory limit and several other enumerated items. If a math error issue is identified, an adjustment can be made immediately to the taxpayer's return, reducing potentially erroneous claims that could result in an erroneous refund. In appropriate cases, math error authority can help the IRS better administer tax credits and reduce erroneous refunds when it allows proactive/pre-refund corrections to erroneous or fraudulent claims. Absent math error authority, adjustments can only be made through an examination.

In some cases, requiring documentation from taxpayers and disallowing claims when such documentation is not provided is also an effective tool. However, this approach is most effective when the documentation can be verified using third-party data and the number of claimants is relatively small.

It is important to note that electronic filing is preferable because of its efficiency, accuracy and lower processing costs. Currently, requiring taxpayers to submit documentation forces them to submit a paper return that must be processed manually, thereby eliminating e-file's benefits. Thus, in requiring taxpayers to submit documentation, the IRS must recognize the additional burden this places on taxpayers and the IRS.

After being checked for math error issues, returns then go through the IRS' electronic fraud detection system (EFDS). This system is designed to identify schemes and patterns. If a return is flagged in EFDS, it is routed to a group of IRS employees to work during which time the full refund is frozen.

Returns are also sent through the IRS' Dependent Database Process (DDB). This process uses business rules and filters to select cases for examination. Third-party information (e.g., the Federal Case Registry) is used in making these selections. If a return is flagged in this process, the portion of the refund attributable to the flagged issue is frozen.

Later in the process, when information returns filed by third parties are available, matching of tax returns to that data is performed.

CHALLENGES RELATED TO ENFORCEMENT OF TAX CREDITS

As with refundable tax credits, there are a number of factors that present challenges to our compliance efforts related to tax credits generally. They include the following:

Complexity. Complexity in the rules governing eligibility for and the operation of certain tax credits creates challenges for both taxpayers and the IRS. Mistakes in the application of the law cause a significant portion of claims that are made in error. As previously discussed, each of the energy related credits has different eligibility requirements and timeframes over which they are available.

Lack of Third Party Data. The IRS may lack real-time third-party data sources that could be used to verify taxpayers' eligibility for tax credit, such as documentation of homeownership that would support the purchase of qualifying home improvement products to claim the tax credit. Requiring such documentation can be an inefficient process that to date has required taxpayers to file paper returns and compels the IRS to rely more heavily on examinations to detect errors and fraud.

Hard-to-Detect Fraud. The IRS must confront, on an ongoing basis, refund schemes involving erroneous claims. This includes claims made by or on behalf of prisoners and underage individuals. The IRS has developed systems that provide special scrutiny to review prisoner refunds. The situation involving prisoners is not a simple process, because some inmates and their families are legally entitled to tax credits and refunds, and because the prisoner population is constantly changing. Recent efforts to address the prisoner issues include outreach to the states with the highest prisoner fraud, entering into agreements with states and the Federal Bureau of Prisons so that the IRS can disclose information on prisoner fraud, and increasing the number of prisoner returns that will be reviewed. The Administration's 2012 Budget includes a proposal to require state and federal prisons to provide information to IRS.

Tax Law Changes. The IRS often faces extremely compressed timeframes for implementing a new tax credit law. Developing new compliance checks and changing IRS' computer processing systems to implement new checks and screens/filters in the middle of a filing season present unique and difficult challenges. Such compressed timeframes are unforgiving. They do not provide us adequate time to develop, program and implement a robust and effective compliance strategy.

Further, unanticipated implementation needs such as IT system changes, testing, form creation, and other requirements can necessitate resource reallocations that affect the performance of core tax administration programs. Early planning to identify potential problems and allocate sufficient resources, including personnel with the appropriate skills and experience is a critical factor in successfully implementing new legislative requirements.

ENERGY CREDIT IMPLEMENTATION ISSUES

During 2010 (2009 tax year), the Residential Energy Property Credit and the Residential Energy Efficient Property Credit, provided nearly \$6 billion to 6.7 million homeowners who weatherized their homes and made them more energy efficient. Both credits include multiple types of eligible expenditures with differing restrictions and unique criteria. During 2010 (2009 tax year), 34,724 individual taxpayers took advantage of the plug-in vehicle tax credits for personal and business use for a total of \$150 million with each credit subject to different and complex eligibility requirements.

As with any new tax provision, we continually adapt our programs to improve the screening process as we gain experience with them. Over the course of administering these energy credits, a number of compliance issues were identified. The IRS took quick action to correct issues and continues to make additional improvements for the future. We have put in place procedures to prevent taxpayers from receiving credits in excess of limitations and are revising forms to request more specific information. We have also worked with software providers to better improve information related to these credits.

As part of our ongoing examination program, we are reviewing energy credit claims.. The IRS also continues to audit claims as warranted. The IRS continually assesses and evaluates present and emerging compliance risks across all taxpayer segments. As part of the IRS' ongoing research efforts and its 2011 examination plan, we will review a sample of Residential Energy Credit cases in a post-refund environment. Those warranting examination will be selected for audit, and the results will be factored into future examination plans.

While recognizing that initially improvements could have been made, it is important to note, however, that potential erroneous claims represent only a very small fraction of ARRA tax relief – less than 0.02 percent of the \$260 billion in Recovery Act tax relief taxpayers received through December 2010. Nevertheless, the relative size of the problem does not diminish our commitment and dedication to take immediate action to put additional protections in place to stop improper vehicle payments. In addition, we are taking aggressive steps to recapture the credits people erroneously claimed.

CONCLUSION

Tax credits, such as the Residential Energy and Plug-In Vehicle tax credits, play an important role in fulfilling Congressional energy policies and intent, but are inherently subject to a number of administrative challenges. As with all aspects of tax administration, in the case of each tax credit, the IRS must determine the proper balance of taxpayer service and enforcement to ensure that benefit is afforded only to those taxpayers who are eligible. We are committed to that goal.

Mr. Chairman, this concludes my testimony. I appreciate the opportunity to testify about the IRS' efforts to ensure proper administration of the laws relating to the energy tax credits that are the subject of today's hearing.

Chairman TIBERI. Eight seconds to spare. Thank you, Commissioner, for your testimony today.

I am going to now yield to Dr. Boustany and Mr. Lewis for questions.

Dr. Boustany.

Chairman BOUSTANY. Thank you, Chairman Tiberi. Gentlemen, thank you for being here today, and for your testimony. And, Mr. Byrd, it is encouraging that steps are now being taken to remedy some of these problems. And I am certainly cognizant of the fact that a lot of complexity was added to the Tax Code in a very quick way, which makes your job very difficult. And as we work on policy, we clearly have to understand that this growing complexity in the Tax Code is a problem we have to address, because it certainly creates problems from the administrative standpoint, as well.

But, you know, as we have tried to conduct aggressive oversight over the course of this year, there has been a common theme running through many of our hearings. And whether the subject has been Medicare fraud, or earned income tax credit problems, energy tax credit fraud, we often have, as a government, have approached this sort of a pay-and-chase strategy for improper payments. And what concerns me is if that is where we are, what are we doing on the chase side? Are we actually recouping some of this money that was improperly paid out?

Mr. BYRD. Yes, sir. We have what we call a pre-refund strategy, where our goal is to block the bad refund before it goes out, and we've been very successful there.

And then, of course, we have a variety of tools if we subsequently determine that we sent the wrong amount out—we have what we call a post-refund strategy, and there are a number of things that we can do. The most successful tool we have, of course, is examination. We communicate and/or meet with the taxpayer, and allow them to share with us their documentation to support their claim.

Chairman BOUSTANY. General George, are you satisfied that the IRS has followed the recommendations that you all have made?

Mr. GEORGE. I am satisfied that they are committed to doing so. But have they done so completely? Not yet. I don't disagree at all with what Mr. Byrd stated, but what he neglected to point out is that once the money is out the door, it is extraordinarily expensive and difficult to recoup it.

And so, if they could do so at the outset more effectively, they would be much more successful, in terms of recouping or stopping the improper payments of—

Chairman BOUSTANY. Thank you. If I'm an individual intent on defrauding the tax system with these credits, what disincentive do I have from claiming, for example, a vehicle credit on a bicycle, or something of that nature? What are the disincentives?

I would like both of you to comment on it, if you don't mind.

Mr. BYRD. TIGTA recommended to us that we put some controls and request additional information from the taxpayer, which we have done for this past filing season. And we found that quite helpful in enabling us to ID and block those claims that are improper.

The suggestions that they made were good suggestions, and we have implemented them. If a person claims a plug-in car that is not in a qualifying year, then we can take that credit out of the return before we send them the rest of their refund.

Chairman BOUSTANY. Can you give us an indication of the kinds of resources that are required in chasing money after the fact, as opposed to working on the front end to have the proper filters and controls in place?

Mr. BYRD. When a tax return comes in, if it comes in electronically, then it will be matched up against the filters. That is the way that we prefer the tax returns come in. If it comes in on paper, then it has to be touched by a person, which makes it more expensive and more time-consuming.

So if we send out an erroneous refund, then normally what happens is we have to examine that tax return, which requires some correspondence, and in this case it would probably be an examination through correspondence. So it is an examiner who is communicating with the taxpayer, and then the taxpayer would send in their documents, and we would review them and make a decision.

Chairman BOUSTANY. In other words, it is more labor-intensive, and ultimately more costly to the agency to have to go in after the fact.

Mr. BYRD. Yes, sir. The least expensive way is for the taxpayer to file electronically. Then the next way would be if they file on paper. And then the most expensive, of course, is if we have to do an examination.

Chairman BOUSTANY. Thank you, sir. I yield back.

Chairman TIBERI. Thank you, Doctor. Mr. Lewis is recognized for five minutes.

Mr. LEWIS. Thank you very much, Chairman Tiberi. Now, Commissioner Byrd, in the report on the administration of vehicle credits, TIGTA made eight recommendations to improve compliance and the IRS accepted all of them. Now, how long does it generally take to implement recommendations received from TIGTA?

Mr. BYRD. Well, if it is a recommendation that we change the way we electronically review or filter the tax returns, it could take us months and months, just because of the workload and the complexity of our computer systems. There are often things that TIGTA recommend that we implement in a short time period.

Mr. LEWIS. Now, one recommendation was to establish a system to track credits claimed on paper-filed tax returns. Why do you need to establish a separate system for paper returns? Is there a reason that the IRS does not convert all paper returns to the electronic version during processing?

Mr. BYRD. Well, we would like to be able to convert all the paper returns to electronic returns, but that would cost a lot to make that conversion. When you have to track claims, or track information from the tax return, you have to transcribe the information. You have a person who has to transcribe the information from the tax return.

So, again, it adds cost. It adds time to the processing of that tax return.

Mr. LEWIS. Do you have some idea how much the cost would be?

Mr. BYRD. Right now, it costs about \$.17 to process an electronic return. And it costs about \$3.66 to process a paper return. And since we received about 124 million electronic returns, you can see the savings that we have if we can get the taxpayers to come in electronically.

Mr. LEWIS. Commissioner Byrd, in your written testimony you stated that hard-to-detect fraud presents a challenge to your compliance efforts for energy tax credits.

Now, the Republican budget proposal for the IRS, as passed by the House Appropriation Committee would cut \$600 million from the agency. The Appropriation Committee report notes that the cut will have a significant impact on the ability of the IRS to find tax cheats. The report states that the agency will be forced to furlough between 4,100 and 5,000 employees. Is this estimate correct?

Mr. BYRD. Sir, we, of course, don't have our funding yet for this coming year. But we can imagine, with that type of dollar cut, we are going to have to dramatically reduce our staffing in a number of places. So that would be information technology, that would be how we serve the taxpayers, how we answer the phones, how we look for fraud, how we examine the tax returns.

We cannot absorb that type of cut without it having an impact on the service we provide taxpayers, and the enforcement of the IRS code.

Mr. LEWIS. So you are suggesting that these employees mainly would be enforcement agents? Are you stating this?

Mr. BYRD. Well, sir, what we need to have is exactly what it is that our funding will be for this year. But that is why we are saying that we imagine that it would be across the board that we would have to take some action.

Enforcement people would be included in those cuts that we would have to take. And enforcement people are the people who examine the tax returns.

Mr. LEWIS. The enforcement agents are the people that help the IRS detect fraud, right?

Mr. BYRD. Yes, sir.

Mr. LEWIS. Okay. So the Republican budget would hurt enforcement compliance efforts and the administration of energy and other tax credits

So, Mr. Chairman, without objection, I would like to enter to the record an excerpt from the House committee report on IRS funding.

Chairman TIBERI. Without objection, so moved.

****INFORMATION NOT PROVIDED****

Mr. LEWIS. Mr. Inspector General, we appreciate your recommendation to improve the administration of the energy-related tax credit. In your written testimony, you stated that the IRS has little resources to examine claims after the credits have been paid. If the IRS had more resources, would it be better able to perform its duties?

Mr. GEORGE. There is no question that—

Chairman TIBERI. The gentleman's time has expired, but you may answer—

Mr. GEORGE. Thank you, Mr. Chairman.

Chairman TIBERI [continuing]. The question. Thank you.

Mr. GEORGE. Yes. I believe that it is the case. If they had additional resources, they would be able to do more. It is a zero sum game, as Mr. Byrd noted. If they have to take money away from compliance to support customer service or vice versa, it ultimately impacts the taxpayer, in terms of whether or not they are having a more friendly interaction with the IRS—that is, the ability to

walk into a taxpayer assistance center, or to call the 800 number and get a quick response, as opposed to having letters sent to them or, even a worse case, people visit them in their homes or businesses.

Mr. LEWIS. Thank you, sir. Thank you, Mr. Chairman.

Chairman TIBERI. Thank you. I will now recognize the ranking member from Massachusetts, Mr. Neal.

Mr. NEAL. Thank you, Mr. Chairman. To our witnesses, actually a threefold question.

First, I am pleased with the efforts that the IRS has made, based upon bank secrecy. And I think the effort that's been made in Switzerland is a good example of what can be done when enforcement techniques that utilize the computer are applied. That is a good story. I can't imagine that there is anybody in America who would object to the efforts that the IRS has made in trying to sift through these offshore accounts.

But the second part of the question—and it is a follow-up, actually, to what Mr. Lewis said—some of the errors that you have identified today, some are, I assume, mistakes that have been made by the filer. And, as Mr. Lewis pointed out, I think correctly, the proposed cuts in the agency are going to make it more difficult for you to assist an honest mistake that has been made by the filer.

And with respect to the audits that you have cited, there are taxpayers who erroneously claim tax credits, but they did it by mistake. And if there is no fraudulent intent, if some of these errors indeed were mistakes, do you have suggestions on how we might help the taxpayer, the citizen, better comply with these rules?

And in addition, if you could, speak to another issue that tends to draw attention here, and that is some of the prisoners across the country who erroneously received credits, and what the IRS can do in these arenas to make sure that this doesn't happen again.

Mr. BYRD. Yes. Thank you, sir, for that question. Our experience has been that taxpayers, normally make mistakes, as opposed to fraud. That is primarily around the point of the complexity of the law.

And for a—for those of us who like the Tax Code, and read it, and enjoy it—the majority of Americans don't—

Mr. NEAL. Who are they?

[Laughter.]

Mr. BYRD. Me. So just those of us at the IRS. But I think your average taxpayer finds, often times, the law is very complex. And I think the software folks have done a great job to help.

In answer to your question, I think simplification of the Tax Code would be key to help taxpayers not make the mistakes that they make to date. The majority of taxpayers make mistakes, and then I think there is a small part that is involved with fraud.

As it concerns the prisoners, we have stepped it up. We have blocked an increase of 250 percent of the fraudulent returns filed by prisoners. We actually have a strategy where we have dramatically improved the data that we receive from the prisons. A key piece when a tax return comes in is we match it up against this information we get from the prisons, so that we could see who is in jail. We have refined that criteria so it is much more improved.

We have started to work with each prison to allow us to share information with them. When a prisoner files a fraudulent return, we can now share information with the prison, so that they can take action against that prisoner. We have also worked with all of them so that if a check does go to a prison, that we have streamlined and improved the processes for the prison officials to return those checks to us.

And, of course, we would like to encourage you all to strengthen the legislation that is out there in regards to how we can share, and what we can share with the prison officials about these fraudulent tax returns.

Mr. NEAL. That is consistent with Mr. Lewis's testimony. Mr. George?

Mr. GEORGE. Yes, Mr. Neal. I have testified on this issue a number of times before this committee, as long ago as five years. And while Mr. Byrd is accurate that they have these procedures and policies in place, we have found that they have not effectively implemented them.

There is no question that you have a defined population of people incarcerated. And after my initial testimony, Congress enacted legislation that helped facilitate this exchange of information. But we recently reported that they did not do so effectively, and they were still in the process of doing so many, many years later. So, we are troubled by the delay that the IRS took in terms of implementing this, and they still have a ways to go in that regard.

There is no question that if people are given the opportunity to readily file their taxes in an understandable way—going back to what Mr. Byrd said—that is something quite appropriate. But we have found that, in many instances, the IRS has made it cumbersome, both in terms of the language within the tax form and the accompanying materials, among other factors.

Mr. NEAL. Thank the witnesses.

Chairman TIBERI. Thank you, Mr. Neal. Ms. Jenkins is recognized for five minutes.

Ms. JENKINS. Thank you, Mr. Chair, thank you for holding this hearing. Thank you, Gentlemen, for joining us.

In recent decades, Congress has increasingly tasked the IRS with administering programs that aren't focused on revenue collection. For example, through the earned income tax credit, the IRS administers one of the nation's largest welfare programs. The Taxpayer Advocate has warned that the IRS's increasingly dual mission of revenue collector and program administer diverts IRS resources away from the agency's core revenue collection function, and can diminish taxpayer service.

So, for the both of you, as Congress through the years has sought to implement more and more public policy through the Tax Code, could you both just describe to us what effects this has had on tax administration?

Mr. GEORGE. Congresswoman, you have hit an important point here. The Earned Income Tax Credit still, as estimated by the IRS, has improper payments in the \$10 billion to \$12 billion a year range. The Additional Child Tax Credit, it is in the billions, in terms of improper payments. The First-Time Homebuyers Credit

we found millions, hundreds of millions of dollars which were improperly paid.

We just recently completed a review on the implementation of the Affordable Care Act. And while we will conclude that the IRS is being effective in planning on how to implement portions of that legislation, it is taking away from their traditional role of collecting revenue and assisting taxpayers in paying their taxes.

So, unless the IRS is able to more effectively allocate its resources, it is going to make its primary mission—that is, again, collecting revenue—much more difficult.

Ms. JENKINS. Thank you. Commissioner.

Mr. BYRD. Yes. I have been here a long time, and I don't know that I would ever say we have had sufficient resources to do our job, because I understand that there are competing priorities that our country has. But I wanted to assure you that when Congress decides to write a law, and they send it to us to implement, that we are trying to do it in the most cost-efficient way possible through innovation, through the use of technology, through the use of all the enforcement tools that we have.

We believe that the majority of our taxpayers want to and do file an accurate tax return. When the IG discusses these or shares these numbers, one could get the impression that our taxpayers are not honest, and I don't believe that's true. I believe that you have an area of fraud that we have to always deal with, and we had it before we had the credits, and we have it today. But what I want to assure you is that we, in the IRS, are going to use the resources that you all provide as efficiently as possible to deal with the priorities that you all send our way.

Ms. JENKINS. Okay, thank you. I would yield back.

Chairman TIBERI. Thank you. Mr. Paulsen is recognized for five minutes.

Mr. PAULSEN. Thank you, Mr. Chairman. Also, thanks for joining us here as a part of this testimony today.

Let me ask this question, because we have talked a little bit about some erroneous payments and duplicative credits that get paid out as a part of these credits.

I am just curious, because it seems like every time Congress creates one of these new energy credits or this green energy or other areas, we end up creating new tax shelters and issues like that that have applied to synthetic fuels and biodiesel and alternative fuels, et cetera. And, you know, the abuses end up costing taxpayers millions of dollars, billions of dollars, and the fraud and the abuse is a part of it.

What is it about these credits, in general, that make them so susceptible to this kind of fraud, overall? Mr. Byrd.

Mr. BYRD. Well, I am not sure, sir, that we are here today to talk about credits. You know, our examination program is designed to look at a wide range of issues and concerns that we see as taxpayers file their returns. So our experience has been that in all parts of the code, that taxpayers sometimes take liberties with the rules.

So, sir, I am not sure that I would say that because it is a credit it is susceptible to more fraud.

Mr. PAULSEN. Mr. George.

Mr. GEORGE. Yes. I would just say, sir, that they do not utilize the information effectively that they have.

I am not going to necessarily argue with Mr. Byrd about whether or not there are more instances of fraud or whatever the case may be there. But there is no question that if the IRS were to use the information that the taxpayer provides and, more importantly, gain access to third-party information, which—again, at various settings I cite this information, sir, and I beg your indulgence here.

The IRS itself estimates that individuals whose wages are subject to withholding report 99 percent of their wages for tax purposes. Self-employed individuals who operate non-farm businesses are estimated to report only 68 percent of their income for tax purposes. And the shocking number is self-employed individuals operating businesses on a cash basis report only 19 percent of their income.

So, the bottom line is if the IRS were to require additional information from third parties, by their own estimates, they would gain much more revenue. If they used the information that was supplied by the taxpayers on their tax forms, either electronically or in paper form, they would also have more information that they could use.

So, again, it's a question of how the IRS allocates its resources to determine whether or not a taxpayer is complying with their tax obligation.

Mr. PAULSEN. Well, and Mr. Chairman, this is an interesting point, because we have had hearings, actually, in the human resources subcommittee and talked about other government programs that are used to provide benefits to certain folks that—of modest means—that use government programs, and there is not an access, or there is more of an increased need to use an access to third-party information to weed out some of the fraud and abuse that is out there. That is a good point.

Now, someone, I think, had mentioned earlier—and I cannot remember who testified—in terms of the cost filing electronically versus mail-in. And it's like 124 million that use electronic. What can be done to encourage more use of electronic filing? Because ultimately, electronic information and using third-party matches, et cetera, is going to help weed out some of these issues, and save taxpayers money. What can be done to promote that?

Mr. BYRD. First, I did want to assure you that we are expanding our systems to use more third-party information, merchant cards, those types of things. I think part of the challenge around third-party information is that sometimes it is not completely accurate. And so, you don't want to deny a taxpayer a refund based on information that might not be complete.

In specific response to your question, sir, we have seen a dramatic increase in the number of returns that have been filed electronically. We have got the eFile mandate, where preparers that prepare more than 10 returns have to send them in electronically. That is being phased in through last year and this year. We are seeing a dramatic increase in the number of taxpayers who are going to file electronically.

The other thing that has happened is the software providers, for the most part, no longer charge taxpayers to electronically file their

return. Those things together have allowed us to see a large increase.

Mr. PAULSEN. Thank you, Mr. Chairman. I yield back.

Chairman TIBERI. Thank you. Mr. Marchant is recognized for five minutes.

Mr. MARCHANT. Thank you, Mr. Chairman. I would like to focus for just a moment on the—it looks like it is 100,000 individuals who claimed energy credits that did not own a home. Was the law, as it was passed, did it require that an individual own a home to seek the credit?

Mr. GEORGE. Well, they needed to own it at the time of—yes. The short answer is yes.

Mr. BYRD. It is their primary. Yes, sir.

Mr. GEORGE. Yes.

Mr. MARCHANT. So it couldn't be their second home, it couldn't be their vacation home. It had to be their primary home.

Mr. GEORGE. Yes.

Mr. MARCHANT. So, a very common-sense thing. But 100,000 people felt like they could take the credit without very clearly meeting the criteria of the law.

What percentage of those that claimed that credit does the 100,000 represent?

Mr. BYRD. I actually don't know, sir. I would have to get back to you on that.

Mr. MARCHANT. Do you think the 100,000 would represent 10 percent of those that claimed that credit?

Mr. BYRD. You know, I did not bring the numbers of taxpayers that claimed that particular credit.

Mr. MARCHANT. I would appreciate it if we could find out what percentage of those that claimed clearly made a fraudulent claim, right up front.

Mr. BYRD. It is important to note, sir, that I think when TIGTA made that recommendation it was based on information from a third party. And so, part of the struggle for us is around trying to have information that we can rely on to make sure that it is accurate.

As I said before, we don't want to deny somebody a credit. We don't want to deny them a credit without us being sure.

Mr. MARCHANT. But if—

Mr. BYRD. We have learned in other places—the adoption credit, the first-time home-buyer's credit—that what you see on the face of the return appears that it is fraudulent. But when you communicate, and ask that taxpayer for documentation or information, they are able to provide it.

Mr. GEORGE. But that, Mr. Marchant, is part of the problem. The IRS, as Mr. Byrd noted, does not have the ability to give the type of information that you just sought. And it is not necessarily their fault.

They are in the process now, with a National Performance Review—I believe you call it the NPR—and they are in the process now of helping to determine what the ultimate tax gap is in various areas. And once that is completed, that will provide them additional information so that they are in a position to respond precisely to your question.

Mr. MARCHANT. Okay. Thank you, Mr. Chairman. I yield back.

Chairman TIBERI. Thank you. The gentleman from Washington State, Mr. McDermott, is recognized for five minutes.

Mr. MCDERMOTT. Thank you, Mr. Chairman. Commissioner Byrd, I understand that the taxpayer service is part of the IRS strategy for tax compliance. The Republican budget would cut over \$105 million from taxpayer service. Now, we understand this cut would result in fewer calls being answered and fewer taxpayers receiving in-person service. I mean that seems like that would be the result, if you have less people.

A statement of Administration policy was issued in response to the budget. The policy states that this level of funding provided would seriously degrade the quality of services to taxpayers, to the extent that only one out of every two taxpayers would be able to reach the IRS customer service representative.

Do IRS customer service representatives answer questions about energy tax credits?

Mr. BYRD. Yes, sir. And so this year we are on track to take 32 million calls from taxpayers. And we are going to see about six million taxpayers come into our taxpayer assistance centers. And so there we provide a wide array of services and information, including answering questions about tax concerns. But then we also enable the taxpayers to pay us, to set up installment agreements, and, in essence, to deal with compliance things on the phone or in person.

Mr. MCDERMOTT. So, if I could restate what you said, the Republican budget would hurt taxpayer service and administration of energy and other tax credits. That is correct?

Mr. BYRD. If our funding is not the same, then we would not be able to serve the numbers of taxpayers that I just described, sir.

Mr. MCDERMOTT. So, without objection, I would like to submit into the record the statement of the administration of policy—of H.R. 2434. And I ask the chairman to put it into the record.

Chairman TIBERI. Without objection.

****INFORMATION NOT PROVIDED****

Mr. MCDERMOTT. I understand, Mr. Byrd, that the IRS does not have a dedicated funding source to invest in its program integrated effort—integrity efforts. I understand that funding for enforcement and compliance must come out of the current IRS budget. Is that correct?

Mr. BYRD. Yes, sir.

Mr. MCDERMOTT. So, the Republican budget would cut \$600 million of the IRS. This would hurt the program's integrity efforts. Right?

Mr. BYRD. Yes, because, you know, if we have less people and less funds to examine, filter, follow up with the returns, that means we can get—we will be able to accomplish less work, because we have less employees—fewer employees.

Mr. MCDERMOTT. As you know, the President set forth a plan that would provide dedicated funding for the IRS for program integrity efforts. The plan states that “tax enforcement and compliance activities are critical to the fairness and integrity of the U.S. tax system, and also generate a return on investment for taxpayers

of roughly \$7 for every \$1 invested.” You are aware of that, is that correct?

Mr. BYRD. Yes, sir.

Mr. MCDERMOTT. I would like to enter that into the record for the future record of the committee, and I yield back the balance of my time.

Chairman TIBERI. Thank you. Mr. Berg is recognized for five minutes.

Mr. BERG. Thank you, Mr. Chairman. I guess my first question goes back to the residential energy tax credit. What is the total number of people that received or made a claim?

Mr. BYRD. I am sorry, sir, I did not bring those stats, but I will be glad to get those back to you.

Mr. BERG. Okay. Mr. George.

Mr. GEORGE. Yes. Well, for tax year 2009, there were 6.8 million claims equaling \$5.8 billion.

Mr. BERG. Okay. And in the earlier testimony it was mentioned there is about 100,000 of those that you identified or thought didn’t own a home. That correct?

Mr. GEORGE. Correct.

Mr. BERG. Mr. Byrd, in the testimony you kind of say the IRS has adopted programs to kind of improve this process and really keep up with compliance issues. But as has been reported, obviously it is kind of ineffective at that.

And my question is—in part, because of maybe a lax process—I guess my question is, what is being done, really, to improve the administration of these tax credits right now, specifically?

Mr. BYRD. So, as you probably saw in the TIGTA report, they made a number of recommendations to us. For example, on the plug-in car, they suggested that we ask the taxpayer to put the VIN on the form. We have put things in place so that we will manually check to make sure that the qualifying year of the car is correct.

So, what I am sharing with you, sir, is that those things that TIGTA suggested that we put in place, we have. And we feel confident that those things will help us to reduce the number of fraudulent claims.

Mr. BERG. Mr. Chairman, I wonder if it is possible if we—if I could ask that again we get those recommendations.

I understand you said that you have agreed with all of those recommendations, but if you could, again, just have a short summary of, “Here is the recommendations,” and then you say, “We agree with these recommendations,” and when the timetable is to fully implement those recommendations, would that be possible for you to share that with the committee?

Mr. BYRD. Yes, sir, because what we do, in terms of how we track the recommendations and our implementation, we have a process in place. So that will be easy for me to provide you.

Mr. BERG. Okay, thank you. I yield back.

Chairman TIBERI. Thank you. Apparently that is all the questions that we have of this panel. We do appreciate both of you coming forward, giving your input, General George, on how we can improve efficiency and, Mr. Byrd, Commissioner Byrd, thank you for your thoughts about how we can simplify the Tax Code and make

your life easier. We do appreciate both of your testimony today. Thank you for taking the time out. That concludes our first panel.

We are going to now move to the second panel of testimony, and we are going to have a bit of a change to the second panel.

Without objection, I would like to move that we add Mr. Lindsey from the Lindsey Group to the second panel. There was some miscommunication, and Mr. Lindsey has a conflict, and will not be able to stay for the third panel. So, without objection, Mr. Lindsey will be added to the second panel.

Mr. Lindsey, you will be added at the end of the second panel—so on the far left, or my far right—and you will be the last person to testify on the second panel.

So, as the second panel gets seated, I would just like to welcome all of them. And I am going to ask Ranking Member Neal in a moment—no, you have got the third panel, right?

Mr. NEAL. Yes.

Chairman TIBERI. Okay. I will go ahead and introduce our—generally introduce our panelists, and welcome them to the second panel.

Dr. Donald Marron, director of Tax Policy Center, The Urban Institute; Mr. Kevin Book, managing director of research, Clearview Energy Partners, LLC; Mr. Neil Auerbach, founder and managing partner of Hudson Clean Energy Partners, L.P.; Mr. Will Coleman, partner, Mohr Davidow Ventures; Mr. Greeff, political director, the Clean Economy Network; and, as I said, from the third panel who will now be part of the second panel, Mr. Lawrence B. Lindsey—Dr. Lawrence B. Lindsey, president, chief executive officer of The Lindsey Group.

And with that, thank you all for coming, taking time out of your busy schedules to be here with us today. Dr. Marron, you are recognized for five minutes.

STATEMENT OF DONALD B. MARRON, DIRECTOR, TAX POLICY CENTER, THE URBAN INSTITUTE, WASHINGTON, D.C.

Mr. MARRON. Great, thank you very much. Chairman Tiberi, Chairman Boustany, Ranking Member Neal, Ranking Member Lewis, Members of the Subcommittees, thank you for inviting me to appear today to discuss energy policy and tax reform.

As you know, our tax system is desperately in need of reform. It is needlessly complex, economically harmful, and often unfair. Because of a plethora of temporary tax cuts, it is also increasingly unpredictable. We can and should do better.

The most promising path to reform is to re-examine the many tax preferences in our code. For decades, lawmakers have used the tax system not only to raise revenues to pay for government activities, but also to pursue a broad range of social and economic policies. Those policies touch many aspects of life, including health insurance, home ownership, retirement saving, and the topic of today's hearing, energy production and use.

Those preferences often support important policy goals, but they have a down side. They narrow the tax base, reduce revenues, distort economic activity, complicate the tax system, force tax rates to be higher than they otherwise would be, and are often unfair. Those concerns have prompted policy-makers and analysts across

the political spectrum—including, most notably, the Bowles–Simpson Commission—to recommend that tax preferences be cut back. The resulting revenue could then be used to lower tax rates, reduce future deficits, or some combination of the two.

In considering such proposals, law-makers should consider how tax reform, fiscal concerns, and energy policy interact. Six factors are particularly important.

First, as I just mentioned, our tax system needs a fundamental overhaul. Every tax provision, including those related to energy, deserves close scrutiny to determine whether its benefits exceed its cost. Such a review will reveal that some tax preferences do make sense, but many others should be reduced, redesigned, or eliminated.

Second, the code includes numerous energy tax preferences. The Treasury Department, for example, recently identified 25 broad categories of energy preferences worth about \$16 billion in 2011. These include incentives for renewable energy sources, traditional fossil fuel sources, and energy efficiency. In addition, energy companies are also eligible for several tax preferences that are available more broadly, such as the domestic production credit.

Third, tax subsidies are an imperfect way of addressing concerns about energy production and use. Such subsidies do encourage greater use of targeted energy resources, but, as I discuss in greater detail in my written testimony, they do so in an economically inefficient manner.

Subsidies require, for example, that the government play a substantial role in picking winners and losers among energy technologies. The associated revenue losses also require higher taxes or larger deficits. That doesn't necessarily mean that they are bad policy, but it does raise the hurdle for them to satisfy in order to be counted as good policy.

Fourth, a key political challenge for reform is that energy tax subsidies are often viewed as tax cuts. It makes more sense, however, to view them as spending that is run through the Tax Code. Reducing such subsidies would make the government smaller, even though tax revenues, as conventionally measured, would increase. Similarly, introducing new tax preferences would expand the scope of government, even though technically, in budget accounting, they would be scored as reducing future revenue.

Fifth, tax subsidies are not created equal. Some are more efficient than others. In particular, production incentives tend to be a more efficient way of accomplishing energy policy goals than are investment incentives.

Finally, well-designed taxes can typically address the negative effects of energy use more effectively and at lower cost than can tax subsidies. I understand that higher gasoline taxes or a new carbon tax are not popular ideas in many circles, but please bear with me. As I explain in greater length in my written testimony, well-designed energy taxes are a much more pro-market way of addressing concerns about the production and use of energy. Taxes can take full advantage of all market forces on the demand side and the supply side, and in so doing can accomplish many policy goals at least cost and with minimal government intervention in the economy.

Subsidies, in contrast, make much less use of market forces, and inevitably require the government to pick winners and losers. Energy taxes also generate revenue that law-makers can use to cut other taxes or to reduce deficits.

Thank you. I look forward to your questions.

[The prepared statement of Mr. Marron follows:]

Energy Policy and Tax Reform

Donald B. Marron*
Director,
Urban-Brookings Tax Policy Center
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Testimony before the Subcommittee on Select Revenue Measures and the
Subcommittee on Oversight of the Committee on Ways and Means,
United States House of Representatives
September 22, 2011

Chairman Tiberi, Chairman Boustany, Ranking Member Neal, Ranking Member Lewis, and Members of the Subcommittees, thank you for inviting me to appear today to discuss energy policy and tax reform.

Lawmakers have used the tax code to influence energy markets for almost a century. Early efforts focused on promoting the development of domestic oil and gas resources. Following the energy crises of the 1970s, new tax incentives were created for alternative energy sources and energy efficiency. Lawmakers also introduced new taxes, for example the gas guzzler tax, to discourage energy use. In the 1980s, many tax incentives were reduced or eliminated, in part as a result of the Tax Reform Act of 1986, which sought to reduce the complexity and inefficiency of the tax code. Since then, new tax incentives have been introduced, with recent efforts promoting greater use of renewables and energy efficiency.¹

Because of ongoing concerns about climate change, energy security, and other risks associated with energy use, many observers believe that lawmakers should continue to use the tax system as a tool of energy policy. Some recommend tax breaks for domestic energy production. Some recommend incentives for cleaner ways of producing and using energy. And some recommend increasing existing taxes (e.g., on gasoline) or introducing new ones (e.g., on carbon emissions) to discourage energy use and its negative consequences.

* The views expressed here are my own; they do not necessarily reflect the views of the Urban Institute, its trustees, or its funders. Kim Rueben, Eric Toder, and Roberton Williams provided helpful comments, but all errors are my own.

¹ Sherlock (2011) reviews the history of energy tax policies.

Those suggestions come at a time of increased concern about the complexity and inefficiency of our tax system. Many observers have become skeptical of the way social and economic policies are implemented in the tax code. There is also rising concern about America's daunting fiscal outlook. For both reasons, there have been calls from across the political spectrum to cut back on tax preferences and use the resulting revenue to lower tax rates, reduce future deficits, or adopt some combination of the two.

As lawmakers consider such proposals, they will need to consider how tax reform, fiscal concerns, and energy policy interact. My testimony offers an economic framework for thinking about these interactions. I make seven main points:

1. Well-designed taxes can often address the negative effects of energy use at lower cost than subsidies can. One reason is that well-designed taxes make better use of market forces, while subsidies involve more government decision-making. Taxes can do a better job of leveling the playing field among competing energy technologies and involve less governmental picking of winners and losers.
2. Despite that advantage, policymakers have generally used the tax system to provide subsidies for energy activities they perceive as beneficial, rather than to impose additional costs on activities they deem harmful. Some of those subsidies are explicitly identified as supporting energy, while others are incorporated in broader business incentives.
3. That political preference for subsidies over taxes reflects three factors. First, tax subsidies are typically more popular with constituents than are higher taxes. Second, reducing the negative effects of energy use is not the only reason that policymakers enact energy tax policies. Some policymakers also want to support specific technologies and industries; that's easier to do with subsidies than taxes. Third, in recent years some policymakers have wanted to use energy subsidies to help stimulate America's weak economy.
4. Energy tax subsidies worsen the budget situation. To cover their costs, lawmakers must increase other taxes, cut spending, or run larger budget deficits. The revenue from energy and environmental taxes, in contrast, allows lawmakers to cut other taxes, increase spending, or reduce deficits.

5. Energy tax subsidies should be viewed as spending through the tax code, not as tax cuts. Reducing those subsidies would make the government smaller even though tax revenues, as conventionally measured, would increase.
6. The efficiency of tax subsidies depends on how they are designed. If policymakers want to use tax subsidies, they should favor those that reward success in accomplishing policy goals and that are as neutral as possible among technologies. They should also minimize needless uncertainty about the value of such subsidies.
7. Our tax system needs a fundamental overhaul; all provisions, including those related to energy, deserve close scrutiny to determine whether their benefits exceed their costs.

I elaborate on these points in the remainder of my testimony.

1. Well-designed taxes can typically address the negative effects of energy use at lower cost than can subsidies.

The primary rationale for applying special tax treatment to energy markets is that energy use imposes costs on society that aren't adequately reflected in private market transactions. The true cost of gasoline, for example, includes not only the private costs of production and distribution, but also the social costs of pollution and the risks of petroleum dependence. Tax policies can reduce those social costs by discouraging the activities that create them (e.g., by taxing gasoline) or by encouraging alternatives (e.g., by subsidizing alternative fuels).

Those two approaches have many similarities, but they are not identical. In general, well-designed tax policies are a more efficient way of reducing the negative effects of energy use. Taxes can take advantage of the full power of market forces while subsidies cannot. Subsidies thus tend to be less efficient and rely more on government decision-making.²

These differences are best illustrated with a simple example. Suppose that policymakers want to reduce emissions of carbon dioxide from electric power

² The reverse is true when private market activities have positive spillovers for society. In those cases, subsidies are typically more efficient than taxes. That's why policy experts often recommend subsidies for basic research (which generates a positive spillover in the form of new, shareable knowledge) and taxes to combat pollution.

plants. One strategy would impose a tax on all emissions of carbon dioxide by electric generators. That tax would then set in motion a multitude of market responses. Utilities would change how they dispatch their existing power plants; ones with high carbon emissions would run less often, while those with low emissions would run more often. Utilities would boost the efficiency of their existing fossil fuel generators, and would favor low-carbon generation options in their investment plans.

Utilities would also increase prices to electricity consumers, setting in motion demand responses. Consumers would use electricity more sparingly. Businesses and families would use less lighting, heating, and cooling. They would rely more on energy-efficient appliances and would put more insulation in their homes and offices. Businesses would focus more on the efficiency of motors and other electricity-using equipment. Appliance manufacturers would invest in research on new ways to reduce energy use.

And on and on. The miracle of the marketplace is that a single tax on carbon emissions will set in motion a seemingly infinite number of responses as families and businesses adjust their behavior to economize on electricity use and carbon emissions. This isn't a flawless process—the markets for both electricity and energy efficiency have imperfections—but it does harness a remarkable array of incentives to achieve the social goal of reducing carbon emissions.

An alternative strategy would offer a subsidy for activities that reduce carbon dioxide emissions from power plants. The best subsidy would be one that rewards people for reducing emissions below the level that would otherwise have occurred. Unfortunately, it's impossible to implement such a subsidy; there is no way for the government to know what emissions would have been.

Lawmakers must therefore focus subsidies on identifiable decisions such as the use of particular fuels or technologies. For example, lawmakers might offer incentives for the construction and operation of new solar, wind, and geothermal power plants that emit little or no carbon dioxide. Or they might offer incentives for consumers to install energy-efficient appliances. Indeed, such incentives are a prominent feature of today's tax code.

These tax subsidies can reduce carbon dioxide emissions, but they do much less to harness market forces than a carbon tax would. If subsidies apply only to new power plants and new appliances, for example, they provide no incentive for

utilities to change the way they operate existing power plants or for consumers to reduce how much they use their existing appliances.

Subsidies for generation and new construction have another perverse effect: they make electricity cheaper, thus eliminating (indeed, reversing) one of the main incentives for people to reduce electricity consumption. Subsidies for energy-efficiency, meanwhile, make appliances less expensive. As a result, some consumers will purchase appliances they would not otherwise have owned; for example, tax credits for energy-efficient refrigerators will cause some consumers to add a second refrigerator.³

A related concern is that policymakers will need to choose winners and losers when designing such subsidy programs. Policymakers must decide, for example, which types of generating facilities or energy-efficient equipment should be eligible and how large the subsidy should be for each. Even with the best of intentions, it is impossible for policymakers to make such decisions in a way that is neutral across all technologies. If the subsidies apply to new facilities, for example, the playing field will be tilted in favor of new construction over better use of existing plants or energy efficiency. If subsidies apply to a specified list of known technologies, that will disadvantage newer, cutting-edge technologies. If subsidies are based on the amount of capital invested in clean energy projects, they will favor capital-intensive technologies over labor-intensive ones. And so on.⁴

Taxes are, of course, not immune to these problems. The gas guzzler tax, for example, is a remarkably inefficient way to discourage gasoline use. It affects only new cars, not existing ones. It provides no incentive for car owners to drive less or otherwise use less gasoline. And for a combination of historical and political economy reasons, it is decidedly not technology neutral: it applies only to cars, not to minivans, trucks, or sport-utility vehicles. The point, then, is not that taxes are always perfect, but that a well-designed tax will typically be more efficient than a subsidy program. The most efficient way to discourage gasoline consumption, for

³ For related discussions of the downsides of using tax subsidies to encourage cleaner energy sources, see Joint Committee on Taxation (2011), Metcalf (2008, 2009), and Toder (2006, 2007).

⁴ Another problem with tax subsidies is the way they interact with the rest of the tax system. Individual and corporate taxpayers may not be able to fully use tax incentives if they are subject to the alternative minimum tax or have experienced substantial losses. That further weakens the effectiveness of subsidies in influencing energy markets.

example, would be through a higher gasoline tax, not subsidies for ethanol or other alternative fuels.

2. Nonetheless, policymakers generally use the tax system to provide subsidies for energy activities they perceive as beneficial, rather than to impose additional costs on activities deemed harmful.

The largest energy tax policy is the excise tax on gasoline and motor fuels; its revenues currently run around \$30 billion each year. That tax does reduce gasoline use, but that's not why policymakers enacted it. Instead, the gasoline tax is effectively a user fee to finance the costs of highways through the Highway Trust Fund.

Other energy taxes raise little revenue. Taxes on petroleum to fund the Oil Spill Liability Trust Fund totaled only \$500 million in 2010, for example, and the gas guzzler tax raised only \$85 million (IRS 2011).

Tax subsidies play a much larger role in energy policy than do those small taxes. In its latest survey of tax preferences, the Treasury Department identified 25 provisions related to energy use (OMB 2011). The largest of these are the alcohol fuel credit and excise tax exemption (\$5.7 billion in tax savings in 2010), tax credits for energy efficiency improvements to existing homes (\$3.2 billion), credits for electricity production from renewable resources (\$1.5 billion), and the excess of percentage over cost depletion for fossil fuels (\$1 billion). Taken together, the 25 energy tax preferences totaled about \$16 billion in 2010.

Firms engaged in energy exploration, production, and distribution also benefit from tax provisions that are available to businesses generally. For example, some energy producers benefit from the deduction for U.S. production activities, a subsidy provided for domestic manufacturing activities. In addition, all businesses benefit from accelerated depreciation of machinery and equipment (and, in recent years, temporary bonus depreciation and full expensing).

These general business preferences provide another channel through which policymakers can provide favorable treatment to energy activities. Observers disagree, for example, about whether oil extraction should count as domestic manufacturing; by deciding that it does, lawmakers provide it with a tax advantage that is not available to many other domestic businesses.

Some energy producers similarly receive particularly favorable treatment through accelerated depreciation rules. Accelerated depreciation is available to all businesses that make capital investments, but its value depends on various parameters, including the assumed tax life of property and how that interacts with financing arrangements and other aspects of the tax system. The treatment given to oil and gas investments appears more favorable than that provided to other industries. The Congressional Budget Office (2005) estimated, for example, that the average effective federal tax rate on income from corporate investments was about 26 percent. The tax rates on energy investments, however, were lower; oil field machinery faced an effective tax rate of 22 percent, for example, and petroleum and natural gas structures faced an effective rate of 9 percent, the lowest of any physical investments CBO analyzed.

3. The preference for subsidies over taxes reflects differences in visibility, interest in industrial policy, and desire to stimulate the economy.

Policy experts have long touted the virtues of energy and environmental taxes, yet those levies are rarely used to address the negative effects of energy use. One reason is the visibility of the burdens they impose. If lawmakers propose to increase the gasoline tax, for example, the driving public will easily grasp that they will have to pay more to fill their tanks. If lawmakers propose a tax subsidy for low-emissions vehicles, in contrast, the burden is vague and diffuse. Someone must bear the burden from the missing revenues, but it's unclear who that is. Meanwhile, the subsidy is highly visible to its potential beneficiaries, producers and consumers of low-emissions vehicles.

In short, taxes often create broad-based, visible costs and diffuse benefits, while tax subsidies create narrowly focused, visible benefits and diffuse costs. That gives tax subsidies the upper hand politically even if they are a less efficient way of addressing energy and environmental concerns.

A second reason some policymakers favor subsidies is that they want to support specific technologies or industries. For example, some policymakers believe that it is important for the United States to develop strong domestic industries producing solar, wind, and other technologies. Levying higher energy taxes would certainly support that goal, but tax subsidies are a more direct way to attempt such industrial policies.

The weak economy, finally, has provided some policymakers a third rationale for favoring tax subsidies: as an attempt to provide economic stimulus. The American

Recovery and Reinvestment Act of 2009, for example, included several energy tax provisions that were characterized as ways to stimulate the economy.

Not surprisingly, these disparate goals can lead to conflicting policy recommendations. Energy and environmental taxes are the most efficient way to encourage cleaner energy use, for example, but introducing them immediately would likely conflict with the goal of providing fiscal support for the economy (depending on how the revenue would be used).

4. Energy tax subsidies worsen the budget situation.

Energy tax subsidies have real budget costs: the federal government gives up revenues that it would otherwise have collected under generally applicable tax laws. To cover those costs, lawmakers must increase other taxes, cut spending, or run larger budget deficits. Those adjustments subtract from any social gains that may result from energy tax subsidies. That's why many analysts have recommended that many tax subsidies, including those for energy, should be reduced or eliminated and that the resulting revenue be used to lower tax rates or reduce deficits.

The reverse is true for energy and environmental taxes. By levying taxes on gasoline or carbon, lawmakers can reduce concerns about pollution and energy security while raising revenues that can be used to improve fiscal policy. For that reason, many analysts have recommended that Congress address concerns about climate change by implementing a broad-based carbon tax whose revenues would be used either for deficit reduction (thus avoiding other tax increases) or to reduce taxes such as those on payrolls and corporate incomes.⁵

5. Energy tax subsidies should be viewed as spending through the tax code, not as tax cuts.

One reason energy subsidies have been more popular than energy taxes is that they appear to be tax cuts. When policymakers propose new tax incentives for domestic energy production, for example, they get credit both for being concerned about energy security and for favoring lower taxes. That perception is bolstered by official

⁵ This could also be accomplished under a cap-and-trade system as long as the government sells carbon allowances rather than giving them away for free.

budget accounting, which records credits, deductions, and other tax incentives as reductions in tax revenues.⁶

From a broader economic perspective, however, these tax incentives have much more in common with spending programs than they do with tax cuts. Indeed, it would be straightforward to structure many of these subsidies as spending programs.

In fact, the 2009 stimulus law did exactly that. The American Recovery and Reinvestment Act allowed energy companies to receive cash grants, paid by the Treasury, in lieu of the production tax credits or investment tax credits for which they would otherwise have been eligible.

The same could be done for many other energy tax incentives. The ethanol tax credit, for example, provides 45 cents to fuel blenders for each gallon of ethanol they use. Policymakers have chosen to structure this incentive as a tax credit administered by the Internal Revenue Service, but they could have chosen to have the Department of Energy send out subsidy checks instead. The logistics and political optics would be different—the program would be recorded as spending and different committees would exercise congressional oversight—but the economic, budget, and environmental consequences would be the same.

That equivalence holds equally for other energy tax incentives. Whatever their economic or environmental merits, these incentives are best viewed as spending in the tax code, not as tax cuts.⁷

6. The economic efficiency of energy tax subsidies varies; policymakers should favor subsidies that reward success in accomplishing policy goals and are as neutral as possible among competing technologies.

Policymakers have many options in designing energy tax subsidies. One approach is to offer production tax credits that subsidize qualifying facilities based on how much energy they produce. Another approach is to offer investment tax credits that subsidize businesses based on how much they invest in qualifying facilities. A third

⁶ There is one exception: if a tax credit is refundable, any amount that results in a refund, rather than a lower tax payment, is recorded as an outlay. Such refunds are important for tax preferences like the earned income tax credit and the child credit, but are small for energy credits.

⁷ I explore this topic in detail in Marron (2011).

approach is to allow firms to issue tax-exempt debt, which carries a lower interest burden than does regular debt.

In considering these and other approaches (including ones that run through the spending side of the budget), policymakers should consider several factors.

First, production incentives are typically more efficient than investment incentives. Production incentives reward businesses for producing new, presumably cleaner, energy and are agnostic about what mix of capital, labor, and materials firms use to accomplish that. Investment incentives, in contrast, reward businesses merely for making qualifying investments; they do not reward companies for operating that investment well, and they encourage firms to use relatively more capital and less labor and other resources.

Second, both production credits and investment credits are more efficient than tax-exempt financing. Private bond investors typically capture some of the benefits of tax-exempt debt. As a result, only some of the benefits flow through to the sponsors of new energy facilities.

Finally, policymakers should eliminate needless uncertainty for the intended recipients of any subsidies. In recent years, many tax incentives—e.g., for research and development—have been allowed to expire only to be retroactively renewed. The same has happened on several occasions with production credits for wind energy. Delivering subsidies this way weakens any incentives they provide.

7. Our tax system needs reform.

Any discussion of energy tax policies should recognize the larger challenges that our tax system faces. That system is needlessly complex, economically harmful, and often unfair. Because of a plethora of temporary tax cuts, it's increasingly unpredictable. And it fails at its most basic task, raising enough money to pay our government's bills. For all these reasons, the time has come for fundamental tax reform.

Such reform could follow many paths. Some analysts recommend the introduction of new taxes, such as a value-added tax, a national retail sales tax, or a carbon tax. A more likely starting point, however, would be to redesign our existing tax system and its myriad tax preferences.

Those preferences influence economic decisions in many aspects of life, including housing, health insurance, pensions, business investment, and the focus of today's hearing, energy use. Taken together, these preferences narrow the tax base, reduce revenues, distort economic activity, complicate the tax system, force tax rates higher than they would otherwise be, and are often unfair. By reducing, eliminating, or redesigning many of these preferences, policymakers could make the tax system simpler, fairer, and more conducive to America's future prosperity, raise revenues to finance both across-the-board tax rate cuts and deficit reduction, and improve the efficiency and fairness of any remaining preferences (Marron 2011).

That's why tax reform has been a centerpiece of many recent proposals to combat our exploding debt. The president's fiscal commission, for example, offered a range of proposals to restrict or eliminate most individual and corporate preferences in the tax code (National Commission on Fiscal Responsibility and Reform 2010). Many other groups have offered similar proposals.

Given America's daunting fiscal outlook and the manifest flaws of our tax system, these proposals deserve careful consideration. But lawmakers should not simply eliminate every tax preference. Some tax preferences try to promote important social and economic goals, including the move to cleaner energy sources. Rather than discard them all wholesale, lawmakers should weigh the benefits and costs of each.

In considering energy tax preferences, moreover, lawmakers should also consider whether taxes, rather than tax subsidies, might be a more effective way of accomplishing policy goals.

Thank you again for inviting me to appear today. I look forward to your questions.

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Committee on Ways and Means
 Witness Disclosure Requirement – “Truth in Testimony”
 Required by House Rule XI, Clause 2(g)

Your Name: Donald B. Marron		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). Urban-Brookings Tax Policy Center b. Briefly describe the capacity in which you represent this entity. I am the Director of the Urban-Brookings Tax Policy Center	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have received</u> during the current fiscal year or either of the two previous fiscal years:		
4. Please list any offices or elected positions you hold.		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing? The Urban Institute and the Brookings Institution	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. The Urban-Brookings Tax Policy Center (TPC) does not have any Federal grants or contracts, nor has the organization received any Federal grants or contracts in the previous two fiscal years. * *The Urban Institute and the Brookings Institution are parent organizations of TPC which have some Federal grants and/or contracts unrelated to the research here at TPC.		

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Chairman TIBERI. Thank you.
 Mr. Book is recognized for five minutes.

STATEMENT OF KEVIN BOOK, MANAGING DIRECTOR, RESEARCH, CLEARVIEW ENERGY PARTNERS, LLC, WASHINGTON, D.C.

Mr. BOOK. Good morning, Chairman Tiberi, Chairman Boustany, Ranking Member Neal, Ranking Member Lewis, and distinguished committee members. My name is Kevin Book, and I head the research team at Clearview Energy Partners. Thank you for inviting me to contribute to your discussion today regarding energy tax policy.

Economic weakness has compressed energy demand. Since the employment trough of the Great Recession, the nation has consumed only about one-third as much energy per job recovered as it did during the 2001/2002 recovery. That would be good news if efficiency explained the change. But data show, for example, that we are driving older cars and driving them less, rather than purchasing new, higher-efficiency vehicles.

Because demand can move faster than supply, stable energy production incentives are important. Stable policies may not encourage new supply side investments when market conditions do not warrant it, but inconstant policies may discourage supply side investment when it is needed.

So, what works best? And how do you know? Investors judge investments against benchmarks. Similar analysis could guide energy policy, too. Evaluating incentive costs per million British thermal units measures how many bucks the U.S. Government directs, simply put, at the energy bang the nation receives. The note published by the committee staff in preparation of this hearing addresses this calculation.

Between 2006 and 2010, my analysis suggests that incentive costs for renewable sources were considerably higher than conventional sources. For green power, incentive costs averaged about \$6 per million Btu. Biofuels, about \$5.50. Conventional power, about \$.19. Coal production, excluding programmatic spending, about \$.07. And a broadly inclusive rack-up of oil, natural gas, and refined products incentives, including some line items that are generally regarded as ordinary tax treatment, averaged about \$.26 per million Btu.

Implied abatement costs quantify the emissions reduction benefits of federal spending on lower-emitting fuels, even if spending wasn't aimed at reducing greenhouse gases. Two sources came in at or below the current price of emissions allowances trading in Europe: wind, at about \$4 to \$20 per metric ton, depending on your assumptions; ethanol, at about \$16, if you count only the VEETC; solar, at about \$62 to \$200 per metric ton, was above the current trading market in Europe; cash for clunkers was about \$263 per metric ton. And if the Nat Gas Act were to cost \$5 billion over 5 years for 140,000 heavy haulers, the resulting gas emissions reductions, greenhouse gas emissions reductions, would be about \$120 per metric ton.

Displacement costs quantify the extent to which federal energy incentives reduce our reliance on imported petroleum. As a benchmark, the strategic petroleum reserve through the end of last year had a displacement cost of about \$67 per barrel, or \$11.50 per million Btu. The real dollar value of ethanol capacity historically sub-

sidized by the VEETC through its scheduled expiration at the end of this year implies about \$148 per barrel or \$42 per million Btu. But evaluated over a 15-year finance life, that's about \$10 per barrel, and \$3 per million Btu. Again, assumptions are important.

The displacement cost from nat gas, based on those prior assumptions, the Nat Gas Act, would be \$118 per barrel, or about \$20 per million Btu if you looked at it as a one-time deal. But amortized over 5 years, it would be about \$23.50 per barrel, or about \$4 per million Btu.

A couple of caveats before I finish up. First, comparing alternative fuels to the strategic reserve is not an apples-to-apples comparison. The strategic reserve is surge capacity. Alternative transportation fuels replace petroleum imports, and they are already in use.

Second, none of these metrics captures the total cost of delivered energy, just the part the U.S. Government covers. Consumers and producers pay the rest. Trying to change their decisions in defiance of economic reality may prove both difficult and expensive.

There are also metrics you can apply to look at the efficiency of financial incentives. My testimony provides an example of something I call return on tax to describe simplified wind farm financing. That example shows that production tax credits are the least efficient, in terms of delivering both internal rate of return and a return on each taxpayer dollar, in terms of lower generation cost. Incentives like investment tax credits and grants become more efficient in both regards, but the best balance turns out to actually be loan guarantees. Now, loan guarantees, obviously, will not be more efficient without adequate due diligence.

In conclusion, in thinking of all of these incentives, they should be thought of, probably, as a portfolio. It allows one to balance innovation with environmental and security benefits. Balancing moonshot technologies with lower risk reward profiles may preserve financial stability. And it may be worth revisiting whether the current Title XVII appropriations-backed solicitation-driven debt financing program has the autonomy to structure an appropriately balanced portfolio.

One final point. Tax policy is not always the fastest energy policy tool. But the high cost and long life of energy investments means that fast can sometimes translate to expensive. Prescriptive environmental and fuel standards do deliver rapid results. But non-economic shut-downs can lead to wealth destruction and job losses.

This concludes my testimony; I will look forward to any questions.

[The prepared statement of Mr. Book follows:]

TESTIMONY OF
KEVIN BOOK
 MANAGING DIRECTOR,
 CLEARVIEW ENERGY PARTNERS, LLC

BEFORE THE
 U.S. HOUSE COMMITTEE ON WAYS AND MEANS
 SUBCOMMITTEES ON SELECT REVENUE MEASURES AND OVERSIGHT

SEPTEMBER 22, 2011

Good morning, Chairman Tiberi, Chairman Boustany, Ranking Member Neal, Ranking Member Lewis and distinguished Committee Members. My name is Kevin Book and I head the research team at ClearView Energy Partners, LLC, an independent research and consulting firm headquartered here in Washington D.C. that provides macro-level analyses to financial investors and corporate strategic planners. Thank you for inviting me to contribute to your important discussion today regarding energy tax policy. Thank you also for your ongoing leadership during challenging economic circumstances.

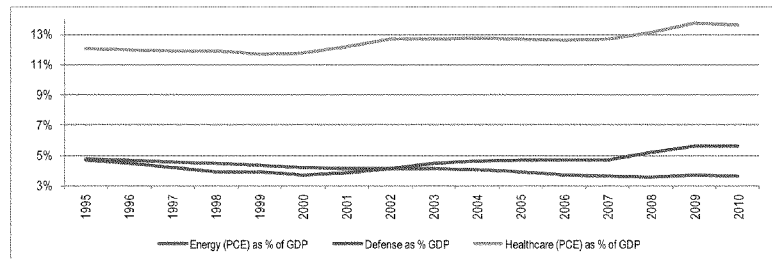
Recent developments frame the urgency of today's topic, especially volatile commodity prices, slow economic recovery and the deficit reduction deadline established by the Budget Control Act of 2011. My testimony considers the relationships between energy policy choices and economic outcomes. In short, my comments are intended to suggest that optimal energy policy should successfully balance potential opportunity with demonstrated efficacy and quantifiable benefit.

SUPPLY, DEMAND AND POLICY TOOLS

All over the world, governments largely own and control their natural resources. Most governments, to a varying degree, rely on taxes, industrial standards and social policies to influence energy demand, either directly or as a consequence of broader initiatives. Many nations also control the production and delivery of those resources, the supply side of their energy markets. The U.S. isn't typical. Our market democracy relies almost entirely upon private entities to deliver primary and secondary energy to the market.

Putting profit-maximizing, competing firms in charge of supply-side investment choices may have helped to keep domestic energy costs manageable for end-users. U.S. household energy spending as a portion of GDP has been falling at the same time that the GDP shares of other necessities, like healthcare and national defense, have been rising (see Figure 1, below).

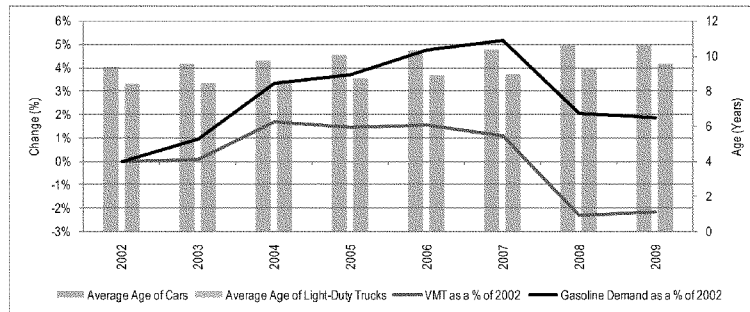
Figure 1 – Share of Household Energy and Healthcare Expenditures and National Defense as a Share of GDP, 1995-2010



Source: ClearView Energy Partners, LLC using BEA data

Because economically-independent end-users make their own demand-side allocation and consumption decisions, U.S. households and businesses can often respond quickly to broader economic circumstances, including price differentials between fuels and technologies. U.S. energy demand can indeed change swiftly, but the reasons are not always worthy of celebration. Figure 2 charts the change in U.S. average passenger vehicle miles traveled (VMT) and gasoline demand between 2002 and 2009 against the average age of U.S. cars and light trucks on the road.

Figure 2 – Vehicle Miles Traveled and U.S. Gasoline Consumption as a % of 2002 Levels vs. Car/Light Truck Age in Years, 2002-2009

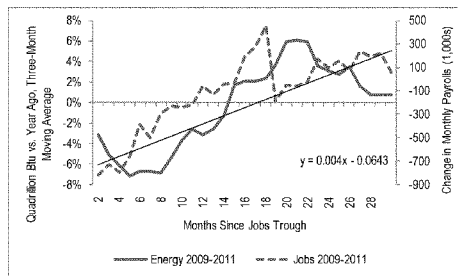


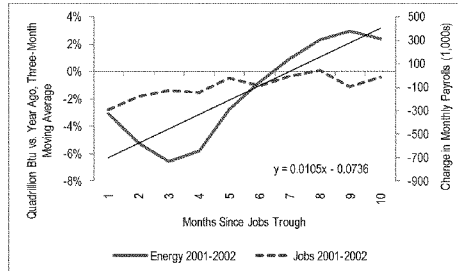
Source: ClearView Energy Partners, LLC using data from EIA, FHWA and R.L. Polk

VMT and gasoline consumption fell sharply in 2008 as vehicle age rose. This is a poignant portrait of a *behavioral* demand shift. For the most part, Americans were probably driving older cars (but driving them less) instead of purchasing new, higher-efficiency vehicles. Empirical and anecdotal data suggest that end-user sensitivity to energy costs is quite high and probably increasing.

Figure 3 examines the same circumstance from a different perspective by presenting nonfarm payroll growth and energy demand growth during two recoveries. Over the 29-month period since the Great Recession's employment trough, Americans are continuing to consume about one-third of the energy per job recovered that they did during the 2001-2002 recovery.

Figure 3 – Three-Month Moving Average Year-on-Year Change in Energy Consumption and Change in Nonfarm Payrolls, 2009-2011 and 2001-2002





Source: ClearView Energy Partners, LLC using BFE, BLS and EIA data

“Fixing” demand isn’t always so easy. Demand-side financial incentives for end-user technologies can be undermined by the so-called “efficiency paradox”, where the most price-sensitive end-users often lack the working capital to buy new equipment or retrofits. As a result, unrestricted, direct subsidies can have the unintended consequence of buying fuel for existing, inefficient infrastructure. Subsidizing specific energy technologies can prove equally vexing: outlays that fail to encourage adoption by price-sensitive recipients can end up merely giving discounts to price-insensitive purchasers of premium products.

Building energy infrastructure requires large amounts of time and money. Supply-side projects can take longer and cost more, however, due to uncertainties associated with securing rights to land (or other access), applying for and receiving permits and – in many cases – finding the energy resource in question and proving it exists in commercially viable quantities. Stable financial policies for energy projects may not encourage new supply-side investment when market conditions do not warrant it, but inconstant policies may actually discourage supply-side investment when it is needed.

In the face of fiscal austerity, it may also be tempting to suggest that government should not intervene in energy policy at all. But the U.S. is a net energy importer, leaving us captive to the actions of nations that do not always follow market principles and adhere to our democratic values. In this context, investments that provide for energy security may be worth more to our economy as a whole than they are to individual energy suppliers and consumers ... at least in the short term. Congress has wisely recognized that government can play a useful energy policy role by encouraging technology innovation, supply diversification and end-user conservation.

PRIORITIZING INCENTIVES

Institutional investors and private firms generate value through returns on invested capital. Most money managers are judged against macro benchmarks like the S&P 500. Private firms typically gauge project performance against internally-established “hurdle rates”. Government investors in fuels and technologies could also set benchmarks for evaluating performance in a similar fashion. The figures that follow present several illustrative examples.

Using common metrics like “profit margin” (net income / sales) to assess financial performance allows investors to objectively compare diverse investments across disparate industry sectors, but profit margins don’t always tell the whole story. Financial ratios like “asset turnover” (sales / assets) describe the efficiency of invested capital. In that spirit, Figures 4 and 5 quantify the incentive costs of federal outlays directed at a diverse portfolio of power generation fuels and technologies in constant (2010) dollars per million British thermal units (\$/MMBtu).

[One notable difference: asset turnover reflects yield per value (where higher means “more productive”), but mainstream convention for energy spending centers around cost per unit (where less expensive means “more efficient”). Sticklers will rightly note that \$/MMBtu is technically the *reciprocal* of turnover, but I believe “less expensive” offers a more familiar basis for comparison.]

Figure 4 uses data from EIA’s April 2008 and July 2011 analyses of federal “interventions” into energy markets. Both studies break out total direct expenditures, tax expenditures, research and development spending, federal electricity support and loan guarantees for conventional and renewable power generation fuels. Figure 4 incorporates these figures, consolidates them by fuel and/or technology, adjusts them for inflation and divides them by the heat content of the corresponding power generated during the applicable periods.

Just as financial ratios should not be mistaken for forensic accounting, this rudimentary “incentive cost ratio” describes basic performance rather than a precise formula. In addition, both EIA reports include lengthy explanations of complex assumptions (including methodology changes) that deserve careful consideration.

Figure 4 – Incentive Cost Ratios - Power Generation Incentives, Estimated \$2010 per MMBtu, 2007 and 2010 (EIA Methodology, Modifications Noted)

Power Generation Fuels	2007 ¹			2010 ¹		
	T Btu	\$MM ²	\$/MMBtu ³	T Btu	\$MM	\$/MMBtu
Coal ⁴	6,885.4	\$3,166	\$0.46	6,314.8	\$1,189	\$0.19
Natural Gas and Petroleum Liquids	3,135.6	\$239	\$0.08	3,514.1	\$654	\$0.19
Nuclear	2,709.1	\$1,332	\$0.49	2,753.4	\$2,499	\$0.91
Biomass	138.5	\$38	\$0.28	129.6	\$114	\$0.88
Geothermal	51.2	\$15	\$0.29	53.5	\$200	\$3.74
Hydropower	880.3	\$183	\$0.21	863.1	\$215	\$0.25
Solar	3.4	\$15	\$4.32	4.4	\$968	\$218.37
Wind	105.8	\$761	\$7.20	322.9	\$4,966	\$15.44

Notes and Assumptions

¹ 2007 data from *Federal Financial Interventions and Subsidies in Energy Markets, 2007* (EIA, April 2008); 2010 data from *Direct Financial Interventions and Subsidies in Energy, Fiscal Year 2010* (EIA, July 2011); consolidates direct expenditures, tax expenditures, R&D spending, federal electricity support spending and loan guarantees.

² Inflation-adjusted to 2010 dollars using CPI-U

³ Converted to MMBtu using 3,412 Btu/kWh; 2007 generation provided in 2008 report; 2010 generation taken from EIA *Monthly Energy Review*

⁴ Combines coal and refined coal from 2008 EIA Study

Source: ClearView Energy Partners, LLC, using EIA, BLS data

The data in Figure 4 show that constant-dollar federal outlays increased between 2007 and 2010 for every fuel and technology except coal. Even in the case of nuclear power, where spending nearly doubled, incentive cost ratios for conventional sources remained within a narrow price band under \$1/MMBtu, a reflection of conventional sources’ relatively lean federal incentives and large, mature generating bases. At the other end of the spectrum, some renewable sources’ incentive cost ratios grew by one to two orders of magnitude, reflecting stimulus-driven spending increases that outstripped corresponding power generation growth.

Figure 5 presents a broader, wider assessment of incentive cost ratios prepared by aggregating and standardizing expenditure and outlay data from multiple federal agencies and budget authorities (footnotes provide details regarding methodology and assumptions).

The broader incentive cost ratios in Figure 5 differ from the EIA-derived calculations in Figure 4 in several key respects:

- They are internally-consistent across a five-year interval but, due to data availability limitations, they exclude some of the line-items that EIA included;
- They combine sources within categories, due to a combination of simplifying assumptions and data granularity limitations; and
- They broadly attribute expenditures to oil and gas, including tax treatment that many studies exclude from their accounting because it doesn't fundamentally differ from "ordinary" tax treatment for business activities (a conclusion I share). These line-items are included in Figure 5 anyway for the purpose of defining an "upper-bound" investment cost ratio.

Figure 5 – Incentive Cost Ratios – All Categories; Estimated \$/MMBtu, 2006-2010 (\$2010, CVEP Methodology)

Fuel/Technology	Total (\$2010, MM)					Total Energy (Trillion Btu)					\$/MMBtu (\$2010)				
	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Biofuels ¹	\$2,834	\$3,723	\$5,510	\$6,149	\$6,260	486	614	840	950	1,090	\$5.83	\$6.06	\$6.56	\$6.47	\$5.74
Coal ²	\$3,267	\$3,239	\$699	\$254	\$290	23,790	23,493	23,851	21,627	22,077	\$0.14	\$0.14	\$0.03	\$0.01	\$0.01
Conv. Power ³	\$941	\$799	\$203	\$346	\$10,720	13,539	13,824	13,625	12,986	13,484	\$0.07	\$0.06	\$0.01	\$0.03	\$0.20
Green Power ⁴	\$587	\$550	\$1,048	\$2,532	\$9,562	329	359	430	492	574	\$1.78	\$1.53	\$2.44	\$5.14	\$16.67
Oil and Gas ⁵	\$7,903	\$7,830	\$9,493	\$8,916	\$9,653	32,179	32,954	33,631	35,017	36,466	\$0.25	\$0.24	\$0.28	\$0.25	\$0.26

Notes and Assumptions

¹ Incorporates consumption impact (excise tax credit is paid for fuels sold or introduced into commerce in the United States) and therefore uses EIA consumption data in the denominator. Subsidies reflect estimates of actual tax expenditures for two-year-prior calendar year (e.g. 2010 data from FY2012 OMB budget request), including excise tax credits. Incorporates tax credits and DOE loan guarantees; excludes USDA loan guarantees and programmatic spending due to data granularity limitations.

² Incorporates production impact, relying on EIA production data in the denominator. Incorporates synfuels credits, where applicable; capital gains treatment of royalties on coal; credit for investment in clean coal facilities and partial expensing for mine safety equipment. Does not include programmatic spending at DOE (supply-side impact likely to lag outlays).

³ Incorporates total generation of coal-, petroleum- and gas-fired power, nuclear energy and net conventional hydroelectric power in the denominator. Treats all transmission and distribution ("smart" or otherwise) as a subsidy for conventional power. Incorporates five-year carryback of net operating losses, interest exclusions for energy facility bonds and conservation subsidies, deferral of gain from dispositions of transmission property to implement FERC restructuring policy, amortization of air pollution controls, 10-year MACRS for distribution and 15-year MACRS for transmission.

⁴ Incorporates total generation (all sectors) of wind, geothermal, solar, biomass (wood and waste) in the denominator. Incorporates PTCs, ITCs and DOE grants and loan guarantees, MACRS and renewable energy bonds. Data granularity limitations preclude breakout of subsidies by fuel or technology at this juncture.

⁵ Incorporates total domestic production of oil, natural gas and natural gas liquids in the denominator, embedding the (liberal) assumption that refined product manufacturing and inventory incentives flow through to upstream. Incorporates IDC deductions, publicly-traded partnership treatment for MLPs, exception from passive loss limitation for working interests in oil and gas properties, temporary 50% expensing for equipment used in the refining of liquid fuels, natural gas distribution pipelines treated as 15-year property (liberal assumption that LDC demand stimulates upstream domestic production), two-year G&G amortization, EPA sulfur credits, EOR and CO₂ credits, oil, estimated gas and refined product share of Section 199 deduction, estimated oil and gas share of dual-capacity taxpayer status, estimated oil and gas share of LIFO revenue impact. Does not include royalty relief provisions (data granularity limitations preclude inclusion at this point).

Source: ClearView Energy Partners, LLC, using EIA, JCT, OMB and BLS data

The five-year time series in Figure 5 captures the spending impact of 2009-2010 stimulus programs as well as the demand contraction that preceded it. Averaging five data points is also more meaningful than averaging two of them. The resulting average incentive cost ratios fall into two relatively narrow price bands:

- \$6.13/MMBtu for biofuels and \$5.51/MMBtu for green power; and
- \$0.07/MMBtu for coal production (excluding programmatic spending), \$0.19/MMBtu for conventional power, and \$0.26/MMBtu for fully-allocated oil and gas spending.

Other performance attributes of fuels and technologies lend themselves to similar analysis.

Figure 6 estimates the “abatement cost” of carbon dioxide emissions avoided by employing lower-emitting fuels and technologies in place of their conventional equivalents:

- Solar and wind power as replacements for the national average generating mix;
- New automobiles purchased under the Cash-for-Clunkers program as an alternative to older, lower-efficiency cars;
- Natural gas as a substitute for diesel fuel in heavy-hauler trucks, as devised by the NATGAS Act (H.R. 1380); and
- Corn ethanol as an alternative to conventional petroleum gasoline.

Traditional “marginal abatement cost curves” (MACC) define a supply curve of fuel and technology options for reducing greenhouse gases by computing fixed and variable costs. Most MACC curves are generated by determining the cost per metric ton of avoided carbon dioxide emissions (MtCO₂e) implied by project costs. The “implied abatement costs of outlays” presented in Figure 6 are similar, except that they are *in addition* to project spending by developers, financiers and/or end-users. Put differently, these abatement costs represent the price the federal government pays to eliminate one metric ton of carbon dioxide emissions, but they are not the whole price.

Figure 6 also presents lower-bound and upper-bound abatement costs for solar and wind generation. The lower-bound calculates abatement cost the way Figure 4 calculated incentive cost ratio: by applying FY2010 incentive levels to *total* CY2010 energy output. The upper-bound applies FY2010 incentive levels to 2009-2010 *growth* in power output.

Figure 6 – Implied Abatement Costs of Outlays: Carbon Price Implied by Estimated Current and Proposed Energy Spending, (\$2010/MtCO₂e)

Fuel/Technology	Amount Spent (\$2010, MM)	Generation or Fuel (GWh, Tcf or Bgal)	Incremental Generation or Fuel (GWh, Tcf or Bgal)	Emissions Avoided (MM MtCO ₂ e) ²	Amortization Period or Asset Life (Years) ³	Lower-Bound: Amortized Abatement Cost (Total), \$/MtCO ₂ e ⁴	Upper-Bound: Amortized Abatement Cost (Incremental), \$/MtCO ₂ e ⁴
Solar (EIA, 2010)	\$968	1.30 GWh	0.24 GWh	0.78	20	\$62.09	\$197.71
Wind (EIA, 2010)	\$4,886	94.65 GWh	12.46 GWh	56.79	20	\$4.39	\$20.01
Cash for Clunkers ⁵	\$2,925	NA		9.28 ⁵	1.2 ⁵	\$262.68	
NATGAS Act ⁶	\$5,009 ⁶	1.19 Tcf ⁶		8.34	5 ⁶	\$119.85	
Ethanol (VEETC Only) ⁷	\$5,805	12.9 Bgal		18.13 ⁷	20	\$16.01	

Notes and Assumptions

¹ Using EIA generation data from the *Monthly Energy Review*, 2011 total generation vs. 2010 total generation.

² Using average carbon footprint of 0.595 MtCO₂e/MWh.

³ For renewable assets, 20-year amortization period is applied as a simplifying assumption. For Cash-for-Clunkers, the 690,114 cars and light trucks averaged 9.2 mpg savings and the average age of the vehicle replaced left only 1.2 years of useful life. For the NATGAS Act, proposed program would put 140,000 heavy haulers on the road over five years and related fueling infrastructure.

⁴ A range between amortized total and incremental cost may be most accurate. Not all of the tax expenditures for PTCs go to new infrastructure; not all ITCs paid out in a given year are for new projects. In both cases, there may be a time lag between disbursement and the onset of power generation (and emissions abatement).

⁵ Assumes 12,500 mpy average VMT; uses 1.2 year incremental vehicle life and 9.2 mpg/vehicle average gasoline efficiency gains.

⁶ Relies on preliminary information (five-year budget cost, 140,000-vehicle target); does not model in light-duty vehicles or associated incremental cost.

⁷ VEETC only; uses 16% GHG differential (EPA, 30Y 2% discount rate for corn ethanol in a gas-fired dry mill).

Source: ClearView Energy Partners, LLC, using EIA, EPA, JCT, OMB and RUS data

Figure 7 quantifies petroleum security benefits by tabulating historical spending on the U.S. Strategic Petroleum Reserve (SPR) and the Volumetric Ethanol Excise Tax Credit (VEETC) and projecting potential outlays associated with the NATGAS Act. Instead of carbon costs, Figure 7 calculates the *implied* costs displacing imported petroleum on a volumetric and energy-equivalent basis.

Figure 7 – Implied Petroleum Displacement Costs of Past, Current and Proposed Federal Energy Outlays, (\$2010)

Fuel Security Policy	Historical or Prospective Cost (\$2010, MM)	Barrels Displaced	\$2010 per Displaced Barrel	Trillion Btu Displaced	\$2010 per Displaced MMBtu
NATGAS Act ¹	\$5,000	212,416,667	\$23.54	1,227	\$4.08
U.S. SPR ²	\$48,552	726,500,000	\$66.83	4,214	\$11.52
Ethanol VEETC ³	\$47,725	321,428,571	\$148.48	1,142	\$41.77

Notes and Assumptions

¹ Observes simplifying convention of treating crude and products barrels interchangeably for volumetric purposes, but uses 137,500 Btu/gal HHV for diesel energy equivalency; evaluates at theoretical program end (e.g. when 140,000 trucks are already on the road and the \$5 billion has already been spent) based on preliminary estimates. Assumes 65,000 mpy at 5.1 mpg for heavy-haulers. The cumulative impact of these assumptions may significantly undercut the displacement cost, particularly if vehicle mileage is lower. N.B.: alternative vehicles convey operational capacity rather than strategic capability – the gains are incorporated into the fuel mix as technology diffuses and are not available for a supply “surge” in the event of an emergency. Operational capacity will recur annually for the equipment life, making cumulative net displacement considerably greater than the five-year total projection indicated, but realizing actual strategic potential would require stockpiling of displaced volumes (or cash equivalents).

² Incorporates total acquisition cost for the Reserve, 1976-2010, including nominal appropriations and estimated royalty-in-kind revenues, adjusted for inflation using CPI-U. The SPR is a non-recurring surge capability, but it is separate from operating supply and therefore available for emergency deployment in the event of a supply interruption.

³ Incorporates current U.S. production capability and historical VEETC outlays (excluding other subsidies). As with natural gas, cumulative displacement will grow as long as ethanol infrastructure continues operating, reducing the implied displacement cost, but capacity is not available to offset emergency supply losses without stockpiling of displaced volumes. Uses 76,000 Btu/gal energy content for corn ethanol.

Source: ClearView Energy Partners, LLC using EPA, DOE, EIA and BLS data

Incentive cost ratios, implied abatement costs and implied displacement costs offer three possible ways to measure the performance of federal financial incentives for energy production and consumption. Metrics of this sort could be used to prioritize spending – dynamically, perhaps through a reverse auction – or through legislated formulas that balance incentives for high-yield, low-cost sources with high-potential, emerging sources. Fuels or technologies that consistently fall short of established benchmarks may require a different type of government financial intervention (e.g. manufacturing assistance or pre-competitive R&D in place of production tax credits) or a different mode of financial support (e.g. loan guarantees instead of tax credits or deductions).

FINANCIAL RETURN AND FINANCING MODE

Most financial incentives to encourage energy production generally fall into two broad categories: *equity subsidies* that augment producers' cash positions and *debt subsidies* that lower producers' borrowing costs.

Figure 8 presents a simplified, *pro forma* model of a wind project operating at a 40% capacity factor over a 20-year operating life.

In the base case, the \$2,000/kW capital costs for project hardware would be 20% equity-financed at a 15% cost of equity and 80% debt-financed at a 12% rate over a ten-year period. For simplicity, Figure 8 excludes startup time, rental fees and O&M spending. The resulting "levelized" fixed cost is about \$0.045/kWh.

Figure 8 – Financing Mode, Quantified: Levelized Wind Energy Generation Cost, IRR and "Return on Tax"

Scenario	Base Case	PTC over ten years	30% ITC paid in Year 1	30% Grant in Year 0	Loan Guarantee 10% default rate
		\$417.25	\$532.86	\$600.00	N/A
		Deduct PV of Payment Stream from Capital Cost	Deduct PV of ITC from Capital Cost	Deduct PV of Grant from Capital Cost	Lower Interest Rate, 14% Credit Subsidy Costs, 10% EV of Default
How Modeled					
Effective Capital Cost	\$2,000 per kW	\$1,583 per kW	\$1,467 per kW	\$1,400 per kW	\$2,000 per kW
Capacity Factor	40%	40%	40%	40%	40%
Useful Life	20 years	20 years	20 years	20 years	20 years
Financing Life	10 years	10 years	10 years	10 years	10 years
Debt	80.00% of project	80.00% of project	80.00% of project	80.00% of project	80.00% of project
Cost of Debt	12.00% APR	12.00% APR	12.00% APR	12.00% APR	8.00% APR
Interest Costs	\$1,127 nominal	\$892 nominal	\$827 nominal	\$789 nominal	\$714 nominal
Equity	20.00% of project	20.00% of project	20.00% of project	20.00% of project	20.00% of project
Cost of Equity	15.00% hurdle	15.00% hurdle	15.00% hurdle	15.00% hurdle	15.00% hurdle
Equity Costs	\$60 levelized	\$47 levelized	\$44 levelized	\$42 levelized	\$60 levelized
Disc/WACC	12.60%	12.60%	12.60%	12.60%	9.40%
Total Cost	\$3,187 per kW	\$2,522 per kW	\$2,338 per kW	\$2,231 per kW	\$2,774 per kW
Total Hours	70,080 hours	70,080 hours	70,080 hours	70,080 hours	70,080 hours
Levelized Fixed Cost	\$0.045 per kWh	\$0.036 per kWh	\$0.033 per kWh	\$0.032 per kWh	\$0.040 per kWh
Levelized Benefit		\$0.009 per kWh	\$0.012 per kWh	\$0.014 per kWh	\$0.006 per kWh
Cost to Taxpayer		\$0.021 per kWh	\$0.008 per kWh	\$0.009 per kWh	\$0.003 per kWh
IRR @ \$0.15/kWh	-0.11%	3.57%	5.32%	6.46%	4.46%
"Return on Tax"		45%	159%	159%	227%

Source: ClearView Energy Partners, LLC

Figure 8 explores four financing options as alternatives to the base case.

- **Production tax credit.** Over the wind farm's 20-year project life, the present value of the ten-year, \$0.021/kWh production tax credit (PTC) would average to about \$0.0116/kWh, but only for taxpayers who could claim it. Developers without tax liabilities typically retain advisors to sell the "tax equity" of the payment stream to another, taxable party. Applying the resulting \$344.23/kWh (at the developer's discount rate) before fees and negotiated discounts to capital costs would translate to a \$0.009/kWh cost reduction over twenty years. At a sale price of \$0.15/kWh, this implies a 3.57% internal rate of return (IRR).
- **Investment tax credit.** A similar transaction to monetize a 30% investment tax credit (ITC) paid at the end of year one and apply the proceeds to capital costs would reduce levelized generation cost by about \$0.012/kWh for a 5.32% IRR.
- **Grant (simplified).** Applying proceeds from a 30% government grant or rebate payable in year zero to capital costs would reduce levelized generation cost by a similar amount, approximately \$0.014/kWh, yielding a 6.46% IRR.
- **Loan guarantee (subsidized).** A borrowing cost reduction of 400 basis points (4%) and government payment of the corresponding 14% credit subsidy costs would reduce levelized generation cost by about \$0.006/kWh for a 4.46% IRR.

This highly-simplified, theoretical example omits several real-world elements. For example, a real project developer would also seek to monetize other value streams associated with the project, including the value of its depreciation under the Modified Accelerated Cost Recovery System (MACRS) and, when market conditions allow, a forward sale of Renewable Electricity Certificates (REC) under any applicable state Renewable Portfolio Standard (RPS).

Of course, in the real world, the transaction costs of monetizing tax equity and grants are not zero, and can be significant enough to affect project economics. In addition, third parties may apply higher discount rates to tax equity revenue streams, resulting in steep discounts for project sponsors. Policy uncertainty and commodity price fluctuations can also compress intangible project value.

From the developer's perspective, the best option in Figure 8 is probably the (transaction-cost-free) 30% government grant because it delivers the highest IRR. That stands to reason – cutting time and the “middleman” out of any transaction should leave more on the table for the developer. But Figure 8 also suggests a different way to judge subsidy performance – a “return on tax” metric that calculates how much theoretical project benefit a developer receives per government outlay dollar.

Accounting immediately for PTCs paid out over time clearly generates the lowest return on tax. Without transaction costs, return on tax would be essentially the same for 30% realized now or next year (especially at today's interest rates). In a world with transaction costs, time is money for developers, especially when dollars next year are paying transaction costs today. Developers might well question the value of complicating financial incentives with such a convoluted process. By the same token, a reasoned argument could be made that delay offers opportunity for greater due diligence and tax equity transaction costs may, practically speaking, buy that due diligence from private-sector professional services firms.

The fourth option in Figure 8 – a loan guarantee that lowers interest costs – offers the highest return on tax, assuming a 10% default risk, and a modest IRR, but debt subsidies may offer several other benefits, too. For example, it may be more appropriate to match the maturity of financing to the long useful life of the underlying asset. It may also be desirable from a policy perspective to align investor incentives with project viability. Collapsing equity payment streams into lump sums means that investors' first concerns are likely to be the spreads between their fully-loaded capital costs and the project's fully-subsidized investment yield. The clean energy or energy security produced by the underlying asset can become, ironically enough, little more than a positive externality of a financial transaction. Policy goals and investor allocations could diverge as credit costs increase or returns from other low-risk, fixed-income instruments improve.

Loan guarantees cannot minimize taxpayer cost per subsidy dollar without adequate due diligence. More importantly, taking a portfolio approach by financing a diverse range of fuels and technologies, including projects with less volatile risk/reward profiles, can enable necessary investments in “moon shot” innovation without compromising overall financial stability. It may be worth revisiting whether the Department of Energy's current appropriations-backed, solicitation-driven Title XVII debt financing program has the autonomy to structure an appropriately balanced portfolio. A public innovation financing program should supplement, not supplant private innovation funding, but it need not be condemned to holding a portfolio of slow antelopes. The best deals go quickly, and a freestanding “green bank” capable of swiftly closing promising transactions might avoid unintended negative performance bias associated with exclusively funding those deals the private sector has already rejected.

NON-FINANCIAL POLICY TOOLS

Several categories of non-financial policy tools can influence supply and demand outcomes, as well.

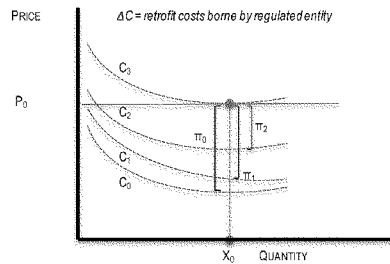
Non-market mechanisms provide energy producers with access to resources, intellectual property or commercial opportunities they might be unlikely to obtain without government intervention. Non-market incentives include pre-competitive research and development; government-funded demonstration or commercialization projects; government patents and technologies; and preferred access to government-controlled market segments.

Prescriptive standards that impose enforceable performance targets on energy producers by assessing penalties for noncompliance can effectuate rapid fuel, technology and emissions changes. On the other hand, the trade-offs for rapid results can include wealth destruction and higher energy prices for several reasons:

- Because producing assets have useful lives that can span many decades, standards that require operators to abandon infrastructure before it has been paid off tend to generate explicit losses. These losses can diminish capacity margins and increase import dependence when operators lack the capital or the economic incentive to replace shut-down assets.
- Standards that require operators to replace paid-for, legacy assets with new infrastructure can result in higher average production costs. Depending on industry structure and producers' market power, this can translate to higher end-user prices.
- Standards that require unscheduled (or “non-maintenance”) capital investments in retrofit technologies can, in some cases, divert cash away from future investment, often to producers' financial detriment. Alternatively, when producers can pass retrofit costs through to end-users, customers may pay higher prices.

Figure 9 offers a conceptual representation of how prescriptive standards could impact supply.

Figure 9 – Prescriptive Standards: Compliance Implications for Price-Taking Commodity Producers



Source: ClearView Energy Partners, LLC

The theoretical producer in Figure 9 sells a commodity for a fixed price, P_0 , and has optimized production, X_0 , to take advantage of maximum efficient scale on production cost curve, C_0 , generating economic profits of π_0 . In plain English, X_0 is the firm-level output where producing more would cost more at the margin and producing less would leave money on the table.

Standards that require a one-time investment in plant retrofits would increase fixed costs, shifting the cost curve to C_1 . In an undersupplied market, this producer might be able to spread this non-maintenance outlay across greater production volumes to arrive at a new, maximum efficient scale (a scenario that suggests higher end-user prices). In this example, demand is weak and this producer cannot sell more than X_0 , causing his or her economic profits to contract from π_0 to π_1 .

Standards that impose new fixed *and* variable costs would shift the production cost curve up to C_2 . As above, a tight market might allow producers to pass costs through but, in this example, the impact would be a further reduction in economic profit, from π_0 to π_2 .

Some standards could drive producers out of business. Cost curve C_3 implies new fixed and variable costs so high that they eliminate economic profits entirely at the externally-determined price, P_0 , a circumstance likely to result in a plant shutdown. Even without plant shutdowns, operators adapting to leaner profits may be unlikely to hire new employees and may even make workforce cuts.

Due to the competitive, market-driven, privately-operated structure of the U.S. energy supply, prescriptive standards may be best suited to mitigating acute risks to national security or environmental quality. In many instances, clear regulations that set long lead times and fixed targets can minimize these financial and peripheral costs.

This concludes my prepared testimony. I will look forward to any questions at the appropriate time.

Committee on Ways and Means
 Witness Disclosure Requirement – “Truth in Testimony”
 Required by House Rule XI, Clause 2(g)

Your Name:		
Kevin Book		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have received</u> during the current fiscal year or either of the two previous fiscal years: N/A		
4. Please list any offices or elected positions you hold. N/A		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. N/A		

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Chairman TIBERI. Thank you, Mr. Book.
 Mr. Auerbach, you are recognized for five minutes.

STATEMENT OF NEIL Z. AUERBACH, FOUNDER AND MANAGING PARTNER, HUDSON CLEAN ENERGY PARTNERS, L.P., TEANECK, NJ

Mr. AUERBACH. Chairmen Tiberi and Boustany, Ranking Members Neal and Lewis, and the rest of the subcommittee, thank you for the opportunity to testify today. My name is Neil Auerbach, and I am the founder and co-managing partner of Hudson Clean Energy Partners, a leading private equity firm exclusively dedicated to investing in the clean energy sector, globally.

Although the firm is only four years old, I have been an active investor in this sector since 2002, and have been fortunate to have generated substantial investment gains in this sector, investing in this sector over the course of my career as an investor. And, therefore, I am offering you an investment perspective on how government energy policy influences investment activity.

I also happen to be a conservative, and I believe in limited government, because experience tells me that the private sector does most things better than government. When government does act, it needs to search for least cost, highest impact ways to achieve its goals.

This committee has been charged with the task of examining energy tax incentives, and I applaud that effort. My written testimony contains a lengthy review and analysis of energy tax incentives, and includes a strong endorsement of the use of reverse auctions to support renewable energy deployment such as that found in H.R. 909.

To explain why I draw that conclusion, I want to articulate several core principles underlying my thinking. First of all, I think that three policy drivers are behind smart energy policy: supporting economic growth, fostering energy security, and also fostering environmental security. I support portfolio diversity. The approach is very instructive to getting us there. When markets function properly, we can allocate capital rationally in the private markets.

Another aspect of my view of energy policy reflects that energy is a commodity, not a product. It is the backbone of our economy, and it needs to be there when we need it, and it needs to be as cheap as possible.

Scale is everything in driving down cost. Consumers generally don't drive innovation in the energy sector. During the 20th century we scaled successfully fossil fuels first. They were expensive at first, and only with scale do they get cheaper. Renewable energy scaled later in time, and government support has been essential in helping renewables overcome a late start.

Tax credits have been very helpful incentivizing investment and production of energy from renewables, and they played a vital role in moving capital into the sector. And, therefore, have contributed to dramatic reductions in the cost of these power sources. In the two slides that I show on the screen, I show just how impactful this scale-up of renewable energy has been in driving down the cost, and in this slide show our forecast, proprietary forecast, of continuing dramatic reductions in the cost of renewables.

But I am here today to suggest that it is time to re-examine the way the Federal Government supports clean energy investment.

Specifically, I support adoption of a very different approach to federal support of our sector, and it is the use of reverse auction mechanisms, such as that advocated by Congressman Nunes and over 70 congressmen in H.R. 909. The reverse auction principle is simply a market-making technique where buyers invite sellers to transact at the lowest possible price. It encourages competition among sellers.

Now, H.R. 909 has 3 important aspects that merit attention. First of all, the market sets the price for government support payments, not a government-mandated view of what that price should be. The mechanism ultimately weans the industry off support payments all together over the course of time.

Number two, it draws revenue from expanded access to domestic energy such as oil and gas leases to support the scale-up of new energy resources.

And then, third, it uses cash as a currency for providing support to industry, rather than a tax credit which, from experience, is way too complex for most renewable energy developers to access without incurring enormous friction costs. My testimony explains that this friction cost can be as high as \$.30 to \$.40 for every tax credit dollar expended.

And for that reason, I am also an advocate on fiscal efficiency grounds of extending the 1603 cash grant until the more modern reverse auction system can be implemented. Because what we want to do is have \$1 of taxpayer money buying \$1 of renewable energy development, rather than only \$.60 to \$.70 with the friction-laden tax credit system.

In conclusion, I believe that it is time to phase out the Tax Code and phase in more efficient support mechanisms for renewable energy, and I encourage this committee to signal that the—to the industry that it is serious about energy tax reform, and finds merit in H.R. 909 as a better way to support renewable energy in the future. Thank you.

[The prepared statement of Mr. Auerbach follows:]

TESTIMONY OF NEIL Z. AUERBACH, MANAGING PARTNER OF HUDSON CLEAN ENERGY
PARTNERS, BEFORE THE
COMMITTEE ON WAYS AND MEANS
UNITED STATES HOUSE
September 22, 2011
On
“ENERGY TAX POLICY AND TAX REFORM”

Introduction

Mr. Chairman, Ranking Member, members of the Committee, thank you for the opportunity to testify here today. It is truly an honor.

My name is Neil Auerbach, and I am the Founder and Managing Partner of Hudson Clean Energy Partners. Hudson Clean Energy Partners is a global private equity firm that focuses exclusively on investing in the clean energy sector. With over \$1 billion in assets under management, Hudson is a leading global investor in sectors that include wind, solar and hydroelectric energy, biofuels, biomass, smart grid, electric vehicles, energy efficiency and storage. Given our position on the front lines of these fast-growth industries, we have seen firsthand the impact of government policies on private sector capital flows in our sector, both at home and abroad. Additionally, in my early professional life, I served for almost 10 years as a tax attorney and two years as Branch Chief and Assistant to the Associate Chief Counsel of the Internal Revenue Service.

Based on this experience, I would like to offer my thoughts to the Committee on the effectiveness of renewable energy support mechanisms in the Internal Revenue Code. Additionally, I would like to offer several options for improving on the current structure in ways that would continue to provide strong support for renewable energy development while also reducing the cost to the US taxpayer.

The clean energy industry in the U.S. has been supported for the past two decades in large part by the production and investment tax credits (PTCs and ITCs). These policies have served an effective goal, resulting in substantial amounts of capital invested and an increasingly significant amount of installed renewable energy capacity. My firm's research has confirmed that small increases in scale are causing significant improvements in the cost structures of the wind and solar industries, which provide a majority of renewable power today. Wind and solar energy are more cost competitive now than ever before, having reduced costs more rapidly than any other type of conventional energy source over the last 80 years.

As technology costs have declined, some have asked why we still need the PTC and ITC for renewable energy development. There are three principal reasons. First, cost curve analysis suggests that renewable energy will be cost competitive with traditional sources of energy generation within the next few years. Wind and solar power technologies are reaching grid parity in some markets now and are projected to reach grid parity in most markets during the next five years or so— the policies are working as the market is scaling, costs are coming down and the technologies are increasingly competitive. During this transitional period when continued scale-up is pivotal to the reduction of costs, it is crucial that policy continue to enable this growth. Second, the PTC and ITC have helped to level the playing field for renewables with fossil fuels and nuclear, which have been the recipients of the vast majority of federal energy incentives over time, equating to approximately 82% of direct spending, R&D and tax

expenditures from 1950 to 2006.¹ The cost savings and price stability that renewable energy will offer consumers versus fossil energy is reason to invest taxpayer dollars in its development. Finally, federal and state policies play an important role in stimulating private capital in these markets. The U.S. has the most robust capital markets in the world that are driven by the private sector. These markets have been mobilized in renewable energy markets thanks in large part to the PTC and ITC, however, in order to give the private sector the confidence that it needs to continue providing liquidity to these markets, there must be a strong and continued policy commitment, which we have not had to date.

Despite having been largely responsible for the existence and growth of the renewables industry today, current tax-based incentives are not without shortcomings. In order to create sustained market demand for low-carbon energy sources with good policy, it is time to consider options for improving the efficiency of the current suite of renewable energy incentive programs and also consider phasing in new systems, such as a permanent extension of the 1603 Treasury grant program and the implementation of competitive tenders for federal incentives.

Before I offer detailed comments on specific areas where the existing policies should be optimized and suggestions for more efficient policies, I want to explain clearly and in the simplest terms why support for clean energy² is critical to our energy security, and is beneficial to our economy and our environment.

Domestic clean energy development is vital to our national interest

Energy Security

Energy security is enhanced when we produce more of the energy we consume here in the U.S. The U.S. currently imports approximately 23% of its primary energy from abroad³, including 51% of the oil that we consume⁴. In dollar terms, we shipped almost \$275 billion abroad in 2010 and will ship close to \$370bn abroad in 2011 in order to fuel our economy at home⁵. In order to mitigate the risks associated with our dependence⁶ on foreign sources of energy, the U.S. should increase domestic production of all sources of energy. Although Congress should not pick energy winners and losers, the goal of improving our energy security is enhanced further by improving access to unlimited sources of domestic energy than by improving access to energy resources of finite duration. Increasing our production of domestic fossil fuels may

¹ Analysis of Federal Expenditures for Energy Development. Management Information Services. February 2008 <http://www.misi-net.com/publications/2008energyincentives.pdf>

² The term "clean energy" has many definitions, as many industries want the moniker of being called "clean." Here, I used the term to refer to renewable energy (wind, solar, biomass, geothermal, hydropower, biofuels) and energy smart technologies (including smart grid, building efficiency, industrial efficiency, transport efficiency and storage).

³ EIA estimates for 2009 total US energy production (72,970 quads) and consumption (94,578 quads)
Consumption: <http://www.eia.gov/totalenergy/data/annual/txt/ptb0201a.html>

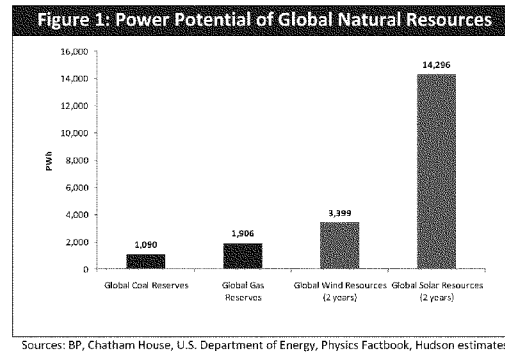
Production: <http://www.eia.gov/totalenergy/data/annual/txt/ptb0102.html>

⁴ EIA – "How dependent are we on foreign oil?" http://www.eia.gov/energy_in_brief/foreign_oil_dependence.cfm

⁵ Assumes an average \$/bbl of WTI Crude of \$79.40 in 2010 and \$102.67 in 2011 and net imports of 9.4 and 9.8mmmbd respectively:
<http://www.eia.gov/emeu/steo/pub/contents.html>

⁶ Location of equipment manufacturing is not more relevant to energy security than location of manufacturing of an oil rig or gas turbine.

improve our energy security, but a careful analysis of resource availability shows that increases in our domestic stores of accessible fossil fuels are measured at most in decades, whereas increases in our stores of renewable energy capacity have infinite duration.⁷ Figure 1 highlights the stark contrast between global coal and gas reserves and just two years worth of wind and solar supply. Our energy policy should focus on utilizing more of these clean energy resources.



Economic Rationale

Increasing our domestic production of clean energy, along with siting a significant part of the associated manufacturing chain in the U.S., promotes US competitiveness, increases domestic jobs and creates wealth that grows our GDP and reduces our trade deficit.

Our international trading partners -- led by China -- are laying plans for massive investments in the clean economy. The clean energy market is forecast to triple in size during this decade, from \$740 billion in 2009 to over \$2 trillion by 2020,⁸ exceeding global GDP growth even under the most conservative growth scenario. Annual capital invested in additions to clean energy generation capacity is already pulling even with fossil fuel generation capacity.⁹ The vibrant markets for clean energy and energy smart technologies, such as smart grid, ultra high capacity transmission, advanced energy storage, LED lighting, and electric vehicles, will be dominated by countries encouraging investments in R&D, manufacturing and deployment. In 2010, the U.S. accounted for 14% of the clean energy market, but its pole position fell for the second year in a

⁷ Proven reserves of coal in the US (260bn tons) equal roughly 200 years worth of US supply at current consumption rates (1.1bn tons/yr). Proven reserves of conventional and unconventional oil (200bn bbl) and gas (400 - 2,000tcf), however, represent only 30 and 15-80 years, respectively, of remaining oil and gas supply at current consumption rates (oil: 7bn bbl/yr; gas: 26tcf/yr). By contrast, wind and solar development sites can be upgraded every 25-30 years to continue providing renewable energy into perpetuity since there are no resource constraints. (US theoretical wind potential: 8,000GW onshore and 2,200GW off-shore; US theoretical solar PV potential: 206,000GW) — EIA, MIT, NREL, Hudson Estimates

⁸ HSBC Global Research, "Sizing the climate economy," September 2010

⁹ Bloomberg New Energy Finance: annual capital invested in additions to clean energy (\$187bn) and fossil fuel generation capacity (\$219bn)

row. Germany and China accounted for 17% and 22% respectively in 2010, taking the number one and two positions, which belonged to the US in the two years prior.¹⁰ Further, the U.S. lags our trading partners in terms of clean energy manufacturing capacity. For example, only 6% of global PV cell production takes place in the U.S. while 59% of global cell production takes place in China.¹¹ And, in terms of clean energy deployment, the US leadership has begun to wane. For example, in 2007, the U.S. installed nearly 6GW of renewable energy capacity, approximately 60% of all domestic newly installed power generation capacity.¹² China, by contrast, installed less than 5GW¹³ of renewable energy capacity, approximately 6%¹⁴ of its newly installed power generation that year. Just three years later, the picture changed dramatically. In the U.S., only 5GW of renewable energy capacity was installed in the U.S., whereas nearly 17GW of renewable energy capacity was installed in China.¹⁵ Over the same period, China moved up the league tables of top ten manufacturers of wind turbines and solar panels (see Figures 2 & 3).

¹⁰ Bloomberg New Energy Finance and Pew Charitable Trust "Who's Winning The Clean Energy Race? 2010"

¹¹ Solarbuzz (data includes Taiwan)

¹² <http://www.solarbuzz.com/our-research/recent-findings/solarbuzz-reports-world-solar-photovoltaic-market-grew-182-gigawatts-20>

¹³ U.S. EIA – Electric Net Summer Capacity

¹⁴ http://www.eia.gov/cneaf/alternate/page/renew_energy_consump/table4.html

¹⁵ Bloomberg New Energy Finance Database

¹⁶ Reuters: China installed capacity hits 710 GW in 2007

¹⁷ <http://uk.reuters.com/article/2008/01/09/china-power-capacity-idUKPEK24321320080109>

¹⁸ Bloomberg New Energy Finance and Pew Charitable Trust "Who's Winning The Clean Energy Race? 2010"

Total installed renewable capacity: US (58GW) China (103GW) - <http://bnef.com/WhitePapers/download/36>

To be competitive, the US must not just maintain its edge in R&D investment, but focus even more on encouraging the growth of manufacturing and deployment at home, as are other countries around the world. America is not predestined to remain home to the most vibrant economy in the world forever. We need to rise to the challenge.

While striving to improve our global competitiveness, we must also address our most immediate concerns at home: creating jobs and reducing the cost of energy. Investments in clean energy today can support a 21st century industry in the U.S. and foster productive job creation as the country diversifies its energy mix. Interestingly, despite the recession, we are expected to see 143,000 jobs created in the wind industry and 58,000 jobs created in the solar industry.¹⁶ Two of our trading partners, China and Germany, boast even more jobs in their home markets. China estimates that it employs approximately 1.4 million people in the clean energy sector.¹⁷ Germany, on the other hand, estimates that it employs approximately 370,000 people in their clean energy sector.¹⁸ A focused effort on making the U.S. a more welcome home for clean energy manufacturing and deployment can result in even more job creation here at home. Some have accused "green jobs" associated with clean energy as more myth than reality. Those jobs clearly are being created around the world, and more analysis needs to be conducted to better understand how the U.S. can increase its share of the job creation pie.

Many people mistakenly believe that wind and solar, as well as other forms of clean energy, are interesting technologies that may become scalable and affordable in the future if we make sufficient progress on the technology front. This is a serious error. More solar energy capacity was installed in 2010 around the world than nuclear power.¹⁹ The cost of solar energy today is cheaper than the cost of nuclear energy from a Gen III nuclear power plant.²⁰ The pace of annual solar installations around the world will have increased nearly fifteen fold between 2005 and 2011, and installations are forecast to double again by 2015.²¹

Costs of wind and solar energy have come down almost as quickly as the scale of the industries has increased. The history of the power industry reveals that all new energy sources start out expensive, and get cheaper with scale. Wind and solar are following suit today, and at a pace even more dramatic than coal, natural gas or nuclear did in their day. The cost of wind power, for example, has fallen by 30% over the past 3 years.²² Recent anecdotes suggest that in some

¹⁶ Lawrence Berkeley National Laboratory (LBNL) and The National Renewable Energy Laboratory (NREL)

¹⁷ NY Times: "China Leading Global Race to Make Clean Energy"

¹⁸ <http://www.nytimes.com/2010/01/31/business/energy-environment/31renew.html>

¹⁹ Gross employment from renewable energy in Germany in 2010

²⁰ http://www.bmu.de/files/english/pdf/application/pdf/ee_beschaeftigung_2010_en_bf.pdf

²¹ The World Nuclear Industry Status Report 2010-2011, Draft Version – 2010: 5GW of nuclear reactor startups

²² http://www.worldwatch.org/system/files/NuclearStatusReport2011_prel.pdf

²³ "Solar and Nuclear Costs – The Historic Crossover" – Solar (14-18 cents/kWh) vs. Nuclear (~20 cents/kWh)

²⁴ http://www.ncwarn.org/wp-content/uploads/2010/07/NCW-SolarReport_final1.pdf

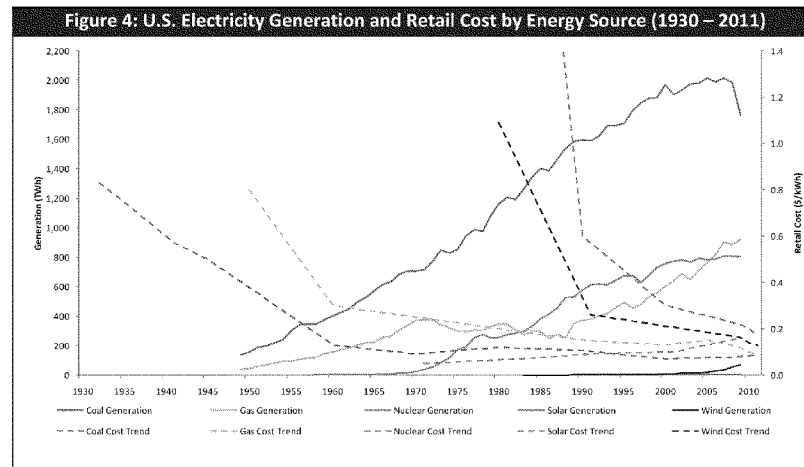
²⁵ Photon Consulting Database:

²⁶ 2005–2011 annual installations (1.8GW to 27GW); 2015 (51GW annual installation, 225GW total installed)

²⁷ Hudson estimates

markets, wind power is now cheaper than power generated from a combined cycle gas plant (CCGT). The progress of the solar industry in reducing costs is even more impressive. The cost of solar power has dropped approximately 15% per year over the past several years, and is expected to continue. In fact, recent industry estimates suggest that solar panel prices have dropped a whopping 33% during 2011 alone²³. On the current pace of cost reduction, solar energy may be cheaper at distributed generation scale in many markets than power generated by fossil fuels within 3 to 5 years.²⁴

The following chart, which was produced by my colleagues for an article published in the *Journal of Environmental Finance*²⁵, catalogues the history of price movements of electricity powered by coal, natural gas, and nuclear energy since 1930. History teaches us that each of these power sources has required achieving massive scale in order to achieve their current favorable cost structures. Hudson's research confirmed that small increases in scale are causing significant improvements in the cost structures of the wind and solar industries. Figure 5 clearly demonstrates that wind and solar energy have reduced costs more rapidly than any other type of conventional energy source over the last 80 years. Figure 5 projects even further progress in reducing the cost of wind and solar energy over the next several years.

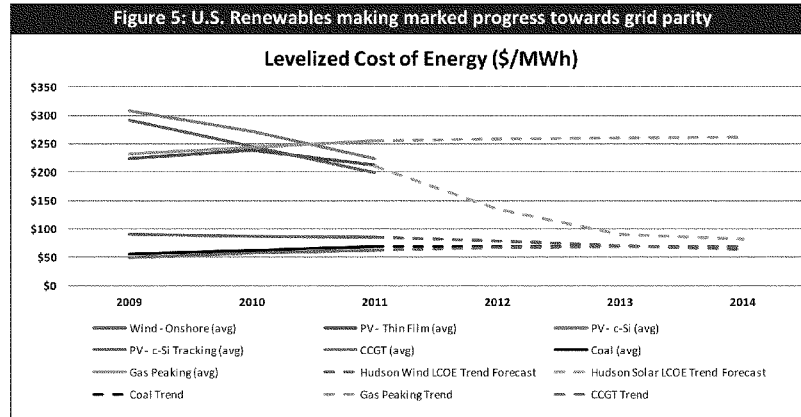


Sources: U.S. Energy Information Administration; Massachusetts Institute of Technology; American Energy Independence; US National Renewable Energy Laboratory; "The Economics of Nuclear Reactors: Renaissance or Relapse," Cooper, 2009; Hudson estimates

²³ Bloomberg New Energy Finance

²⁴ See comments of Mark Little, research director of General Electric, reported in <http://www.bloomberg.com/news/2011-05-26/solar-may-be-cheaper-than-fossil-power-in-five-years-ge-says.html>

²⁵ Environmental Finance, "Making the Case for Clean Energy", December 2010 - January 2011



The rapid reduction in clean energy's cost structure is projected to continue, and will bring these technologies into grid or retail parity with conventional power sources over time, even cheaper than conventional power sources in more and more markets over time.

Two solar companies in our portfolio illustrate the dramatic progress being made in reducing the cost of solar energy.

Calisolar is a California-based manufacturer of silicon, wafers and cells that are sold to manufacturers for use in making solar panels. Calisolar is unique in its ability to manufacture silicon feedstock that is much cheaper than conventional silicon without compromising quality. In its new manufacturing plant recently announced to be built in Mississippi, Calisolar will manufacture its silicon far cheaper than most of its industry peers²⁶. And in an all-too-rare industry role reversal, our American company is already exporting its product to China. We expect Calisolar to be able to manufacture at below \$20/kilogram as compared to the current industry average of \$34/kg on volume-weighted basis/kilo,²⁷ and therefore we believe that Calisolar will become the lowest cost manufacturer of silicon in the world when it completes construction of its Mississippi manufacturing facility.

Another innovative company dramatically reducing the cost of solar energy is SoloPower, a California based manufacturer of unique lightweight, flexible, high-power solar panels that possess critical advantages for both rooftop and ground mount solar market applications. By flexible, I mean thin, bendable, and utterly unlike the traditional flat-plate solar panels familiar

²⁶ http://www.calisolar.com/news/press/expand_production.php

²⁷ Photon Consulting Database, Hudson Estimates

to most people attending today's hearing. This unique form factor expands the total addressable market for solar energy given that approximately three quarters of commercial and industrial rooftops in sunny environments are not designed to bear the load of rigid glass solar panels, which weigh about five times as much as SoloPower's panels. SoloPower's product can be integrated into a roofing membrane and unrolled on a rooftop much like carpeting. Alternatively, it can be adhered directly to a rooftop without the need for physical penetrations or racking systems. This speeds installation time and reduces balance-of-system ("BOS") cost, delivering an industry-leading levelized cost of energy that is competitive with retail electricity prices in many regions of the world. We expect that SoloPower rooftop solar systems will bring the cost of delivered electricity to approximately 10 cents/kwh, below the cost of retail peak power in many power markets in the U.S. Solopower is currently building its first high volume manufacturing facility in Oregon and expects its product to be priced competitively and profitably in comparison to incumbent foreign solar panel manufacturers.

Environmental

Finally, clean energy is more beneficial to our environment than energy derived from fossil fuels. There are a wide variety of environmental hazards associated with utilizing fossil fuels for energy generation. The largest contributors to air and water pollution are automobiles and industry because of their reliance on fossil fuels. Burning oil, gas, and coal produces waste streams that include sulfur dioxide, nitrogen dioxide, carbon monoxide, airborne particulates, and volatile organic compounds that cause acid rain and urban smog. Acid rain is among the worst contributors to estuary, bay and water table contamination, while urban smog and particulates cause serious respiratory problems in humans and have adverse effects on wildlife and agriculture. The fossil fuel that is most deleterious to the environment is coal. Of particular relevance here is the impact of coal combustion on mercury levels in the atmosphere and water, as well as sulfur and nitrogen compounds. It is projected that mercury and acid gas regulations for coal fired, utility scale power plants will lead to a significant reduction of these plants in the near term. Furthermore, the majority of the scientific community views the buildup of greenhouse gases in our atmosphere from fossil fuels as a serious environmental hazard. By contrast, the environmental impact of clean energy on air, water, and land is the most benign of any natural energy source.

Policy makers must balance the environmental risks associated with increased production of fossil fuels with the economic and energy security benefits they offer. The idea that we must choose between cheap energy and our environment is false. We can have both.

Renewable energy support mechanisms in the Internal Revenue Code

I would now like to refocus my testimony on the effectiveness of renewable energy support mechanisms in the Internal Revenue Code. Much of the assessment and analysis of these

mechanisms in my testimony has been previously published in a Bipartisan Policy Center paper, which I led as a commissioner for the organization's National Commission on Energy Policy (NCEP).

Recent years have seen a surge of interest in, and support for, renewable energy technologies as a means to address climate change and other environmental concerns while at the same time diversifying the U.S. electricity supply mix, promoting advanced technologies, and supporting local economic activity and job creation. As we enter the fourth quarter of 2011, however, the outlook for the renewable energy industry going forward appears increasingly uncertain. On the one hand, 29 states and the District of Columbia have adopted renewable portfolio standards (RPS) that will require a growing fraction of electricity delivered in those states to be generated using renewable resources. On the other hand, Congress, which has debated various proposals to establish a similar policy at the national level, looks increasingly unlikely to act on either climate or renewable energy legislation any time soon.²⁸ Moreover, concern about the national debt is putting increased pressure on all forms of public support for clean energy technologies in the years ahead. Against this backdrop of patchwork state requirements and continued federal paralysis, the question is whether existing policies and market drivers will be sufficiently strong and sufficiently stable—especially in the near term and especially in the current environment of high economic and regulatory uncertainty—to overcome the still formidable financing challenges that confront many renewable energy technologies. Absent a federal RES and with growing pressure on federal and state budgets, new approaches are needed to ensure that the public resources available for clean energy are being used as effectively as possible to help new renewable industries move down the learning curve and achieve greater economies of scale.

To date, growth in those industries has been highly dependent on federal incentives. In fact, a few federal tax policies have been responsible for most of the financing directed to renewable energy projects in this country for some time—specifically the Production Tax Credit (PTC) and the Investment Tax Credit (ITC). Other incentives, such as accelerated depreciation (MACRS) and interest deductions, have also been important. And although the industry has made significant progress toward reducing costs and increasing efficiencies over the last two decades, many renewable projects would still be uneconomic in today's marketplace absent federal incentives. At the same time, current incentive programs have significant drawbacks—many of which have been underscored by the recent economic downturn.²⁹ The Section 1603 cash

²⁸ In 2009, the House of Representatives passed H.R. 2454, which includes a federal RES, and the Senate Committee on Energy and Natural Resources passed an energy bill, S. 1462, that also includes a national RES. The House version would establish a 20% RES by 2020, while the Senate proposal would set a 15% RES by 2021. In late September, 2010, Senators Bingaman, Brownback, Dorgan, and Collins introduced S. 3813, which includes a RES similar to that of S. 1462 (that is, a 15% RES by 2021). In a similar vein, Senator Lindsey Graham introduced S. 20 in September 2010, which would establish a national clean energy electricity standard of 20% by 2020 that would include renewables, nuclear, and CCS coal power plants.

²⁹ For example, the tendency of the PTC and ITC to cycle from expiration (or near-expiration) to short-term extensions has resulted in a destructive stop-start pattern of investment. Furthermore, because renewable energy project developers typically do not have sufficient

grant program allows renewable energy developers to convert the PTC to an ITC and then receive a cash grant equal to the amount of the ITC as a way to overcome diminished investor demand for tax credits as a result of the recession. Other ARRA tax credit provisions, such as the 48C Manufacturers Tax Credit (MTC), have also proved useful to larger clean energy manufacturers, but have been extremely difficult for smaller, entrepreneurial industry participants to monetize.

Some of these drawbacks, of course, have been addressed on a short-term basis by the American Recovery and Reinvestment Act (ARRA) of 2009—most notably through the Section 1603 cash grant program, which is widely viewed by industry participants as the most effective and efficient federal support mechanism to date for renewables in the U.S. The economic efficiency of the Section 1603 cash grant program is further explained below, and is a key reason why I believe that extension of the grant would be an act of fiscal prudence.

The rest of my testimony evaluates the existing incentive programs for renewables, takes note of how they have worked in practice, and identifies several options for improving on the current structure in ways that would continue to provide strong support for renewable energy development while also reducing costs to the U.S. taxpayer.

Although my testimony focuses exclusively on reforming renewable energy incentive programs, it must also be noted that numerous programs have evolved over the course of many years of state and federal involvement in the energy sector that incentivize or otherwise extend special treatment to a particular technology, fuel, or niche actor. In effect, virtually *all* forms of energy receive public support in one form or another—too often without scrutiny and public accountability. As I originally stated, the fossil fuel and nuclear industries have been the recipients of the vast majority of federal energy incentives over time, equating to approximately 82% of direct spending, R&D and tax expenditures from 1950 to 2006.³⁰ Given the fiscal environment that lies ahead, an opportunity exists to reexamine all public incentive in the energy sector to ensure that they promote cost effective production and make good use of taxpayer resources.

The evolution of renewable energy finance policies

Over the last decade or so, a convergence of state and federal policies, manufacturing and technology cost reductions, and private-sector investment have contributed to impressive growth for renewable energy sources, particularly for wind and solar photovoltaics (PV). Like

taxable income to benefit from tax credits, they often need to partner with financial intermediaries (“tax equity providers”—typically large financial institutions) that barter their tax capacity to monetize these credits. The recent recession exposed the limits of tax equity providers’ capacity to provide sustainable funding, however, and debt capital—which is also critical to clean energy deployment at scale—has likewise been relatively scarce (though the situation has begun improving).

³⁰ Analysis of Federal Expenditures for Energy Development. Management Information Services. February 2008 <http://www.misi-net.com/publications/2008energyincentives.pdf>

nearly all important energy sources, renewable energy technologies have benefited from federal and state incentives with differing success rates. The most notable federal government finance incentives have been the PTC in the case of wind and geothermal and the ITC in the case of solar.³¹

The federal PTC provides qualifying projects with an inflation-indexed, per-kilowatt-hour (kWh) tax credit over a 10-year production period.³² The federal ITC, on the other hand, allows project owners to claim a one-time tax credit equal to 30% of a project's capital costs.^{33,34}

PTC and ITC Changes in the ARRA

The Recovery and Reinvestment Act (ARRA) that passed into law in February 2009 included important modifications to the PTC and ITC programs.³⁵

- The PTC eligibility date was extended for wind projects in service by December 31, 2012 and for biomass, geothermal, and other renewable energy projects in service by December 31, 2013;
- Renewable energy projects are now allowed to opt for either the ITC or the PTC;³⁶
- Project owners may receive a cash grant from the Department of Treasury in lieu of an ITC for projects that begin construction in 2009, 2010 or 2011.³⁷

Of these changes, the most notable is the Section 1603 cash grant program, which allows developers to receive upfront cash in lieu of tax credits. The goal of this modification was to simplify financing for renewable energy projects and improve access to capital during a time when tax burdens were inadequate to capitalize on tax-based incentives and debt financing was both scarce and expensive. The Section 1603 cash grant has in fact delivered on its original promise to simplify financing, cutting out the middle-man, eliminating incentive transaction costs, and enhancing market liquidity, resulting in significant capacity build out.

³¹ It should be noted that the interplay between state and federal incentives for wind and, in particular, solar has had a powerful impact on the growth of these industries. While federal tax incentives have been essential to the growth of renewables to date, the expansion that occurred in the last decade would likely not have been possible in the absence of state-based regulatory requirements and/or incentives. The markets for Renewable Electricity Credits (RECs) created by state-level RESs (also called Renewable Portfolio Standards or RPS) have also helped support renewable energy projects. Less fortunate, from the standpoint of nurturing nascent renewable energy industries, is the fact that RES requirements vary considerably from state to state. This has created a patchwork of relatively thin markets for RECs.

³² As authorized by the Energy Policy Act of 1992, Section 45 of the Internal Revenue Code provides a PTC for eligible projects.

³³ The ITC is included in Section 48 of the Internal Revenue Code.

³⁴ Although a project owner is able to claim this tax credit at one time (usually the quarter of the year that the project is placed into service), there are many rules affecting what income this tax credit can actually count against (e.g. passive income rules). There are also rules that restrict the transfer of ownership interests in the project for a period of time after commercial operation (the "tax recapture period").

³⁵ In addition to the ARRA, important changes were made to the ITC and PTC as recently as September 2008 under HR. 1424, The Emergency Economic Stabilization Act of 2008. As part of this legislation, the ITC was extended for 8 years and the PTC for 1 year.

³⁶ If the ITC is chosen, the election is irrevocable and requires the depreciable basis of the property to be reduced by half of the amount of the ITC.

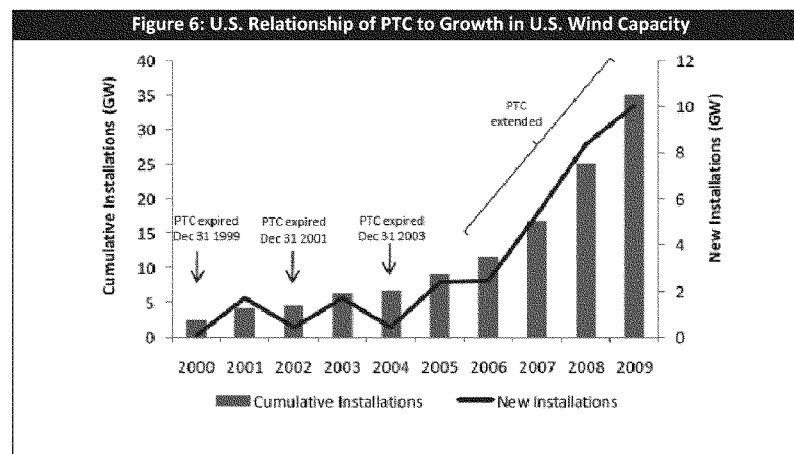
³⁷ To be eligible for the Section 1603 cash grant program, projects must commence construction or incur 5% of project costs by December 31, 2011. The Section 1603 cash grant is excluded from the gross income of the company and the depreciable basis of the property must be reduced by half of the grant amount.

Current relatively short -term tax policies are inadequate to support the achievement of ambitious renewable energy goals

Although the 1603 cash grant program addresses the short-term challenge of inadequate tax capacity in the current market environment, there are also more persistent challenges with tax-based incentives that warrant review. Two major challenges have hindered the effectiveness of federal renewable energy tax credits: (1) the stop-start cycle of investment attributable to repeated extensions and expirations of these programs and (2) the structural challenges of these tax-based incentives — namely a limited investor pool with limited liquidity, which in turn creates higher financing costs and ultimately requires more tax dollars per megawatt of clean energy installations.

Stop-Start Policies Result in Stop-Start Investment

The problems with inconsistent financing incentives have been well documented ever since the PTC was first allowed to expire in 1999. In recent years, the window during which projects could qualify for the PTC has been extended for at most two to three years at a time and on five occasions since 1999, the credit has expired before being renewed. The stop-start nature of the PTC has created boom-and-bust cycles for the renewable industry, constraining consistent growth in renewable energy capacity and complicating project supply chains. In effect, it has pushed turbine manufacturers to locate in offshore markets with more certain incentives. Similar uncertainty has characterized the PTC for geothermal energy and the ITC for solar power.



Source: American Wind Energy Association

As is illustrated in Figure 6, every time the PTC has been allowed to expire, renewable energy capacity growth has dwindled to a fraction of the growth that occurred when the tax credit was in place. For instance, when Congress let the program expire in 2000, 2002, and 2004, wind capacity installations in those three years fell 93%, 73%, and 77%, respectively, from the previous year.

By failing to encourage steady, long-term investments, U.S. policies have not fostered stable industry growth. As a result, domestic manufacturers have not captured all possible reductions in technology costs, thereby undermining the long-term competitiveness of renewable energy options. Additionally, intermittent incentives have discouraged long-term planning for complementary investments in manufacturing capacity, transmission infrastructure, and private-sector technology R&D and have hindered the growth of the skilled workforce needed to build and service renewable energy projects.

Structural challenges of the ITC and PTC

The tax-based nature of the ITC and PTC limits their effectiveness: tax incentives are complex instruments that are difficult to utilize and are accessible to only a small fraction of US investors (i.e. tax equity providers). These limitations constrain the industry's access to a small pool of corporate investors, whose numbers were further reduced during the recent economic downturn.

Investors who utilize the ITC and PTC are called “tax equity” investors. Tax equity is a term used to describe the passive financing of an asset or project, where an investor receives a return on investment based not only on cash flow from the asset or project but also on federal income tax deductions (through the utilization of tax credits). Tax equity providers are typically large tax-paying financial entities that can use the tax incentives to offset future tax liabilities. Renewable energy developers themselves typically do not have sufficient taxable income to benefit directly from these tax credits and must partner with tax equity providers in order to finance projects. Typically, they participate in a partnership structure that “flips” ownership of the project from the tax equity investor to the developer-owner once the tax benefits are realized.³⁸

➤ **Tax equity has a limited market:** The limited number of U.S. corporate entities in a position to forecast their tax situation for the duration of the period over which renewable energy tax credits can be monetized means that only the largest and most sophisticated financial firms and utilities can be considered likely investors. As a result, the investor pool for these

³⁸ In a flip structure the tax equity partner is the majority equity partner in the early years of the partnership (during which the tax equity investor receives a priority return, composed of tax benefits and cash, until the investment hits a negotiated yield target). After that, the tax equity partnership interest “flips” to a minority position. The flip exists because the tax equity investor is essentially an “accommodation” partner looking for a shorter maturity on its investment and an ability to monetize the tax credit. After the pay-back period, the tax equity partner typically retains only a nominal equity interest as allowable by law.

types of projects has historically been relatively small. Moreover, the recent recession has reduced this pool even further: the number of tax equity providers declined from approximately 20 in 2007 to 13 in 2008 and only 11 in 2009. The associated decline in overall tax equity financing provided to renewable energy projects was equally dramatic, falling from \$6.1 billion in 2007 to \$3.4 billion in 2008 and \$1.2 billion in 2009.³⁹

Figure 7: Tax Motivated Investor Market

2007	2008	2009	2010	2011
JP Morgan	JP Morgan	JP Morgan	JP Morgan	JP Morgan
Union Bank of California	Union Bank of California	Union Bank of California	Union Bank of California	Union Bank of California
Wells Fargo	Wells Fargo	Bank of America	Bank of America	Bank of America
New York Life	New York Life	GE Capital	GE Capital	GE Capital
Bank of America	GE Capital	Credit Suisse	Credit Suisse	Credit Suisse
GE Capital	empra Energy	Morgan Stanley	Morgan Stanley	Morgan Stanley
Morgan Stanley	Morgan Stanley	Citi	Citi	Citi
HSB Nordbank (1)	Bank of America (1)	Wells Fargo (1)	Google	Google
Key (1)	US Bank (1)	US Bank (1)	MetLife	MetLife
Northern Trust (1)	HSB Nordbank (1)	Key (1)	PNC	PNC
John Hancock	Key (1)	Northern Trust (1)	PG&E	PG&E
Prudential	Northern Trust (1)		Wells Fargo (1)	Wells Fargo (1)
Northwestern Mutual	SunTrust (1)		Northern Trust	Northern Trust
Citi			Key (1)	Key (1)
ABN Amro*			US Bank (1)	US Bank (1)
Fortis*				
Lehman Brothers*				
Wachovia*				
AIG*				
Merrill Lynch				
\$6.1 billion	\$3.4 billion	\$1.2 billion	\$3.2 billion	\$3.6 billion

* Permanent departure

Sources: U.S. Partnership for Renewable Energy Finance (PREF)⁴⁰

(1) These firms only participate in small-scale solar financings

The tax code limits renewable energy investors to a small slice of the U.S. taxpayer base and creates barriers for passive investors (such as those who can participate through energy Master Limited Partnerships or MLPs) and overseas investors who cannot take advantage of U.S. tax credits. In contrast, more than 140 project financiers actively invest in clean energy projects in Europe where renewable energy investment is not limited to participants with specialized expertise and sufficient tax capacity.⁴¹

- **Tax equity is expensive:** As a consequence of limited participation in the tax equity market, financial intermediaries charge renewable energy developers a premium (or add a friction cost) to use their tax capacity. Consequently, tax equity financing is typically more expensive than other financing options because of this additional friction cost associated

³⁹ Sources: Bloomberg New Energy Finance, GreenTechMedia, JPMorgan and Hudson Clean Energy Partners.

⁴⁰ US PREF canvassed all of the leading tax equity market participants, asking each of them to project the supply of tax equity capital that their institution would have available for the balance of 2010, 2011 and 2012. A bottoms-up analysis of these projections produced an estimate of approximately \$3 billion of available tax equity capacity in 2011 and 2012, assuming current market conditions persist. However, if the economy and/or credit market revert to 2009 conditions, the available amount of tax equity would be expected to shrink accordingly.

⁴¹ Source: Hudson Clean Energy Partners estimates

with tax equity instruments in contrast to cash transfers. In 2009, my team at Hudson calculated that the premium charged for tax equity financing adds approximately 300 to 800 basis points, or 3%–8%, to the typical cost of project finance debt.⁴² The additional friction cost reduces the amount of production capacity that can be installed per dollar spent—a cost that is borne by taxpayers and electricity ratepayers.⁴³ By contrast, renewable energy projects financed with project debt and cash-based incentives are usually cheaper and easier to finance.

- **The tax equity market is illiquid:** Tax-based project investment is rigid and hampers the ability of markets to create securities that would deepen the market and widen the pool of potential investors. For example, the tax code restricts the transfer of asset ownership using tax equity financing for significant time periods. Furthermore, each tax equity investment is structured to meet the individual tax strategy and appetite of the originating investor. This limits the fungibility that is necessary for the formation of a viable secondary market.

Comparing the effectiveness of tax incentives to cash grants

The Treasury Cash Grant Program introduced under the ARRA was designed to deal with the shortage of tax equity that is currently available for renewable energy projects and to address, at least temporarily, many of the financing challenges created by the recent economic downturn. As described previously, this program provides cash payments directly to developers for 30% of the cost of **capital for eligible projects**. The ARRA grants were set to expire at the end of 2010 but were provided a one-year extension as part of the Tax Relief, Unemployment Reauthorization, and Job Creation Act of 2010. If Congress does not extend this program, the PTC and ITC will again be the primary incentive mechanisms in place for overcoming renewable energy financing challenges.

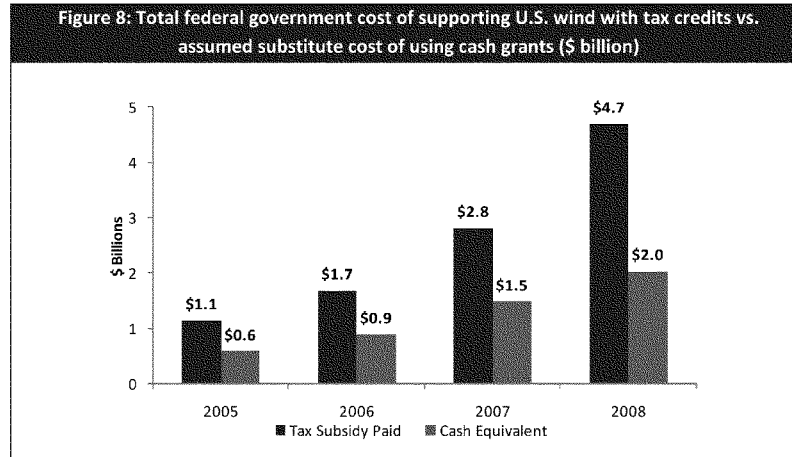
Because those challenges were so acute during the recent economic downturn, the BPC commissioned Bloomberg's New Energy Finance (BNEF) to assess how effectively the tax-based system was leveraging taxpayer resources. Specifically, BPC asked BNEF to examine two narrow questions: (1) how efficient is the PTC in leveraging private sector investment and spurring clean energy development and (2) what would equivalent incentives cost the government if the aid was disbursed in cash, rather than via tax credits?⁴⁴ BNEF found that in most circumstances, cash grants are significantly more effective, and could be less expensive, than the PTC or ITC.⁴⁵

⁴² Source: "Private Sector Perspective on New Government Initiatives", REFF Wall Street, June 2009

⁴³ Every 100bps increase in cost of debt adds \$2.50 - \$5.00 per MWh to renewable energy generation. Source: Ibid

⁴⁴ It should be noted that the BNEF analysis did not assess the ARRA cash grant program specifically. Rather, it sought to identify the amount of cash needed at the outset of a project to give developers the same rate of return they would get with the PTC. The ARRA program gives all projects a cash grant equal to 30% of eligible capital costs.

⁴⁵ This holds true for most of BNEF's scenarios. However, BNEF's model shows that if electricity prices drop below around \$55/MWh, the PTC accounts for a larger portion of total project revenue and becomes more effective than the cash grant.



Source: "Cash is King: shortcomings of US tax credits in subsidizing renewables," Bloomberg New Energy Finance, January 20 2010.

From 2005 to 2008, wind projects totaling almost 19 gigawatts (GW) of new generating capacity were installed in the U.S., incurring a liability to the federal government of about \$10.3 billion in tax credits. BNEF found that the same results could have been achieved with approximately \$5 billion in cash grants issued directly at the time of each project's commissioning. This suggests that an incentive financed through tax equity markets is twice as expensive as a cash grant incentive. Put another way, one dollar in cash would have gone nearly twice as far as one dollar in tax credits.⁴⁶ Although some in the renewable energy industry have argued that BNEF's estimate of the cash grant amount needed to achieve an equivalent result is too low, there is little disagreement that while the tax-based incentive system has been enormously supportive for the renewable energy industry, it is also a sub-optimal tool and will likely be unsustainable as the industry matures.⁴⁷ As such, there appears to be ample opportunity to improve the effectiveness of current renewable incentive policies as the nation seeks to facilitate an ambitious transformation to a low-carbon energy system without adding to our nation's long-term debt burden.

⁴⁶ An important point to note is that the PTC did not exist until the Energy Policy Act of 1992. Prior to the Act, wind received an ITC. Congress changed this incentive to a production-based credit because a significant number of developers were collecting the ITC after constructing wind projects but then leaving them idle. The PTC was designed to ensure that electricity production—not construction—was incentivized. If ITC or cash grants supplant the PTC going forward, it will be important to ensure that such incentive mechanisms are not open to fraud and abuse.

⁴⁷ Though the period analyzed by BNEF ends in 2008, the recent financial crisis further exacerbated the shortcomings of the tax-based incentive system. Liquidity in general was a problem during the crisis, and although liquidity in the tax equity market has since begun to improve, the market contraction of 2008–2009 likely further diminished the effectiveness of tax credits as compared to direct cash grants.

The next generation of supply-side renewable energy incentives

Given the shortcomings of tax-based incentives and a renewed impetus to cut federal expenditures, it is time to consider options for improving the efficiency of the current suite of renewable energy incentive programs. This is particularly important as the nation lacks a coherent overarching policy that would create sustained market demand for low-carbon energy sources. Such options should be weighed with the following goals in mind:

1. The policy framework for renewable energy incentives should be predictable, transparent and stable over long timeframes. A five-year policy horizon would provide significantly greater certainty and predictability for project developers; 10 years would be even better.
2. Incentives should be adequate to enable renewables to compete against conventional energy sources but they should also be structured to provide incentives for continued technology improvement and cost declines over time. One way to do this is to gradually sunset incentive programs in an orderly and predictable fashion; another is to award incentives on a competitive basis.
3. Policies should serve to tap a variety of sources of capital. A broader investment pool will create a more liquid market, lower financing costs, and attract more investment.

Although there is no one single, simple mechanism that serves all these objectives perfectly, several options exist for a next generation of renewable energy financing incentives that could be more efficient for both project developers and taxpayers. These options are discussed below:

Long-term predictability

As discussed previously in this testimony, the current suite of tax credits is less efficient than it could be. One way to address this issue is to extend renewable energy tax credits for longer periods of time than the one- to two-year extensions that have been typical over the last decade. The stop-start pattern of recent years is driven by political dynamics more than anything else. As in other policy realms, the overt politicization of renewable energy incentives has produced inconsistent policies and frequent last-minute, short-term extensions. By contrast, long-term predictability would allow manufacturers and project developers to engage in long-term investment planning, which in turn would stimulate investment throughout the renewable energy supply chain and accelerate the addition of new capacity. Many developers and investors have indicated that they would accept smaller incentives in exchange for longer-term policy certainty.

Increase the pool of investors who are in a position to monetize tax credits

The other central deficiency of the current tax credit system is that it limits the potential investor pool. To increase capital availability and support a deeper, more liquid market, the investor base must be broadened. One way to expand the pool of capital would be to broaden the eligibility of those who can claim renewable energy tax credits against income. Currently, only corporations with significant and predictable levels of taxable income can engage in this market. Enabling other institutional investors and high net-worth individuals to claim the economic benefit of the tax credits (i.e. either by collecting their cash equivalent or allowing the tax credit to be claimed by individuals) would greatly expand the pool of capital available for renewable energy investments.

Another option would be to enable renewable energy developers to utilize a financing/ownership structure known as a master limited partnership (MLP). MLPs can be used to create companies with two important features: (1) a limited liability ownership structure and (2) access to certain tax benefits that allow them to raise capital by selling securities (in essence, stock). MLPs enable individual investors to use the tax advantages of limited partnership investments, while also allowing them to pool and raise equity to invest in large, capital-intensive projects. Traditionally, MLPs have been used to pursue capital-intensive projects in natural resource development, real estate, and commodity distribution. Extending MLPs to renewable energy projects and related infrastructure would open access to a much larger and broader pool of equity. In effect, the general public would be able to make direct investments in clean energy projects by buying stock in MLPs that then use that equity to develop renewable energy projects.⁴⁸ This would help address the liquidity challenges of capital markets by broadening the pool of eligible investors beyond tax equity investors to the general public. Because MLPs would only increase the eligible investor pool, however, by themselves they would most likely not supplant the tax incentives currently in place. Additional reforms to the current tax-based incentives would still be needed. Extending MLPs to renewable energy projects would also require several changes in the tax code.⁴⁹

⁴⁸ It should be cautioned, however, that MLPs are typically used to finance mature technologies with stable cash flows—not projects involving technologies that have yet to be widely commercialized and may carry significant technology risk. Thus, consideration will need to be given to which kinds of projects and technologies can benefit from the MLP approach and how this type of program can be structured to create a viable investment vehicle for different categories of renewables.

⁴⁹ Apart from changing the definitions of eligible activities under these rules, other changes would need to be made to section 469 of the tax code, which governs “passive activity rules,” and to Section 465, which governs “at-risk” rules.

Reform the current tax-based incentives

Cash grants

The 1603 cash grant program, which substitutes upfront cash for the PTC or ITC, revived the renewable energy industry in 2009 when projects had all but ground to a halt. Cash grants have simplified financing structures for almost all renewable projects and made the renewable industry less dependent on tax equity investors. This has attracted a broader pool of lenders and reduced transaction costs. As such, cash grants have been significantly more efficient than other tax-based incentives, so much so that the BNEF analysis found that the federal government would need to spend about half as much in cash grants to support a comparable project receiving the PTC. Because cash grants reduce financing hurdles, a properly structured cash grant program offers an attractive incentive mechanism going forward.

Though there is a real question as to whether the cash grant program will be extended beyond 2011, there are several ways that the momentum it has generated could be sustained. One option would be to extend the grant program for several years but use a more targeted mechanism (such as a reverse auction) to determine the least amount of upfront funding needed to induce private investment in renewables projects. A similar, but modified option would be to make the tax credits refundable, or to provide the credit as a loan until the project begins generating taxable income at which point the loan could be repaid. A refundable tax credit would allow the owner of a renewable energy facility to receive a cash payment from the government if applicable tax credits are worth more the owner's tax liability (most renewable energy project developers/owners do not have taxable income, which is why they require tax equity investors). Currently, the PTC and ITC can only reduce a producer's tax liability to zero—they cannot be converted to federal payments if the credits are worth more than the producer's taxable income. Similarly, a loan structure would enable the company to receive upfront capital if it lacked sufficient tax liability against which to utilize the credit. In this case, the capital would be available in the form of a loan, repayable once the company began generating taxable income.

One downside to cash grants (or refundable tax credit / loan given upfront) is that it rewards capital investments, not electricity generation. Thus, there is a risk that the grant may not directly incentivize improvements in operating capacity and efficiency, which ultimately lower costs— but rather incentivizes maximum capital expenditures. One potential change to the cash grant program would be to ensure that developers are rewarded for efficient production. A grant (or refundable tax credit / loan) that declines over time or requires developers to compete for incentives (e.g. through a reverse-auction) would be one way to encourage technology innovation and low-cost production.

Feed-in tariffs

Feed-in-tariffs (FITs) allow eligible projects to receive a guaranteed price for the electricity they deliver to the grid. The tariff amount is typically set by law or regulation (usually on a per-kWh basis). Renewable energy projects that meet FIT requirements are usually eligible for a long-term contract for the power they produce (for example, contracts on the order of 20 years are typical). Assurance of a predictable, long-lived cash revenue stream greatly simplifies project financing. Because FITs create certainty around a project's future cash flow, associated financing structures tend to be simpler, cheaper and more attractive to lenders. FIT projects are often financed with one tranche of debt, which avoids the complicated financing structures associated with U.S.-based tax equity instruments. FITs have been popular in European countries over the last decade where they have been a key driver in stimulating the growth of domestic renewable technology and manufacturing industries, as well as clean energy deployment.⁵⁰ In the U.S., the California Solar Initiative—which is akin to a FIT—has also been very successful in prompting solar energy development. Other FIT programs have recently been implemented around the country, in places like Gainesville, Florida, and Oregon where they are attracting considerable interest from project developers who have filled subscriptions to each of these FIT programs. Additionally, over the last year, China announced that it will be supporting an enormous amount of renewable energy deployment in all regions of the country through a combination of four fixed wind FITs, a new national fixed feed-in tariff for biomass, and a new solar FIT.^{51, 52, 53}

FITs present two potential challenges. First, it is difficult to set a “correct” feed-in price. If prices are set too high, the program is inefficient in its use of government resources and can strain federal or state budgets as governments are obligated to pay for all eligible renewable energy that comes online. Overly high prices also discourage technology improvement and innovation. As a result, some countries have established tariff digressions—and have even, in certain cases, accelerated these digressions when the installed cost of renewable energy declined more rapidly than expected. Germany, for example, recently accelerated the digression rate for its solar FIT in response to a substantial decline in the cost of solar modules and domestic budgetary concerns. Second, implementing a FIT poses a political challenge as a wires charge—a fee levied on power suppliers or their customers for the use of the transmission or distribution wires—is usually used as the funding source to pay for the incentive. In a slow economy and a gridlocked political environment, passing any new

⁵⁰ Germany, Spain, Denmark and Portugal have all used FITs to successfully deploy significant amounts of renewable energy, particularly wind and solar. It should be noted, however, that many of the EU FIT programs have been criticized as overly generous to renewables and quite costly to national budgets.

⁵¹ The wind FITs were announced August 2009. Source: “China Wind Market Outlook Q1 2010”, Bloomberg New Energy Finance, February 2010

⁵² “A boost for biomass: new feed-in tariff level announced in China”, Bloomberg New Energy Finance, July 2010

⁵³ Bloomberg New Energy Finance Low Carbon Policy Database

consumer fee will be difficult. Nevertheless, FITs provide an intriguing option for shaping U.S. renewable energy incentives going forward, not least because this mechanism has emerged as the policy tool of choice for some of the largest foreign power markets in this sector, including China.

Declining, production-based cash incentives program

Another policy proposal, called “Incentives for Renewable Energy Generation” (IREG), combines the incentive properties of the PTC (in the sense that it is production-based and hence rewards actual output, while also encouraging cost discipline for project developers) with the advantages of a cash payments approach.⁵⁴ At the outset, renewable energy project developers would have two options. They could elect to receive currently available tax credits—the PTC or ITC depending on which type of tax credit the project were eligible for—or a production-based cash payment. Under the latter option, eligible projects placed in service during a specified time period would receive cash payments on a quarterly basis for 10 years. This would provide a predictable, long-term revenue stream. Under IREG’s cash payment option, projects that would otherwise qualify for the current PTC would receive payments equivalent in value to the PTC for every kWh of electricity produced. Solar and fuel cell projects that would otherwise qualify for the current ITC would receive a one-time IREG payment equal to 30% of the tax basis of the project eligible for the investment credit. Over time, however, the ITC-equivalent IREG incentive would shift to a production-based payment so as to reward electricity production rather than sums of capital invested. For all types of projects, tax-based incentives would be phased out and IREG incentive payments would adjust gradually downward over time.

The IREG approach differs from the European-style fixed FIT in that it would be a supplemental tariff received *in addition* to the electricity price negotiated under a power purchase agreement (PPA). This ensures that only those projects that can generate sufficient electricity at an appropriate level of cost are connected to the grid, thus avoiding the need to cap or otherwise limit the IREG program. Funding for the program could come from a range of sources although an adjustable rate surcharge on retail electricity sales—i.e. a wires charge—would be an obvious choice. This would avoid the annual appropriations process thereby ensuring funding consistency. As already noted, however, the political hurdles to mandating a nationwide wires charge remain steep.⁵⁵

⁵⁴ Hudson Clean Energy Partners issued a white paper describing the IREG in 2009.

⁵⁵ Wires charges have already been proposed in several U.S. energy bills—for example, the “Renewable Energy Jobs and Security Act” proposed by Representative Inslee in July 2010—but have yet to gain significant political traction.

Competitive tendering policies – reverse auctions, a more efficient way to grow our domestic clean energy industry

Reverse auctions are a mechanism for competitively distributing government contracts and incentives to private entities. In essence, reverse auctions require private firms to submit bids that stipulate the minimum price or incentive level they would accept for an eligible output.⁵⁶ The entity tasked with managing the reverse auction—typically a governmental agency—then reviews all bids and accepts the lowest ones. As a mechanism for distributing clean energy incentives, the reverse auction approach would require any potential incentive recipient or beneficiary (in this case, renewable energy developers) to compete for public resources on a cost basis. The appeal of the reverse auction concept is that it is designed to maximize the returns from a given expenditure of scarce public resources, and that it provides continuous incentives for further technology innovation and cost reductions.

Several government entities in the U.S.—among them the Department of Defense, the General Service Administration, the U.S. Postal Service, and some state governments—have established successful reverse auction programs and used this mechanism to achieve substantial reductions in program costs. In addition, other countries have applied this approach specifically to promote clean energy development. For example, from 1990 to 1999 under a United Kingdom program to distribute incentives for non-fossil fuel electricity, the use of a series of competitive auctions is credited with helping to stimulate significant cost reductions in the renewables industry over that time period.⁵⁷ Similar applications of the reverse auction concept to clean energy deployment, meanwhile, are gaining traction in several U.S. states. For instance, the California Public Utilities Commission (CPUC) recently issued guidelines to establish a reverse auction program for 1GW of small-scale solar power projects.⁵⁸ Under California's program, the state's investor-owned utilities will be required to hold biannual auctions for power purchase agreements with small, ready-to-build solar energy projects—essentially, creating a reverse auction for feed-in tariffs.⁵⁹ Solar project developers have already expressed considerable support for the California program and it is expected to be widely subscribed.

Although reverse auctions have many attractive incentive features, they must be carefully designed to address a number of specific concerns and potential disadvantages.⁶⁰ One important concern is that reverse auctions tend to favor technologies that represent the least-

⁵⁶ The incentive itself can take a variety of forms—for example, tax credits, grants, or FITs could all be distributed using a reverse auction mechanism.

⁵⁷ Newell, R. "Climate Technology Deployment Policy." Resources for the Future, 2007.

⁵⁸ <http://www.cpuc.ca.gov/PUC/energy/Renewables/Hot/Renewable+Auction+Mechanism.htm>

⁵⁹ The California reverse auction will be limited to projects 20 MW or smaller. To "bid," projects must be ready-to-go in the sense that construction can be completed and they can come on line within 18 months. The program aims to add 1000 MW of decentralized solar power generation (such as rooftop projects); it included a size cap, in part, to prevent a few large solar companies from dominating the market.

California utilities have separately entered into a number of long-term contracts with large-scale centralized solar power producers. For more information regarding CA's Renewable Auction Mechanism please see: <http://docs.cpuc.ca.gov/efile/PD/122407.pdf>.

⁶⁰ For a more complete discussion about design aspects of reverse auctions, see Richard Newell's discussion of tendering policies in his chapter, "Climate Technology Deployment Policy," contained in the report: *Assessing U.S. climate Policy Options*, Resources for the Future (2007).

cost option today, rather than newer technologies that may have the potential to achieve significant performance improvements and cost reductions as they reach economies of scale in the future. To address this concern, it may be necessary to, on the one hand, establish separate programs designed to help emerging technologies bridge the divide from demonstration to early commercial deployment, while at the same time gradually broadening the portfolio of technologies considered eligible to participate in the reverse auction over time. Another concern is that large, sophisticated firms will dominate reverse auction markets because of their size and experience. Ensuring that a reverse auction gives smaller firms and newer technologies a fair chance to compete on the merits therefore represents another critical design issue. Lastly, reverse auction programs must include safeguards to ensure that winning projects are actually completed on time and—in cases where the incentive being offered is not output based—that they also actually produce what they committed to.

Fortunately, it seems likely that all of these concerns can be substantially addressed through thoughtful program design. Moreover it is worth recognizing that similar concerns would apply to most (if not all) other incentive delivery mechanisms. The incentive program that is 100% efficient and completely free of flaws or potential to expend funds on failed projects likely does not exist. But in the current context of large budget deficits and limited resources at all levels of government, not to mention public distrust of many government spending programs, the advantages of competitive tendering mechanisms, like reverse auctions, begin to look especially compelling. As an option for distributing taxpayer (or ratepayer) funds in a way that also maximizes output per public dollar spent, fosters private-sector competition, and drives down technology costs, such mechanisms deserve increased attention as lawmakers look to design more effective clean energy policies in the years ahead.

Reverse Auction Mechanism Proposal in H.R. 909

I would now like to focus my testimony on the Reverse Auction Mechanism for Renewable Energy Generation in Title III of H.R. 909, specifically how it can be designed to be more efficient than existing incentives for clean energy.

I believe that a reverse auction, properly structured, can be a more efficient policy to grow our domestic clean energy industry than the current system of tax incentives. Reverse auctions are conducted by buyers to encourage sellers to sell at the lowest price. The history of reverse auctions suggests that they work to lower cost.⁶¹ In addition to the benefits of placing a market-driven auction mechanism at the heart of Federal clean energy policy, H.R. 909's Reverse Auction Mechanism offers other tangible improvements over the current system. First, without the need to resort to a limited market of tax equity lenders, the U.S. market for clean energy project finance would become much more liquid, resulting in lower funding costs. In

⁶¹ Bloomberg New Energy Finance, "Wind tender analysis in Brazil: Winner's Curse?"

addition, without the specter of perennial expiry of Federal tax incentives, the comfort of a solvent trust fund as envisioned by H.R. 909 would give all market participants, including manufacturers of value chain products, more confidence in the longevity of the U.S. market, increasing capital commitments to the sector with long term payoff profiles. The market values of most companies with significant clean energy investments in the U.S. would likely improve.

The U.S. Federal Government is not alone in its interest in the use of reverse auctions to support clean energy deployment. Earlier this year, Brazil completed two reverse auctions for capacity to be built in one and three years. Contracted power under Brazil's previous feed-in tariff incentive policy, PROINFA, averaged \$136/MWh. One year later, under the new reverse auction mechanism, wind power prices came down precipitously to an average of \$74.4/MWh, over 40% lower than under the previous feed-in tariff regime. In subsequent auctions, developers agreed to sell wind power at an average price of 99.58 reais (\$62.70) a megawatt-hour, lower than the average price for natural gas in Brazil and the cheapest price for wind anywhere in the world.⁶² Many other Latin American countries are following suit in an effort to reduce overall system costs.⁶³ Argentina, Mexico, Peru, Honduras, Uruguay, in addition to China, Morocco, and Egypt, all developing markets with an interest to displace more expensive fossil generation, have recently conducted reverse auctions for wind power. These countries are finding that reverse auctions are particularly attractive because they offer price discovery through competitive bidding that often leads to dramatic price reductions.

The California Public Utilities Commission also recently approved a reverse auction mechanism that will apply to the state's three largest investor-owned utilities. Although we will need to wait for the results of California's experience, the CPUC has indicated that it expects the mechanism to "allow the state to pay developers a price that is sufficient to bring projects online but that does not provide surplus profits at ratepayers' expense, providing a clear and steady long-term investment signal rather than providing a pre-determined price [via] a competitive market."⁶⁴ Developers and industry groups alike have expressed enthusiasm for the upcoming auctions because the program is anticipated to spur the development of many 1 – 20MW projects across the State.

Positive attributes of the Reverse Auction Mechanism Proposal in H.R. 909

The Reverse Auction Mechanism as designed in Title III of H.R. 909 includes many positive attributes. It would provide for consistent and efficient support for renewable generation. By establishing a dedicated source of funding through the creation of the American-Made Energy Trust Fund ("Trust Fund"), the bill would provide the kind of long-term certainty absent from

⁶² Bloomberg New Energy Finance

⁶³ Id.

⁶⁴ New York Times, "A 'Reverse Auction Market' Proposed to Spur California Renewables"
<http://green.blogs.nytimes.com/2009/08/28/a-reverse-auction-market-proposed-to-spur-california-renewables/>

the current tax credit approach. Through the Trust Fund mechanism, renewable developers would be able to rely on a steady source of support without the need for Congressional appropriations, or any other action by Congress. Moreover, the cash flowing to a particular project from the Trust Fund would reflect a market-driven assessment of the actual amount of cash flow required by the project developer to complete the project, rather than an amount prescribed by Congress, as is currently reflected in the tax code. This amount invariably would be lower than the amount currently funded by taxpayers. Rather than relying upon complicated ways to transfer tax benefits to financial institutions, accessing cash flow from the trust fund would be far simpler, encouraging the development of a more liquid project finance market, resulting in even lower costs for clean energy to rate payers.

H.R. 909's reverse auction mechanism incorporates a host of features that seek to avoid the design mistakes of other reverse auctions, including the recent Brazilian auction experience. For example, H.R. 909 calls for security requirements at the time of the bid submission, to ensure that bidders have the requisite financial resources to deliver on their contractual promises. Additionally, to ensure that the reverse auction mechanism furthers the goal of diversifying our energy sources, the Bill calls for separate reverse auctions conducted in different regions of the country, and also requires that no more than 60% of the awards can come from one type of renewable technology and no more than 90% come from two technologies.

To provide for flexibility, the language provides that a winning bidder be able to generate in excess of their specified annual amount and earn credits to be used for insufficient generation in the subsequent two years. If a winning bidder fails to generate the quantity of electric energy guaranteed in four successive years, the Authority may terminate the contract. The awards from the Trust Fund would be capped each year at the amount of energy to be generated under the contract.

Finally, to prevent double dipping, the language provides that a winning bidder would not be eligible for tax credits under Sections 45 or 48, and would not be eligible for a loan under the Loan Guarantee Program. A developer would need to make a choice. Moreover, the award would not be included in gross income to ensure that the developer's tax bill does not increase.

Suggested improvements to the Reverse Auction Mechanism Proposal in H.R. 909

Although the Reverse Auction Mechanism in H.R. 909 is thoughtfully designed, there is room for improvement. At present, some design flaws might prevent the system from working at all. Other improvements can be made to make the system work even more efficiently. Allow me to offer more concrete examples.

As currently drafted, H.R. 909 requires the renewable generator to identify a purchaser for the electric energy before participating in the reverse auction. This could be particularly problematic, since developers generally enter into PPAs only once they know whether they can earn their target return on equity. Thus, requiring that a bidder secure a PPA before it can submit a bid would likely prevent that bidder's participation in the reverse auction since, without securing a trust fund allocation, the renewable generator would not meet its required return. One way to solve this problem would be to empower a Reverse Auction Authority (RAA) to be directed to purchase energy from generators under long-term PPAs, as well as to allocate money from the trust fund. The RAA could hedge its risk from entering into long term PPAs by selling electricity into wholesale and bilateral power markets. Guidelines could be established around the RAA's purchase and sale of electricity to limit risk taking. The Trust Fund could then be used to cover any losses from power trading, with gains returned to the Trust Fund.

In addition to empowering the RAA to purchase and sell power, another improvement to the Reverse Auction Mechanism in H.R. 909 would be to empower RAAs to purchase and sell renewable energy credits ("RECs"), which often represent a vital income stream to renewable energy developers. Therefore, I propose that the Reverse Auction Authority be required to offer to purchase RECs from renewable energy developers and resell them in the market, returning any gains to the Trust Fund. Renewable developers could bid in RECs as part of its project price, and the RECs then could be resold to entities that have REC obligations. Inclusion of RECs in the reverse auction would have the effect of lowering REC prices, thereby benefiting ratepayers in states with renewable portfolio standards. In effect, inclusion of REC trading within the mandate of the RAA would immediately bring many of the benefits of a national renewable energy standard without imposing a Federal mandate.

Therefore, the limitation contained in H.R. 909 of the use of the reverse auction to the distribution of monies from the Trust Fund should be eliminated. A more complete use of the reverse auction, along with expanded powers by the RAA, would further the goal of reducing the cost of clean energy.

In thinking about how this reverse auction would work, it seems to me that the amount of energy and RECs to be purchased could be determined by the RAA based on (i) the amount of funds available in the Trust Fund and (ii) the amount of interest expressed by entities for the purchase of Federal RECs. To ensure that there is sufficient interest in the reverse auction – particularly in the early years – I would recommend that Federal agencies be directed to purchase all their REC needs through the reverse auctions. Moreover, I would recommend that each State regulatory authority in states that have a renewable portfolio standard be directed to conduct a proceeding to consider permitting utilities in their state to purchase "Federal RECs" to satisfy, in whole or in part, their utilities' state REC obligations under their RPS. While

States are engaging in such proceedings, the RAA would be permitted to sell “regional RECs” in addition to Federal RECs. Regional RECs are RECs from a generator located either inside the state in which the purchaser is located or outside the state, but within the same region, as the state in which the REC purchaser is located. Most states with RPS requirements currently permit their utilities to satisfy their RPS obligations with regional RECs. This approach would allow for the establishment of a truly national REC market, lowering the compliance burden on utilities and the cost to ratepayers, without the need for a Federal mandate.

H.R. 909 proposes that the Secretary of Energy conduct the reverse auction through an office within DOE. Since I am proposing that the RAA’s functions be expanded to include the purchase of power and RECs, I am concerned that the approach would impose on DOE a responsibility it current does not have – the purchasing and selling of power and associated RECs. Instead, I propose that the functions be delegated to a private entity with the expertise to conduct such auctions. DOE would be given oversight responsibilities.

Finally, H.R. 909 provides that monies from the Trust Fund would be subject to appropriations Acts. The intent of the reverse auction process is to provide for consistent, economical and long-term support for the renewable industry. One of the key challenges in relying on federal tax credits for support has been the cycles of expirations and extensions. During each period leading up to expiration, investments in renewable generation have fallen dramatically. I am concerned that subjecting the amounts in the Trust Fund to annual appropriations would have the same chilling effect on renewable development. I therefore propose that language be added to assure that the Trust Fund provides renewable developers with a steady source of support without the need for Congressional appropriations, or any other action by Congress.

Conclusion

Absent a coherent, long-term national climate and energy policy, targeted incentives for renewable energy will continue to be very important in maintaining strong industry growth in the U.S. Although renewable energy tax credits have had a complex history, overall, they have been vitally important in deploying renewable energy capacity and driving down technology costs. However, as the industry continues to grow, a tax-based incentive system faces increasing costs and complexity, and may be a suboptimal mechanism for achieving sustained, large-scale deployment goals. It is therefore time to begin thinking about a different approach, one that achieves desired policy outcomes as efficiently as possible and at the least cost to the public. This means looking, in an integrated fashion, at the full suite of policies and incentives being used to promote renewable and other low-carbon energy technologies to understand how these policies and incentives interact, how they could be made more effective, and how their overall cost could be reduced. Practically speaking, the effort to bring about a long-term transformation of the U.S. energy mix will likely entail continuing and improving on the current

set of largely supply-side renewable energy incentives in the near term while a national consensus emerges on the future direction of broader climate and clean energy policies. Once such policies are in place at a level where they create substantial market demand for renewable energy, public incentives should begin to taper off to avoid overlapping incentives.

In this era of increasing fiscal austerity, paying for any large-scale incentive program will require a dedicated source of reliable funding. Any of the incentive mechanisms discussed above could be funded in one of two ways: through general tax revenues or through targeted revenues. Options for targeted revenue sources include: reducing or eliminating current incentives to well-established fossil fuel industries, creating an oil import fee, or collecting a wires charge on sales of electricity. Although any of these revenue sources could generate enough funding to pay for even the largest incentive program, all have unique political pitfalls. To provide long-term predictability and certainty, Congress will need to take the difficult step of establishing a stable funding source.⁶⁵

Moreover, because government funding will likely be scarce going forward, any renewable support program must create incentives for continued cost reductions and technology improvements, while also promoting public accountability. Awarding payments on a competitive basis, through mechanisms such as reverse auctions, will help ensure that any support program allocates public resources effectively and efficiently. Given that federal and state government agencies have established successful reverse auction programs in a variety of domains, it seems likely that this approach could be effectively utilized at the federal level to promote renewable energy generation while also driving continued technology innovation and cost reductions.

As the U.S. emerges from recession and grapples anew with its most important long-term challenges—confronting a burgeoning national debt, addressing looming energy and environmental risks, and retaining a leadership position in the high-tech global marketplace—it is clear that federal incentives for renewable energy development will need to be reexamined. This testimony highlights some of the most promising policy approaches that could be used to incentivize renewable energy development more effectively in the future. These options deserve deeper exploration. I hope that this written testimony sparks a fresh dialogue in the policy community and contributes to the broader energy and climate policy debate in 113th Congress.

⁶⁵ Newly created clean energy deployment programs in place in China, Europe, and other countries appear to provide such funding stability.

Committee on Ways and Means
 Witness Disclosure Requirement – “Truth in Testimony”
 Required by House Rule XI, Clause 2(g)

Your Name: NEIL AUERBACH		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). HUDSON CAPITAL MANAGEMENT (NY), L.P. b. Briefly describe the capacity in which you represent this entity. FOUNDER AND MANAGING PARTNER	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have received</u> during the current fiscal year or either of the two previous fiscal years: NONE		
4. Please list any offices or elected positions you hold. NONE		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. NONE		

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Chairman TIBERI. Thank you, sir.
 Mr. Coleman, you are recognized for five minutes.

**STATEMENT OF WILL COLEMAN, PARTNER, MOHR DAVIDOW
VENTURES, MENLO PARK, CALIFORNIA**

Mr. COLEMAN. Thank you, Mr. Chairman and distinguished Members of the Committee. I appreciate the opportunity to testify here today. My name is Will Coleman, I am a partner at the venture capital firm Mohr Davidow Ventures. Since 1983 we have been investing in early stage technology, and we were one of the first mainline funds to move into the energy space. We have seen first-hand the challenges of building new companies in energy, and are quite aware of how public policy impacts these markets and investing decisions.

As venture investors, we invest in innovation. Energy represents one of the largest opportunities of our time, but the market conditions here in the U.S. are difficult to penetrate, and our policies still perpetuate the status quo. I am here to suggest that there is an opportunity to reform our energy tax policies, and to focus on innovation in a way that activates the private market and fosters real growth.

Globally we are undergoing a transition to the next generation of energy technologies. Our ability to lead in that transition is essential to our ongoing economic competitiveness. In prior energy transitions, the government has always played an active role. In fact, the Federal Government spent 5 times as much per year supporting the early growth of oil, and 10 times as much supporting nuclear as we have renewables. Even today, layers of tax credits are woven into the investment and operating decisions of the energy industry, and the vast majority are focused on sustaining incumbent technologies.

My point is not to question the appropriateness of these credits. But I am questioning whether the current approach is conducive to growth. According to the Department of Commerce, we owe three-quarters of our growth since World War II to technology innovation. But in energy, the top five oil companies spend almost nothing on R&D. The challenge we see to investing in new energy technologies has not been a lack of technology solutions or the underlying economics. It has been overcoming the market resistance to adoption of new technology and investment in innovation.

The current tax approach compounds the problem in two ways. First, it biases investment decisions towards tax advantage primary extraction, rather than the kind of innovation that can create a step change in cost and performance over time. And second, it makes it more difficult for new entrants to compete.

Our premise in our requirement as investors has always been that we invest in technologies and companies that, regardless of political regulation or subsidy, will be able to stand on their own two feet and compete on a level playing field within the life span of our investment. The problem in energy is that we don't have a level playing field, and we don't have a tax policy that encourages continuous innovation.

Today's technology-specific approach forces government to pick winners and losers. The semi-annual debate over whether certain credits are still needed causes uncertainty in the market, and it misses the fact that each sector includes a range of companies at very different stages of development, scale, and cost reduction.

We need a new approach. It needs to be simple, transparent, technology-neutral, accessible to large and small companies, enduring, and fundamentally focused on stimulating innovation and growth. I would like to suggest that this committee considers an approach that would create a simple, volume-based production tax incentive designed to support technologies as they scale, and roll off as they hit maturity.

In the same way that an infant needs more support than a teenager, innovative technologies require more support than mature technologies. At some point, established technologies must be able to compete on their merits. A credit would be specific to individual companies, but available across a broad array of technologies.

For example, I know of American solar companies that have very reasonable paths to produce modules for under \$.50 a watt. This would be well below the projected cost of Chinese silicon manufacturers who are at \$1 a watt today. However, these companies are still in early stages of production, and their costs are over \$1.30 a watt per day, which is not competitive. They will need to ramp to 250 megawatts before they drop below a dollar, and 750 megawatts in order to hit \$.50. These technologies could be highly profitable, but they need to get to scale. Once it is scaled, their incentives could roll off.

This is a common story. While different technology categories each have different measures for maturity, a volume-based approach would be based on generalizable metrics such as megawatts generated, gallons produced, or units sold. Eligibility criteria could be defined by whether a solution servers agreed-upon policy objectives. This approach would provide transparency and certainty to investors, and draw investment to those technologies that can ultimately compete without government support.

A shift in tax policy to such a structure would, one, end the current practice of picking long-term technology winners; two, refocus federal support on early technology deployment, where it is needed most; three, eliminating the sun-setting challenges associated with current policy; and four, encourage private investment and innovation, which is critical to new economic growth.

In closing, I recognize that tax breaks are ensconced—once tax breaks are ensconced in the code they are incredibly hard to change. But I believe we have a rare opportunity to reassess whether the existing credits accomplish the goals that they were created to serve, or the priorities we now need to meet. In today's fiscal environment we need to make every dollar work towards stimulating growth. I am not saying that we should cut all energy credits, but I am saying that we need to simplify and refocus them when encouraging the next generation of energy solutions.

Thank you for the opportunity to testify. I look forward to your questions.

[The prepared statement of Mr. Coleman follows:]

**Testimony of Will Coleman, Mohr Davidow Ventures
Before the House of Representatives Committee on Ways and Means
Joint Hearing on Energy Tax Policy and Tax Reform
September 22, 2011**

Thank you Chairman Tiberi, Chairman Boustany, Ranking Member Neal, Ranking Member Lewis, and distinguished members of the Committee. I appreciate the opportunity to be here today. It is an honor and a privilege to speak with you on issues that are so critical to our nation.

I am Will Coleman, a partner at the venture capital firm Mohr Davidow. We invest in early stage companies on behalf of some of the largest endowments, foundations, and families in America. Since 1983, we have funded over 250 companies, helping entrepreneurs transform new ideas into thriving businesses in information technology, life sciences, and energy.

We were one of the first mainline funds to move into the energy space, and have since invested in a range of sectors including bio-chemicals, energy storage, solar, coal gasification, and transportation among others. We have seen first-hand the challenges of building new companies in the sector. We have also seen how public policy directly and indirectly impacts private sector capital flows and the viability of emerging companies.

I am here today to share some perspective from our experience and to propose that we take a hard look as a nation at how the government can create a more supportive environment for economic growth.

Tax policy is a key element. In the energy sector, tax reform offers an opportunity to level the playing field, simplify the tax code, and make it more accessible to emerging companies. We need a tax code that consistently supports innovation and draws private capital in to drive the long term growth our economy depends on.

Energy Innovation: The key to enduring economic growth

As venture investors, we focus on areas that have high potential for growth. Our track record shows a clear linkage between the innovative activity we support and the impact on the economy. While under 0.2 percent of GDP is invested in venture capital each year, over 21% of GDP is generated by companies that were originally venture backed, with 11% of all Americans employed by these companies.

Energy – particularly the global transition to next generation forms of energy – remains one of the largest growth opportunities we have seen in our time. Global investment in renewable energy jumped 32% in 2010 to \$211 billion, according to Bloomberg New Energy Finance¹ and the International Energy Agency (IEA) further projects energy demand to grow 36% between 2008 and 2035. Such demand creates a massive and growing global market opportunity.²

This transition also happens to be critical to our ongoing competitiveness. As a nation, we depend heavily on access to stable, low-cost energy sources to fuel economic growth and ensure national security. We are fortunate to have a strong, diverse natural resource base. However, much of our competitive advantage over the last two centuries has come from our ability to innovate – to develop new, lower-cost or advantaged technologies such as oil, nuclear and now renewables, ahead of our global competitors. According to a report released by the Department of Commerce, “Technological innovation is linked to three-quarters of the Nation’s post-WWII growth rate. Two innovation-linked factors – capital investment and increased efficiency – represent 2.5 percentage points of the 3.4% average annual growth rate achieved since the 1940’s.”³

Over the past few years other nations have recognized the opportunity in energy. China alone has committed \$738 billion by 2020 to meet their targets. Some would argue that we cannot

¹ United Nations Environment Programme and Bloomberg New Energy Finance. Global Trends in Renewable Energy Investment, 2011. p. 6

² International Energy Agency. World Energy Outlook 2010.
http://www.worldenergyoutlook.org/docs/weo2010/WE02010_es_english.pdf. Accessed September 15, 2011.

³ U.S. Department of Commerce, *Patent Reform: Unleashing Innovation, Promoting Economic Growth & Producing High-Paying Jobs*, 2010

afford to outspend the Chinese. However, I cannot accept that premise. Our economy is still two times larger than China's with one quarter the population. The US private sector can absolutely out-innovate and out-invest the Chinese government, but we need the policies in place to draw U.S. private capital and foreign capital back into the U.S. economy.

Tax policy is one critical tool. Over the last 30 years the tax code has become an increasingly popular vehicle for government policy and a significant portion has been dedicated to energy. However, very little of the code has been effectively targeted at jumpstarting the innovation that fuels most growth.

Government: A key player in energy

We have undergone technology transitions before, and it is important to recognize that each time government has played an active role. According to a forthcoming report from Nancy Pfund of DBL Investors, the average annual inflation adjusted federal spending on oil over the first 15 years of its deployment was 5 times greater than what we have spent on renewables, and nuclear was 10 times greater.⁴ Even today, many of these programs continue.

The current state of the energy industry is a product of over a century of public policy and investment with which new entrants must contend. Over the last several decades, layers of tax policy have been woven into the business operations and investment decisions of most energy companies. Some of these supports are direct, energy-focused policies such as royalty relief and exploration credits. Others are indirect tax treatments and benefits leveraged heavily by the industry incumbents such as foreign tax credits, Master Limited Partnerships (MLPs), accelerated depreciation, tax-exempt bonding, and numerous others that are rarely considered as part of the energy subsidy equation.

The Congressional Joint Committee on Taxation (JCT) estimates that from 2010-2014, the federal government will spend upwards of \$74 billion on an array of *direct* subsidies to support

⁴ Nancy Pfund & Ben Healey, *What Would Jefferson Do? The Historical Role of Federal Subsidies in Shaping America's Energy Future*. DBL Investors, Sept. 2011 (forthcoming).

domestic oil and gas development and production.⁵ In addition, tax advantaged structures such as MLPs, which are targeted at oil, gas, and natural resource projects, have grown from just \$2 billion in 1994 to over \$220 billion in 2010. Section 199 credits created in 2004 which provide relief for “qualifying production activities” reduces the corporate tax rate by approximately 3% according to the American Petroleum Institute.⁶ Foreign Tax Credits, 40% of which are used by the petroleum industry, provided an additional \$42 billion in relief in 2008 alone.⁷ These are just a few of the current incentives.

My point is not to question the appropriateness of these incentives. Many of these direct and indirect supports have historically been essential to expansion of our domestic resource production, and were implemented at times when US oil companies were struggling to compete at \$20 per barrel of oil. However, we must acknowledge that they exist and that they significantly influence investing and operating decisions. Most of these credits focus on oil, gas, and natural resource extraction rather than alternative technologies, and most are designed for large, mature corporations with sizable balance sheets and cash flows. This approach creates two problems: (1) it biases investment decisions toward tax advantaged primary production rather than the kind of innovation that can significantly impact cost or performance; and (2) it makes it more difficult for new entrants to enter the market and compete.

The energy industry is already slow to adopt new technology, and so the current tax code perpetuates the status quo. In 2010 the five largest oil companies spent just \$3.6 billion on R&D, which represents less than 2 percent of profits and less than 0.4 percent of total expenditures.⁸ In the utility sector, the major utilities employ on average less than 5 people in

⁵ Joint Committee on Taxation. *Estimates of Federal Tax Expenditures for Fiscal Years 2010-2014*. Government Printing Office, 2010.

⁶ American Petroleum Institute. *Repealing the 199 Manufacturing Deduction for Oil and Gas Companies Puts Jobs at Risk*. February 2011.

⁷ Internal Revenue Service. *Statistics of Income Tax Stats, 2008*. Corporation Complete Report Publication. Accessed May 26, 2011.

⁸ Congressional Research Service. *Research and Development by Large Energy Production Companies*. August, 2011.

R&D roles per 1000 employees. This is the lowest level of any industry.⁹ These numbers are a result of many industry dynamics, but also reflect how little incentive exists for energy companies to invest in new technology.

The challenge to investing in new energy technologies has not been a lack of technology solutions or the underlying economics; it has been overcoming the resistance in the market to investment in innovation and adoption of new technology. A tax code that fails to support innovation simply compounds this market failure. We face a global competition to lead the largest energy transformation in decades, but the bulk of federal investment in energy remains focused on incumbent technologies. As global demand continues to climb and the cost of conventional fuels continues to rise, the U.S. needs to recommit to supporting the innovation required for the country to remain competitive.

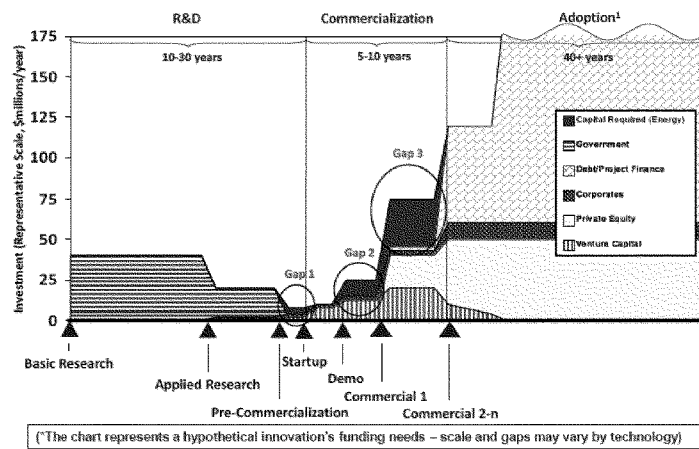
Tax policy must address the commercialization gap

Our premise and our requirement as an investor has always been that we invest in technologies and companies that, regardless of political regulation or subsidy, will be able to stand on their own two feet and compete on a level playing field within the lifespan of our investment. However in energy the playing field is not level.

While all emerging technologies do not necessarily need a perfectly level playing field, they do need a market that rewards long term performance. Almost all new technologies start out with much higher cost bases than their mature competition. Over time, with development and scale, these costs are reduced. As investors, we deploy our capital to unlock the rapid cost reductions at the front end of the curve. However, a significant portion of the cost reduction comes through the scaling that occurs in the early commercial deployment of a technology. In the energy industry, it is these stages that require significant capital, in some cases well beyond the capacity of early investors.

⁹ National Science Foundation, Research and Development in Industry: 2006-07 (Arlington, VA: National Science Foundation, 2011), 130-131. Table 31 and 261. <http://www.nsf.gov/statistics/nsf11301/pdf/nsf11301.pdf>

Capital Investment Profile of a Cleantech Innovation



Source: Mohr Davidow Ventures.

¹ The capital investment associated with adoption is depicted to indicate that it may well exceed \$175 million/year.

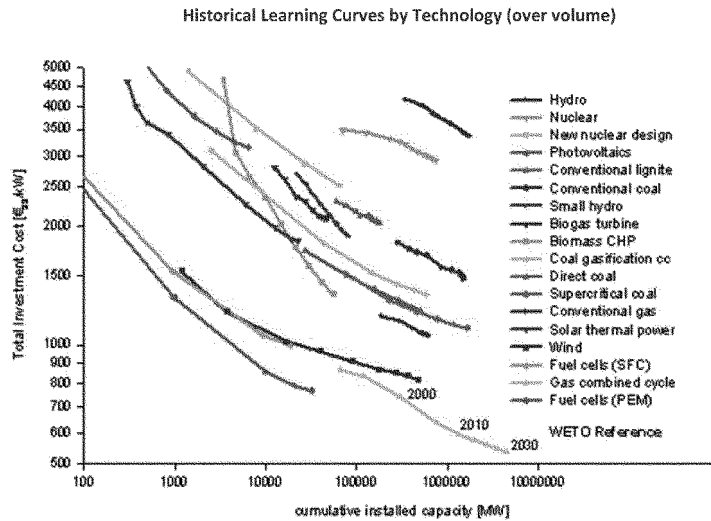
The chart above depicts the challenge of scaling a new technology in energy and the ramp in capital requirements. The capital required to deploy a technology is often orders of magnitude larger than the cost of developing the technology. The added challenge is that technologies at these early stages of development are not proven and therefore not “bankable”. Thus, lower cost debt financing is unavailable to these technologies. At the same time, the companies that are developing these technologies often do not have the financial structures, cash flows, or tax profiles to take advantage of most of the energy tax provisions currently in place. Even some of the policies targeted specifically at novel technologies, such as the IRC Section 48c Manufacturing Tax Credit, are proving to be inaccessible to smaller companies because of qualifying criteria that don’t accommodate the funding cycles of such fast growing companies. As a result, some of the most compelling technologies never receive the support they need to scale and compete.

Scaling is critical to innovation

The current debate over energy tax policy is largely a technology debate. Technologies are pitted against each other, and the result is that the government must necessarily pick winners and losers. Stakeholders are forced to engage in semi-annual wrestling matches over the balance of incentives between oil and gas, wind, solar and so on; and whether a given technology still needs incentives.

This technology centric debate is broken for two reasons: (1) even within single technology categories, each solution has differing economics and benefits; and (2) it does not account for the varying stages of maturity in each of the categories.

One fundamental premise of technology development is that each technology reduces its costs over time through a combination of technical innovation and scaling. The result is that each technology undergoes a “learning curve” that drives costs down. Different technology solutions – even within the same vertical – can have different learning curves and development trajectories.



Source: European Commission. *World Energy, Technology and Climate Policy Outlook 2030*. 2003. P.71

If we as a nation want to reap the benefits of continued cycles of innovation, our focus should be on getting new technologies down their respective cost curves and to a point of maturity where they can compete on their own two feet. In the same way that an infant needs more support than a teenager, innovative technologies require more support than mature technologies. At some point, established technologies must be able to compete on their merits.

For tax policy to effectively drive domestic innovation, it will need to address scaling challenges and accommodate the financial constraints of smaller emerging companies. Ideally policy would be structured in a manner that encourages growth across a wide range of energy technologies, allows the private market to determine winners and losers, and creates opportunities for new and improved technologies to access the market and compete on a level playing field.

A New Approach: Innovation Tax Policy

A new approach to energy tax policy that focuses on unlocking innovation is possible. The structure would create a simple volume-based production tax incentive across a broad array of technologies, designed to support technologies as they scale and roll off as they hit maturity. Such a framework would provide certainty to investors across all stages and help to attract capital required to fill development gaps in the commercialization process. Existing technology-specific credits would be replaced with a common framework that supports *all* energy technology innovations. These credits would be slowly phased out over the full technology development cycle: a full credit would be provided to technologies as they successfully advance beyond the pilot scale; this would gradually ramp down as the technology approaches commercialization.

Streamlining such a structure across a wide range of energy technologies, both currently under development and yet-to-be patented, would require the framework to maintain a measure of flexibility, but also support a firm foundation. While certain technology verticals inherently possess differing timelines associated with development cycles, a set of criteria could be established to create front- and back-end parameters to define the “stages” associated with the phased approach. These parameters would be industry specific and would help group technologies into categories based on characteristics and functionality. For example, technologies under the umbrella of energy generation could be measured perhaps by megawatts (MWs) created, with each stage beyond construction of the first demonstration facility defined as a percentage of the industry average annual MW generated at commercial scale. Fuels could be viewed similarly through the lens of gallons-produced, relative to an industry average at commercial scale. The creation of stage-defining parameters spanning multiple technology categories would more effectively allow the private market to pick winners and losers compared to our current structure.

Establishment of discreet, transparent eligibility criteria would be essential to achieving the desired certainty for the investment community. Such criteria defining the universe of energy technologies eligible for such a credit could be based on the technology’s impact on broad

policy goals including, potentially: energy security, national security, public health and economic return/domestic growth potential. The umbrella of eligibility could be defined using both proven and projected practical benefits of the technologies, connecting the technologies directly to firmly bipartisan policy objectives. A shift in tax policy to such a structure would (1) end the current practice of the government picking long-term technology winners; (2) refocus federal support on early technology deployment where it is needed most; and (3) encourage private investment in innovation, which is a critical component to unlocking new economic growth.

Conclusion

In order to drive investment into the energy sector, the tax code needs to be restructured to encourage corporations to invest in new technology, align with the needs of start-up companies, and provide access to a market currently blocked by policies that cater to incumbents.

In cases where the system *does* currently provide incentives and tax credits to support new technologies, many of them are not designed for small emerging companies. Startups do not have the balance sheets or track records of larger corporations and have trouble securing and monetizing the existing credits and incentives. As a result, the current system forces startups to either construct a consortium of unnatural third-party relationships or go to market through the large incumbents, which can have dramatic impact on their value and investor interest. More simply, the limited ability of start-ups to take advantage of tax credits hampers their ability to grow, innovate and create jobs.

Once tax breaks are ensconced in the code they are incredibly hard to extricate. The energy industry is a robust example of how these breaks pile up. But I believe we have a rare opportunity to re-assess whether the existing credits accomplish the goals that they were created to serve or the priorities we now need to meet. In today's fiscal environment we need to make every dollar work toward stimulating growth and incentivizing investment in the next generation technology that will support our competitiveness. I am not saying that we need to

cut all energy credits, but I am saying that we need to simplify them, refocus them, make them technology neutral, and make them easier for emerging companies to access.

To this end, we are calling on the federal government to articulate a stable, long-term, rationalized tax policy based on the framework outlined above that the private sector can invest behind. Such a system will help level the playing field within energy markets, encourage market access for emerging technologies, and better reflect the needs of the innovative companies that fuel our economy.

One thing I am certain of is that we will lose as a country if we resign ourselves to the technology of today. Other nations are looking to be the America of tomorrow. We must be willing to evolve as an economy and nation not only to keep pace, but to continue to lead the world in innovation.

Chairman TIBERI. Thank you, Mr. Coleman.
Mr. Greeff.

Mr. GREEFF. Thank you, Chairmen Tiberi and Boustany, Ranking Members Neal and Lewis, and subcommittee members. Thank you all for affording me the opportunity to testify today. My name

is Tim Greeff, and I am the political and policy director for the Clean Economy Network. CEN is the largest national networking advocacy and educational organization representing clean economy companies. We have over 12,000 members nationwide, as well as 17 affiliate chapters across the country. Our members include venture capitalists and project financiers, as well as businesses that manufacture, assemble, and install energy and efficiency capacity at home and abroad. I am appearing today before the subcommittees in my personal capacity, and my remarks represent my personal opinions.

Tax policy has long been an essential component of the effort to shape and influence our energy policy. The two are so closely linked, in fact, that it is difficult to imagine a material separation. Further, we must recognize that the U.S. economy does not exist in a vacuum. Our competitors, such as China and Malaysia, use tax policy to invite investment and build domestic champions in this sector, with a strategic eye towards capturing manufacturing capacity.

Thus, rather than focusing on whether energy policy should be conducted through the Tax Code, it is important to focus on when and how the Tax Code should and should not be used in relation to energy policy.

It is necessary to mention that market signals, economic growth, and the competitiveness of the U.S. economy can not be fixed solely through the Tax Code. Ultimately, the long-term market signals that will drive the advanced energy economy require a more robust and comprehensive energy policy vision. Tax policy that is not a coordinated part of this larger vision runs the risk of leading us down the same path that we are currently on.

Historically, tax policy has taken a piecemeal, technology-specific approach. Decades of tailoring the Tax Code to fit needs of discreet technologies at specific points in time has created a patchwork of inconsistent policy that too often necessitates equally piecemeal fixes. In order to change course, we must begin to rethink the use of energy-related tax policy to fit the realities of today's energy economy.

Moving forward, there are several criteria that should be considered to increase the efficacy of energy tax policies. Very simply put, tax policy, to the extent possible, should be technology agnostic, predictable, and finite. I would like to go into each of these in a little more detail.

First, tax policy should aim to be technology agnostic, and avoid picking winners. Tax policies are sometimes written with one technology or domain in mind. This approach mutes market signals and puts the government into the driver's seat of determining where investment dollars should go. Further, such an approach can unknowingly freeze out next-generation technologies. The innovation cycle is dynamic, and the best available technologies today will almost assuredly not be the best several years down the line.

Second, tax policies should be predictable, and provide certainty. Most clean energy credits and programs are very short-term, whereas energy investments are typically long-term. Investors in businesses need certainty in order to make the investments and set their plans necessary to grow. If the credit is too short in duration,

it can harm the innovation cycle, and drive money only towards technologies that are current in market scale.

Finally, tax policy should not attempt to set or replace the market. If left in the code too long, the incentives can distort the marketplace and chase off private capital in the long term from new and emerging technologies. Tax incentives should strike the balance of being long enough to send a market signal, but sunset predictably and appropriately to avoid market distortion.

Using performance metrics to determine the duration of a particular tax policy is one alternative that can more accurately reflect and absorb market variables, while also including a predictable cut-off.

Tax policy does hold a couple of advantages over other mechanisms to incentivize advanced energy. First, tax credits are fairly transparent. They are relatively easy to understand and apply for, thus requiring businesses to spend little on overhead. Second, tax policy is also relatively size and technology agnostic. In other words, almost any company can access a given credit by meeting the baseline criteria, and the value of the tax credit can be distributed efficiently, relative to the size, need, and performance of the individual company.

When it comes to energy, tax policy should serve two fundamental purposes. One, tax provisions play an important and constructive role in the innovation cycle to drive new technologies to market. Innovation in the energy sector is very capital-intensive, and current economic realities make private investment dollars hard to come by. Furthermore, there are various points in the life cycle of a business that the private sector is sometimes unwilling to fund. Tax policy can provide small businesses with one more option to make it through this period.

Two, tax policy can help nascent technologies and industries achieve competitive scale so they can stand on their own two feet. Cost competitiveness is fundamentally achieved through market scale. With increased production insulation comes lower cost and higher quality products. Normally, market demand will drive scale up, but in a globally competitive marketplace, sometimes scale must occur before demand alone can drive it in order to be competitive, especially in capturing manufacturing capacity.

As discussions about comprehensive tax reform begin, Congress has the unique opportunity to create more consistent and streamlined tax policies for the energy sector that provide the accessibility, transparency, and certainty that investors need to invest, that entrepreneurs need to innovate, and that businesses need to grow and compete.

I look forward to working with the committee in the future to achieve this goal. Thank you for your time.

[The prepared statement of Mr. Greeff follows:]

**Tim Greeff
Political and Policy Director
Clean Economy Network**

**Testimony Before the Subcommittees on Select Revenue Measures
and Oversight
Committee on Ways and Means
September 22, 2011**

Chairmen Tiberi and Boustany, Ranking Members Neal and Lewis, and Subcommittee Members, thank you all for affording me the opportunity to testify today.

My name is Tim Greeff and I am the Political and Policy Director for the Clean Economy Network. CEN is the largest national networking, advocacy and education organization representing clean economy companies. We have over 12,000 members nationwide covering almost every state as well as 17 affiliate chapters in states including MI, CA, TX, MN, OR, WA, and NY. Our members are venture capitalists and project financiers representing hundreds of billions of dollars in fluid capital investment, and businesses that manufacture, assemble and install energy and efficiency capacity at home and abroad. These entrepreneurs are creating state-of-the-art technologies that are revolutionizing the advanced energy sector, including biofuels, solar, wind, hydro, vehicle and fuel cell technology to name a few. By way of disclosure, I appear today before the Subcommittees in my personal capacity, and my remarks represent my personal opinions.

Tax policy has long been an essential component of the effort to shape and influence our energy policy. The two are so closely linked that it is difficult to imagine a complete separation. Further, we must recognize that the U.S. economy does not exist in a vacuum. We cannot ignore the rate at which our competitors use tax policy to invite investment and build their own industries in this sector with a strategic eye toward capturing manufacturing capacity. Folding now will simply embolden our competitors and drive innovative businesses and their technologies overseas. Thus, rather than focusing on whether energy policy should be conducted through the tax code, it is important to focus on when and how the tax code should and should not be used in relation to energy policy.

While it is outside the scope of this hearing today, it is necessary to mention that market signals, economic growth, and the competitiveness of the U.S. economy cannot be fixed solely through the tax code. Ultimately, the long-term market signals that will drive the advanced energy industry require a more robust and comprehensive energy policy vision. There are many complimentary policies that can be helpful here including streamlining of transmission installation, creation of

performance standards, and other ideas that will ultimately need to be part of the answer to our energy issues. Tax policy that is not a coordinated part of a larger vision runs the risk of leading us back down the same path we are on.

Moving forward, there are several criteria that should be considered to increase the efficacy of energy tax policies. Very simply put, tax policy, to the extent possible, should be technology agnostic, predictable, and finite. I'd like to discuss each of these aspects in more detail.

First, **tax policy should aim to be technology agnostic and avoid picking winners.** Tax policies are sometimes written with one sector in mind and many times favor one specific technology within that sector over others. There are two primary problems with such an approach. First, it mutes market signals and puts the government into the driver's seat to determine where investment dollars should go, which we believe is less efficient and saddles the taxpayers with unnecessary risk. Second, such an approach can unknowingly freeze out next generation technologies. The innovation cycle is always changing and it is impossible to know what new technologies are on the horizon. The best available technology today will almost assuredly not be the best several years down the line, which is especially true with emerging industries.

Second, **tax policy should be predictable and provide certainty.** Most renewable energy and energy efficiency credits and programs are very short term. They expire every few years and the process of getting an additional short-term renewal is very risky and uncertain. Energy investments are typically longer term in nature. Businesses and investors need certainty in order to make the investments and set the plans necessary to grow. As mentioned, if the credit is too short in duration, the process can harm the innovation cycle and drive money only toward technologies that are at scale today and away from innovative ones, which are more risky by nature. If left in the Code too long the incentives can also distort the marketplace and chase off private capital in the long-term from new and emerging technologies.

As a general rule, tax incentives should strike the balance of being long enough to provide certainty to businesses and investors, while also eventually being subject to sunset at some point. Many current credits are determined in years, an approach that does not adequately accounts for the differences in technologies or real world market fluctuations. Using performance metrics to determine the sunset of a particular policy is a better way of accounting for the many variables of the marketplace.

Finally, **tax policy should not attempt to set or replace the market.** As mentioned, tax policy can distort long-term price and market signals which ultimately can create barriers to market entry for new technologies. As a general rule, no individual company or technology should be entitled to permanent incentives or subsidies. Each provision should have a sunset built in from the

beginning in order to help ensure that it sends a clear signal to businesses and investors.

As discussions about comprehensive tax reform begin, Congress has a unique opportunity to create more consistent and streamlined tax policies for the energy sector that provide the accessibility, transparency and certainty that investors need to invest, that entrepreneurs need to innovate and that businesses need to grow and compete.

Historically, tax policy has taken a piecemeal, technology-specific approach. While this may not have been intentional, decades of tailoring the tax code to fit needs of various sectors at specific points in time has created a patchwork of inconsistent policy that too often necessitates equally piecemeal fixes. In order to change course, we must begin to rethink the use of energy-related tax policy to fit today's economic and energy realities.

Tax policy in general holds a couple of advantages over other mechanisms to subsidize advanced energy. First, as government energy programs go, tax credits are among the most transparent. They are relatively easy to understand and apply for and the direct outcomes are easily tracked and compiled. As such, accessing tax credits requires a company to spend far less on overhead than other government programs. Second, tax policy tends to be among the more size and technology agnostic in that any company can access a given credit if they meet the baseline criteria. Moreover, the value of the tax credit is distributed efficiently relative to need and performance.

When it comes to energy policy, we believe that tax policies serve two fundamental purposes:

1 - Tax provisions can play an important and constructive role in the innovation cycle to drive new technologies to the market. Developing new, innovative technologies in the energy sector is very capital intensive. Current economic realities make private investment dollars harder to come by than usual. There are various points in the lifecycle of a business, most commonly referred to as the 'Vally of Death', that the private sector is sometimes unwilling to fund. Tax policy can provide small businesses with one more option to help survive this part of the business development process. Helping technologies make it through this phase will increase the number of new technologies that have a chance to get to market.

2 - Tax policy can help nascent technologies and industries achieve competitive scale so that they can stand on their own two feet. Cost competitiveness is fundamentally achieved through market scale. With increased production and installation comes lower cost and higher quality products. Normally, market demand will drive scale-up. But in a globally competitive economy, sometimes scale must occur before demand necessarily merits that it would, especially when competitors are investing heavily in their domestic industries.

Think about it in terms of the Olympics. If the other countries are training in preparation for the race and we're sitting on the couch, then we are not going to be competitive when the day of the event arrives. This concept is particularly important when it comes to capturing manufacturing capacity. Manufacturing jobs, by nature, are the first to go and the hardest to get back. This underscores the importance of committing to emerging industries in which the manufacturing jobs are still largely up for grabs.

In closing, I want to take the chance to reaffirm that when strategically and appropriately applied, tax policy can play a very valuable role to help drive the innovation and new technologies needed to address our energy challenges and rebuild our manufacturing base. We look forward to working with the Committee in the future to achieve this goal.

Thank you. I am happy to answer any questions.

Committee on Ways and Means
Witness Disclosure Requirement – “Truth in Testimony”
Required by House Rule XI, Clause 2(g)

Your Name: <u>Tim Greeff</u>		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have received</u> during the current fiscal year or either of the two previous fiscal years: <div style="text-align: center; font-size: 1.2em;">NONE</div>		
4. Please list any offices or elected positions you hold. <div style="text-align: center; font-size: 1.2em;">NONE</div>		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. <div style="text-align: center; font-size: 1.2em;">NONE</div>		

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Chairman TIBERI. Thank you, sir.
Mr. Lindsey, you are recognized for five minutes.

**STATEMENT OF LAWRENCE B. LINDSEY, PRESIDENT AND
CHIEF EXECUTIVE OFFICER, THE LINDSEY GROUP, FAIRFAX,
VIRGINIA**

Mr. LINDSEY. Thank you very much, Mr. Chairman, Members of the Committee. Thank you very much for inviting me, and for your forbearance, having me on this panel.

I am not normally a supporter of legislation to steer private decision-making through government incentives, including the Tax Code. My testimony today is going to focus on an example that is in the Natural Gas Act, but it is more generic, in that it reflects the kind of standards that I think the committee should apply in cost benefit analysis.

First, I think that any such legislation has to be held to a very high cost benefit standard. And I have three basic tests that: first, any government incentives that affect private decision-making should be tied to a clearly-defined reason why the market would not correct on its own; second, that there be an externality at the national level which would justify that such change in private sector behavior is in the national interest; and third, that the subsidy be done in a rigorous cost benefit analysis way, and that that cost benefit analysis be clearly in the direction that the benefits exceed the costs.

I think an example in the Natural Gas Act shows how one might do this. Let me begin with why the market might not correct on its own.

Right now we have a very unusual disparity in the pricing of natural gas versus oil. The—on a normal Btu basis, one would expect that a barrel of oil would sell for about 8 times that of 1,000 cubic feet of natural gas. But currently, oil is around 80, natural gas is around 4, so you have a ratio of 20 to 1. So the question comes up: Why isn't the market correcting? In particular, why aren't we converting motor fuels in that direction?

I think that the answer is a pretty standard one in economic thought, and that is that what you have is a technology in place. And once you have a technology in place, it is very hard to make the transition. The example that I think of every time—and I am sure it applies to all of us—is the keyboard on a typewriter. We call it the QWERTY system, Q-U-E-R-T-Y [sic].

Now, that was put in place when we did some tests about 100 years ago on how people typed, and they figured that worked. Well, we have now done a lot more tests. And, believe it or not, there would be another keyboard design that would actually about double all of our typing speeds. Here is the problem. We would all have to relearn all the new typing speed. And frankly, sir, at my age I am too old to learn stuff like that. So that is why we are stuck with QWERTY.

Well, the same thing is true in the case of oil and natural gas. In the case of 18-wheel truckers, for example, we have a diesel-based system. It was put in place a long time ago. It made sense back then. Although now, with the ratios I was talking about in cost, it would make a lot of sense to actually do the conversion.

Well, the problem, and the reason we have a QWERTY problem, is that you cannot just develop a natural gas truck unless you have a way of refueling it. So, even though the cost incentives of running

a natural gas truck make it highly, highly competitive—the cost is about one-sixth that of diesel—you don't have a place to refuel it. It doesn't do you any good.

On the other hand, if you run refueling stations, it doesn't make a lot of sense to add natural gas to your product line unless you have a lot of trucks who are going to use it. And so, what we have to do—and here is why I think that there is a reasonable case for incentives on natural gas trucking. We have to break that QWERTY problem.

When I look at the analysis, the second question is: Would it be in the national interest? And here, the intent is largely one of energy independence. And if you compare it to other tax provisions to encourage us to use less oil—in fact, as my testimony shows, it would be quite advantageous relative to things like the renewable fuels credits, and it would be many times more advantageous relative to the electric vehicle plug-in credit: \$7,500 per car. So, I do think that, on a cost benefit test, it meets that standard as well.

Again, I thought the—some of the suggestions on the panel were quite good on how we might redesign. But I would go back to saying, you know, do you have a—something like a QWERTY problem that needs fixing, and that should be test one. Secondly is the change in the national interest. And third, are we doing it in a cost-effective way? And I would urge the committee to take that approach in everything they do.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Lindsey follows:]

Facilitating Energy Conversion

Testimony by Lawrence B. Lindsey

before the

Subcommittee on Select Revenue Measures

and

Subcommittee on Oversight

September 22, 2011

Facilitating Energy Conversion

Lawrence B. Lindsey

Thank you, Mr. Chairman and members of the Committee, for inviting me to testify on energy policy and tax reform. While generic in the principles it lays out, part of my testimony will deal specifically with aspects of the Natural Gas Act. Let me therefore begin with a point of full disclosure that goes beyond what is required by the Truth in Testimony Act. My company, The Lindsey Group, provides macroeconomic advice to a variety of companies around the world and some of them are in the energy business. That advice is unrelated to energy policy and we do not provide lobbying services of any kind. But, some of our clients in the energy business doubtless have a variety of interests in this act, many of which I may not even be aware of. I do know that one, Boone Pickens, is a supporter of the Natural Gas Act, but my testimony here today reflects my own personal views on this subject developed over many years dealing with matters of public policy, and not those of Mr. Pickens.

I am not normally inclined to support legislation that aims to steer private decision making through government incentives. Any such legislation should be held to a very high cost-benefit standard. First, any government incentives to affect private decision making should be tied to a clearly defined reason why the

market might not correct on its own. Second, there must be an externality at the national level which would justify that such a change in private sector behavior be in the national interest. Finally, the subsidy should be subject to rigorous cost benefit analysis and be held to a high standard for approval. With these as standards, let me provide an example of such a subsidy in the case of the Natural Gas Act.

Let me begin with an explanation of why the market is unlikely to correct a problem that currently exists in natural gas pricing that limits its use. Consider the very unusual disparity in the market between the pricing of BTUs delivered by oil and those delivered by gas. On a BTU basis a barrel of oil should be priced at about 8 times that of a thousand cubic feet of natural gas. Currently natural gas is around \$4 while oil is in the mid-eighties, a disparity of more than 20 to 1.

This means that gas is very cheap, yet the market is not correcting the disparity through more use of natural gas as a motor fuel. The reason for this is provided by a basic economic model called “putty-clay”. At an early stage the underlying technology in an economy is free form – putty like – and is shaped based on the prices available at a given time. Once that technology is shaped, and we choose how to do things, it hardens into a form that is much less flexible. Lower cost alternatives may not be chosen because the costs involved in changing the underlying technological choice are prohibitive.

The best example that we all can relate to is the keyboard. We use something called the QWERTY system which was developed more than a century ago based on what was then observed to be an efficient arrangement of the keys on the key board. We now know that there are much more efficient keyboard arrangements which, if adopted, would allow us all to dramatically increase our typing speed. But all of us would have to learn the new system, and having a variety of keyboards around, where some of us use one and some use another, would mean they could not be interchangeable. Moreover, when you get to be my age re-learning a new keyboard and new way of typing would not only be prohibitively costly, it might well be impossible.

Right now our QWERTY system for fueling long distance trucks is diesel. That choice is embedded in not just the truck engine, but also, and more importantly, the energy distribution system which involves thousands of retail distributors of fuel. There is no incentive for any one truck owner to convert to natural gas since he or she would not be able to access the existing energy distribution system on a cross-country trip.

This is despite the fact that the saving from such a conversion might be considerable. A diesel powered 18-wheeler costs about \$105,000. A natural gas powered truck costs \$175,000. A diesel powered truck gets about 6 miles per gallon and is typically driven around 100,000 miles per year, burning 17,000

gallons of diesel. A truck driving the same distance on natural gas would burn about 2100 thousand cubic feet of natural gas. Diesel now costs about \$4 dollars per gallon, making the annual fuel cost about \$68,000. Gas delivered to a retail distributor might cost about \$5 per thousand cubic feet, leading to a fuel cost of \$10,500. This fuel saving of \$57,000 per year means that the added cost of a natural gas vehicle would be covered in fuel saving in less than 15 months, suggesting a return on the capital investment of nearly 80 percent.

But, again, the problem is that there are about 9600 truck stops nationally where most long distance truckers refuel. It would cost about \$1 million for each of these truck stops to add natural gas to its refilling options, creating an infrastructure cost to the industry of about \$10 billion. But, just as it is no single truck owner's incentive to take advantage of the cost savings from natural gas fueling, it is in no single fuel retailer's interest to invest the \$1 million to add natural gas as a fuel option if there aren't a lot of truck owners to use it.

Properly designed government policy could break this QWERTY problem by incentivizing new purchasers of trucks to buy natural gas powered vehicles. If government were to provide a tax credit of \$70,000 per natural gas truck purchased, the up-front capital cost would be the same as a diesel fired truck. Based on rate trucks turn over, it would be reasonable to assume that in three years we would have a critical mass of about 350,000 such diesel fired trucks, spending

about \$3.5 billion at retail distributors of natural gas. Once more retail distributors sell natural gas, conversion to natural gas by truckers would accelerate further. Alternatively, the subsidy could be given to the stations to add natural gas to their retail line. While I have not analyzed the numbers, this might be an even more cost-effective approach.

Second, there is a national externality involved in encouraging conversion to natural gas that centers on energy independence but may also include other issues such as carbon emission. If those 350,000 trucks converted to domestically produced natural gas, we would save about 150 million barrels of imported oil per year. How much is energy independence worth? That is in the eye of the beholder, but currently the government has a variety of programs in place to save on oil consumption that involve a quite high subsidy. For example, the Energy Information Agency reported that in 2007 government subsidies to ethanol and biofuels amounted to \$5.72 per million BTUs and \$2.82 per million BTUs for solar energy. Again, these are 2007 figures and today the solar subsidies in particular would be much higher. This works out to 65 cents per gallon for ethanol and 32 cents per gallon for solar, or \$25 per barrel for ethanol and about half that for solar. In addition, the Electric Vehicle credit involves a subsidy to that approach that is roughly twice as much as even the ethanol subsidy.

Let us apply those subsidy rates to a cost-benefit calculation of a subsidy to purchase natural gas powered truck engines. At this rate of subsidy, the payoff to the national interest would be the equivalent of \$11,000 per year at the ethanol rate and \$5500 per year at the 2007 solar rate of subsidy. This is equivalent to roughly a 16 percent return to the country on the initial subsidy relative to ethanol and 8 percent relative to solar. In both cases, the return would have to be judged quite cost effective at the current cost of Treasury borrowing which would be around 2 percent for a security equivalent in life to a truck engine.

I would add that this implies a complete subsidy for the truck buyer to cover the price differential between the two types of engines. There is no necessary reason for this. One could, for example, impose a tax on natural gas purchases for motor vehicles. One could set that at the equivalent of \$2 per thousand cubic feet and recap \$5000 per vehicle per year while still leaving an enormous incentive for the purchase of a natural gas truck over a diesel truck. The conversion would still happen and the loss to the Treasury would be cut by about two-thirds over the budget forecast window.

In sum, I think that there can be an appropriate place for government subsidies to influence the choice of vehicle fuel technology. But, such choices should be subject to rigorous cost benefit analysis with a high threshold for approval. As an example, it is my view that a subsidy of the purchase of natural

gas powered large trucks would meet such a threshold, and that the particular incentives involved could be arranged in a way that would minimize the budgetary impact. Thank you.

Committee on Ways and Means
Witness Disclosure Requirement -- "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

Your Name: Lawrence Lindsey		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have received</u> during the current fiscal year or either of the two previous fiscal years: <div style="border-bottom: 1px solid black; height: 1.2em; width: 100%;"></div>		
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5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
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Chairman TIBERI. Well, thank you all. And I will remind you that your entire testimony will be submitted for the record.

First question to the panelists. You all know that I have been publicly supportive of being a proponent of comprehensive tax reform, primarily to simplify our Tax Code, make it more of a pro-growth Tax Code, grow our economy, create jobs. Spoke to some tax professionals yesterday and had a pretty good discussion with them about the competition that they face with respect to competitors who are headquartered in other countries, and the Tax Codes

around the world. And I asked this question to them, and I am going to ask it of all of you, as it applies to energy.

What can we do, as the United States Congress, to make our Tax Code not only more competitive for our employers, but more competitive to attract additional out-of-country employers to create jobs and investment in America?

In the news lately we have all read about the unraveling of Solyndra—that case is yet to close—the increase in solar panel production in China.

And so I ask each one of you, starting with Mr. Lindsey, as we move to reforming our Tax Code through the efforts of Chairman Camp, as we apply it to energy, what can we do to make the Tax Code a Tax Code that makes energy—investment in energy production, energy security, energy production—more market-driven with respect to our United States Economy? And I start with you, Mr. Lindsey.

Mr. LINDSEY. Well, narrowly, with respect to energy, I think the first thing one has to do is identify what the objective is. You mentioned energy independence. And then, once you do that, you really want to equalize the incentive across different ways of doing it.

Right now, for example, the electric car technology has a subsidy that is many, many times what it is for other ways of substituting one fuel for the other. That really doesn't make a lot of sense. You are not designing it efficiently. And I think that the—what was said earlier on the panel would conform to that.

Second question you have to decide, you mentioned domestic production versus imports. That is a threshold question. If you really want to develop domestic fuels, then I think what you want to do is you have to lower the cost—the tax-based cost structure of production in America.

Right now we have, in general, a Tax Code that discriminates against any kind of production in America for almost all industries. And I think—and I have testified before other committees on this subject—I think, fundamentally, that is the kind of reform we have to move to. It is one that has to be border-adjustable.

And I think, in the end, some kind of substitution of a cashflow-based tax for a—income-based tax is going to be necessary, and I think that applies to the energy side, as well as to the general production side.

Chairman TIBERI. Thank you. Mr. Greeff.

Mr. GREEFF. I think I would go back to my several criteria. The first one is certainty. The investment cycle in energy is usually longer, and a number of the credits for renewable energy, most notably the PTC for wind energy, is very intermittent. And you have these boom bust cycles. And if investors are really going to make long-term investments in energy and build a manufacturing capacity and a resource base in the United States, they need the certainty that the length of the investment—so instead of attaching the credits to sort of arbitrary timelines of two years, you can attach it to production tax credits that are focused on when a particular technology would achieve scale.

And I think the second key criteria is that we need to come up with a sense of common goals. So if you look at, for example, how

we incented corn ethanol, you know, it was agreed that ethanol needed to be—or alternative fuels needed to be incented, but the government went as far as to say, “We’re going to mandate this many gallons of corn,” whereas we would say, “If the overall goal is to reduce petroleum use, or create petroleum displacement, then let’s set the goal as generally as possible, set the rules of the game, make them long term, and then let the market determine which technologies and fuels within that category are actually going to meet that standard and achieve that credit.

Chairman TIBERI. Mr. Coleman.

Mr. COLEMAN. Yes, so I agree with the points around leveling the playing field, in particular, and creating certainty. I think that what we have seen is a dislocation, in terms of the types of credits that go in, and also a level of rifle-shooting around particular technologies.

And I think that the challenge that we face is how to create a leveled code that actually induced innovation across a whole bunch of different technology categories, and does so in a way that actually allows investors to invest ahead of those upticks in the market, the uptake of those technologies.

As was mentioned, the stop-start approach around a lot of the renewables credits has been a challenge, and that is largely because what we, as investors, have to look at, then, is how predictable the political process is, in terms of renewing these credits, as opposed to part of what we were proposing—what I was proposing in my testimony is if you understood that those credits would be in place for a given company by the time they got to that stage, then you could actually invest in that. You could rely on that. And so, you can actually, then, account for those credits in the finances of the company.

Today you can’t do that. And so I think what we really need is that level of certainty over time.

Chairman TIBERI. Mr. Auerbach.

Mr. AUERBACH. Thank you. I won’t repeat what the other witnesses have said, but I will just note that my testimony recommends moving away from the Tax Code as the primary vehicle through which the Federal Government expresses energy policy.

I recognize that there are limitations on tax incentives, and that they work best for individuals in businesses that actually pay tax. If you are not a taxpayer, it is very inefficient to access those benefits that Congress is trying to bestow.

One recommendation I would make, just to directly answer the point, though, is that if you are going to use the Tax Code, let’s recognize that taxes are a drag on economic activity. And so, by lowering tax rates overall, you incentivize more economic activity. And if you want to encourage increased domestic production of energy, lower the tax rate on those producers all the way to zero, and that is going to get you a lot of activity to produce more domestic energy. The lower you go, the more activity you get.

Chairman TIBERI. Thank you. Mr. Book.

Mr. BOOK. Yes, I think the message of stability and metrics-based decisions has been loud and clear. And I can only add more volume and more clarity.

I do think, though, there is a difference between picking a winner and knowing whether you are a buyer or a seller. A couple years ago I had a discussion with an advisor to DoE, and I said, you know, "Why are we trying to become an exporter of clean energies, when we have been a consumer for so long?" And she said, "Because we should try to compete." And I understand that.

But if the original premise was to install, to encourage the installation of clean, renewable power, which it has done admirably, then shouldn't we be buying the cheapest, most efficient clean, renewable power, and look for ways perhaps to support and supplement the technologies where we are not likely to be dominant? We are the third largest oil-producing nation in the world, and we have become more prolific. It is possible that you may not want to pick winners or losers, but you may still want to be a seller when you can be a winning seller.

Chairman TIBERI. Thank you. And finally, Dr. Marron.

Mr. MARRON. Well, I think all the good answers have been taken, so I just want to go back and echo something that Larry said in particular, which is, you know, I would start answering this question by thinking about investment incentives for the United States generally, not just in the energy sector. And I think there are a lot of problems in our current corporate Tax Code. And I think moving towards something that looks like a cash flow tax that gives favorable treatment to new investment is the right place to go fishing.

And then second, let me just echo the level playing field argument, that if we want to encourage investment in energy, there is no particular reason to play favorites among which type of clean energy is going to be used. Design incentives that provide a comparable incentive to each type, including ones that haven't been invented yet, and then let them fight it out in the marketplace.

Chairman TIBERI. Thank you. Mr. Neal is recognized.

Mr. NEAL. Thank you, Mr. Chairman. I want to thank the panelists, particularly Mr. Greeff for his comments on ethanol. Singularly one of the best and most strident arguments I have ever heard in this room many years ago was between oil and ethanol. And that strident argument was amongst the Republicans. They were at battle over that issue.

Now, Mr. Coleman, I thought you and Mr. Greeff both did a good job explaining why the nature of short-term tax credits in the code with expiration dates that are fairly sharp discourage small business and investment. Would you reiterate that, please, again, the two of you?

Mr. COLEMAN. Sure. The—in terms of early-stage technology companies, the kinds of companies that we invest in, we often invest years ahead of when they actually hit the market. And so the challenge is what level of predictability is there that the policies that are currently in place are still going to be in place by the time they actually hit the market.

And so, a more reliable approach would be an approach that would allow us to invest in a company, knowing that, as it scaled its production, it would actually be able to leverage certain credits in the marketplace. That means that you either have to reduce the expiration dates around a lot of the credits that already exist, or

you have to create a policy that doesn't have expiration dates in the same way.

Mr. GREEFF. I think, just to add to that, if you want to meet a person who can really stretch the value of a dollar, go find an entrepreneur. And it is—the marginal value of money to a small business is so much higher than to a larger company.

And I think one point that I would add to Will's comments is we also need the tax policy to be helpful and send a signal. But we don't want it to set the market. I think too often times we have Tax Codes that have existed for too long for very, very mature industries. And so, when you try to crack into a marketplace as heavily regulated as the electricity and energy sector, it is really hard for new technologies and small businesses to compete in the first place.

So, there is an added level of pressure and a bigger hurdle for them to get over. And it makes the money that can come from tax policy that much more important for smaller businesses, because they face such an uphill climb just to reach the marketplace with innovation.

Mr. NEAL. The current discussion here is focused on moving the corporate rate to 25 percent. And that seems to be a very desirable goal, if it could be accomplished. But to get there, everybody acknowledges that there are going to have to be some long sacred credits that will be sacrificed along the way.

And as we move in the direction of this discussion, and centered on the idea of eliminating some of these provisions, what would the impact be in the energy area, in particular, some of the tougher energy areas, which all of you seem to agree upon? What would you give up?

Mr. GREEFF. It is an excellent question. I mean I think that it comes down to when we have to determine tax policy and determine where to sunset and where to cut, there is a time frame that we should work on. So the idea that we would just turn the switch off tomorrow is going to send a shock wave, not just through the renewable and clean energy sector, but energy sector in general.

And so, we do need to make a commitment to sun-setting a lot of these long-standing tax policies, and put a finite time period on them, as we reform the Tax Code.

However, I will say ultimately it comes down to a value judgment of how important the energy sector overall is to the economy. And we would argue that it is very important, and that, regardless and irrespective of what happens with the overall statutory tax rate versus the effective tax rate with credits, the energy tax policies are some of the most important to continue in the short term.

And again, let's set predictable time lines for when these turn off. So when you look at the PTC for wind, for example, we need to set a long-term extension on the PTC of, you know, four to five years to allow that industry to go before we start talking about where we are going to turn all this off, because we have to allow the markets to adjust to tax reform in the long term.

Mr. NEAL. Thank you. Mr. Lindsey, I always appreciate your candor here, you know. You know what I am speaking of. And I also appreciated your comments this week on income disparity. I thought that you and, I think it was, Glen Hubbard had some com-

ments in the Wall Street Journal. I thought that was a worthwhile discussion that we might have down the road, as well.

But the American Chemical Council has argued that many of the subsidies in the Natural Gas Act distorts the market. And you spoke to that issue. And I thought the objective that you laid out of energy independence is one we all ought to be able to rally around. And how might you respond to their suggestion that we are really stifling investment and job creation by the use of the current incentives?

Mr. LINDSEY. Well, where I would agree is, generically, if we leveled the playing field in the ways that everyone on this panel is talking about—

Mr. NEAL. Yes.

Mr. LINDSEY [continuing]. That would be a win-win. Again, it makes no sense to subsidize technology X this amount and technology Y a different amount.

As I understand the concern of the chemical industry, they are a consumer of natural gas, and therefore compete as a consumer with other consumers. In this case, I think that they would be concerned about a diversion of natural gas into motor fuels, because it would raise the cost of their feed stock. I think that is their primary concern.

I am less sympathetic to that concern, because I think the issue is—here is a specific technological change which, to me, makes a lot of sense. I do think we have to move more toward a natural gas-based motor fuels system. I think the market is screaming for that. And I think that the existing technology barrier, the QWERTY problem, is the identified problem.

I don't see a similar problem for the chemical industry, and that is why I am not convinced by their argument.

Mr. NEAL. Thank you.

Chairman BOUSTANY. [Presiding.] I thank the gentleman. I want to make a few points and then pose a question. I think it is pretty clear right now across the country that we don't have a real coherent energy strategy. And one of you mentioned that in your testimony.

And in trying to look at this as a policy-maker, and understanding, okay, how do we do this, how do we really move forward and jump-start a real process that gets us to an energy strategy, I think you have to, number one, understand where you are today, and what fuels we are dependent upon, and some sort of a reasonable time line of about how long we will be dependent on these.

Secondly, don't push policies that will punish your current energy production. I think that is a no-brainer. And some of the things we have seen coming from the administration would, in fact, do that.

Thirdly, you have to have a transition strategy, and you have to look realistically across the board, current state of R&D, innovation, and so forth to understand what is that transition strategy. And there are very few things, given the current state of R&D, that get us quickly to that point that we are trying to get to, which is ultimately energy security for the United States.

And one transition strategy, in my mind, after having spent a lot of time looking at this, is clearly natural gas. Because we know we

don't have biofuels that meet our needs yet on a big scale. Solar and wind are not going to do it. And natural gas is really the only alternative at this stage.

And I agree with Chairman Tiberi that we want to do comprehensive tax reform. We want to clear it up, clean up the code, simplify, lower rates. And so for someone like myself, the question is: At what point do we use tax policy to drive some of these decisions, rather than having tax policy driving all of our energy decisions in a very incoherent way?

And I think, Mr. Lindsey, you offered a lot of clarity in your testimony about how we should approach this when you have an issue of national interest. And I found myself very much in sympathy with what you said in your testimony.

I thought all of you did a tremendous job in helping us work through some of these very complex issues of, you know, tax credits, deductions, loan guarantees, and so forth. It is a pretty complex issue, as you look at it. But what ultimately gets us to the right policy?

And so, I am curious. As we look at all of this, I am still trying to parse down where that role for tax policy is as we look at energy security and driving this.

And I mean I agree, Mr. Lindsey. I was reluctant. I looked at this bill, the Nat Gas Act, I said, "Well, it is going counter to what we want to do with tax reform." But does it hit that threshold, where we have a national interest and we need to do something on a temporary basis to jump start a change, a shift in technology that allows us to transition to whatever R&D takes us to next?

And I would love for you to just comment a little bit more on that. Let's just explore that topic.

Mr. LINDSEY. Mr. Chairman, if you told me that we were going to get comprehensive tax reform, and there was no room for something like this, I would say go for the comprehensive tax reform.

With all respect to the committee and the process of the Congress, I am not holding my breath. And so, given that we have a—why don't we say an existing flawed system, to me, having another flaw, but a cost-effective one, really doesn't shock my conscience, and that is why I would be there on that one issue.

But absolutely, comprehensive tax reform would so benefit every industry involved that if that were the choice, I would go with that route.

Chairman BOUSTANY. Thank you. Others, please. Mr. Greeff, I think you looked like you wanted to comment.

Mr. GREEFF. Yes. Well, I mean I think, as part of a comprehensive plan, I think you have really hit the nail on the head. And we would say that tax policy certainly serves a role. But ultimately, we need to have a vision. And I think, again, it comes back to what are our agreed-upon goals?

If we think that national security is a big part of what our energy policy should be—which I would agree with, because there is a lot more at stake here than just the failure of a company or a sector—we are really talking about much bigger issues. We need to step back and look at, okay, well, what is really the problem? If we can agree upon, for example, that we need to decrease our imports

of foreign oil, then the codes and also standards need to be targeted at what would help us do that, without dictating the pathway.

So, again, you know, we need alternative fuels. Does it have to be corn ethanol? Not necessarily. Does it even have to be ethanol? Not necessarily. And so, we need to make sure that the rules of the game are written at the highest level possible of an agreed-upon vision, and then let the market adjust to figure out which technologies are going to be the best ones to get us there.

Chairman BOUSTANY. And I think each of you have given us a reasonable framework in which to think about this.

My time has expired, but I just wanted to make one last comment.

Mr. Coleman, you mentioned the issue about R&D investment in oil and gas. And I think you have to look behind those numbers, because there is a certain level of maturation, obviously, in that technology. But at the same time, it is the R&D that has allowed us to do horizontal drilling, deep water exploration, and those kinds of things. And so those things have had value, significant value, in helping us meet our energy security needs. Because without it, yes, we probably would have hit some peak oil issue much earlier.

And so, as technology advances, and as this type of research and development and going after new types of reserves, we have to look at that as part of that equation.

My time has expired, and we will go next to Ranking Member Lewis.

Mr. LEWIS. Thank you very much, Mr. Chairman. I would like to thank each of you for being here today. Thank you for your testimony.

Mr. Greeff, I would like to start by asking you a very basic question. Backed by the recent flurry of budget cuts, there has been more and more talk about significantly reducing the size and role of government. It is sometimes seen as unreal and unbelievable, but there are forces loose abroad in the land.

Can you tell me, do you believe the Federal Government has a role in accelerating the adoption of renewable energy technologies? If so, can you tell me why?

Mr. GREEFF. Yes. I mean unequivocally yes, we do—

Mr. LEWIS. And share with me and the Members of the Committee your vision, your vision of the role of the Federal Government.

Mr. GREEFF. We believe fundamentally two things. Number one, that the Tax Code and the role of government can really be used to help set a vision, and help emerging nascent technologies achieve market scale. We fundamentally believe that it really is demand and market scale that is going to achieve the most efficient companies and technologies, and also the best cost savings for consumers when you implement these technologies and they reach maturity.

But because we have a very heavily-regulated energy sector, because we have a very unlevel playing field, it is very difficult for these early-stage companies and new technologies to crack in. And often times, unintentionally, we do pick winners, and have picked winners in the past, that freeze out new technologies. So we need

to make sure that when the government is involved, that we are really focusing on getting towards a vision, driving innovation, driving new technologies, and helping these technologies stand up and compete, so that eventually they are attracting private capital into the system, and that it is the private capital in the marketplace that is driving these companies once they hit a certain spot.

But Mr. Coleman had some really good comments on this, and probably has something to add about exactly how we get there.

Mr. LEWIS. I would love to hear from you, Mr. Coleman.

Mr. COLEMAN. Well, I mean, I think that it is—to Tim's point, I think that it is very much around how we get from here to there. And I think getting from here to there can take a short time for some technologies, and a very long time for other technologies.

And the question is: What role should the government play in doing that? I think it is really where there is market failures. And, you know, we, as investors, would like to see the government play as little a role as possible where we think that the market is functional, and where we think that we can invest and grow on our own accord. And to the degree that we see areas that are broken. We either stay away from those areas as investors, or we look to the government to actually make them more functional so that we, as investors, can get off the sidelines and be productive.

And I think in energy, in particular, the challenge is really around the innovation question. It is really around how we move very large infrastructure, how we transition from decades and decades of spending to—from one paradigm to another paradigm. And that doesn't—you know, as much as I like to think that we as investors in early-stage companies change the world—I think we do, in a lot of cases—but it is not the early-stage companies alone that need to solve this problem.

And so, part of the challenge, I think, is figuring out how to structure these incentives so that they drive both an opening of the market, so that you can have early-stage companies participate, and they drive investment from some of the existing corporations into the next generation of technologies.

Mr. LEWIS. Would anyone else would like to respond?

Mr. AUERBACH. Yes, if I might. I just note that when we are in the commodity business—as the energy is a commodity business—that incumbent technologies that have already scaled crowd out innovation naturally, because there is no place to express consumer preference for something that is innovative, and that there are certain values that the nation should express, like energy independence, and also environmental benefits that are social benefits that cannot be expressed today as a price signal to encourage alternative forms of energy production.

And so, what we are trying to do is, in effect, add externalities into the equation. But in my testimony I pointed out that even without those externalities, by virtue of the scale, the increasing scale of the wind and solar industries, that costs are already coming down dramatically, and that if we have increased expansion of those industries, that we are going to see further benefits in lowering costs, and therefore, increasing competition.

Mr. LEWIS. Now, each of you realize, as Members of Congress our most important role right now is to create jobs to get people

back to work. If we do away with these incentives, what impact would that have on the economy?

Mr. GREEFF. It would have a pretty profound impact. If we cut these incentives tomorrow, as I mentioned earlier, there would be a shock wave that goes through the energy sector. Again, going back to the wind example, we don't even have to guess. We know that when the PTC credits have expired in the past, you see anywhere from a 70 to a 90 percent decrease in orders and installation of turbines. So—and the corresponding jobs that go with it.

I think to the manufacturing piece, I would say that we have a crisis in manufacturing in this country that has existed for several decades. And a lot of the manufacturing jobs that we have lost are very hard to get back.

I think one of the things that the government can play a role in is really capturing and going after the industries where the manufacturing jobs are still largely up for grabs. And in the emerging energy economy, that is true. And if we look forward and help drive these companies before the market may dictate that the supply would be there, we can keep some more of these companies here, and the manufacturing jobs that come along with them.

Mr. LEWIS. I think my time is up. But Mr. Chairman, Mr.—

Mr. BOOK. Could I just add to that?

Mr. LEWIS. Yes.

Mr. BOOK. I mean I think the cartoon-like image that one gets is that you are sort of a cat running away from a pack of dogs, you run up the tree, out to the end of the branch, and then you start sawing off the branch while the dogs are down below.

These two things that are being discussed here, sort of the existing energy infrastructure we have, and the innovation we must have, are not incompatible. And the question is always one of balance. But it is important to remember that when you are talking about these mature industries, you are talking about mature commodity players, where gasoline stations, for example, make money at a fraction of a cent per gallon. If you start to take away anything, the market will equilibrate. The big well finance companies will always be better off, and the less well-financed, smaller, and in some cases more innovative but conventional companies, will be worse off.

But while that is equilibrating, the jobs are going to be falling away. And so I don't think that it is particularly useful, from a job creation perspective, to make the economics of a global consumer of a global commodity worse at any given time, and certainly not going to help our producers here. And you very well might not want to make it harder to compete within the country, because as people compete they will cut jobs with the margins.

Mr. LEWIS. Thank you. Thank you.

Chairman BOUSTANY. The gentleman's time has expired.

Mr. LEWIS. Thank you, Mr. Chairman.

Chairman BOUSTANY. Ms. Jenkins.

Ms. JENKINS. Thank you, Mr. Chair, thank you all. Mr. Coleman, your written testimony stresses the need for long-term stability in federal policy, and also calls for targeting federal incentives by connecting the technologies directly to firmly bipartisan policy objectives.

But it appears that there is widespread disagreement about what relative weight, if any, should be given to various energy policy goals, such as those identified in your testimony. And even if there are firmly bipartisan policy objectives at any given point, they seem to be shifting.

So, it seems federal subsidies create inherent uncertainty in the marketplace, and I would just appreciate your thoughts on the whole issue of uncertainty.

Mr. COLEMAN. Well, I think there is all sorts of different kinds of uncertainty. And it is part of what we invest in every day, is trying to understand what the market is going to look like. And part of that, in the energy sector, is trying to understand what the politics are going to look like.

And so, I think we already deal with that uncertainty today. I think, in terms of an approach to overcoming some of that, within the existing code there are a number of different structures that were mentioned in a bunch of different testimonies here today that have expiration dates. And there is an element of, if we are not going to change the code, then we probably need to figure out how to extend those expiration dates and make more certainty there so investors can invest ahead.

In terms of the approach that I was recommending, it is really focused on the innovation side of the equation, the earliest stages of these companies' development, and also the early stages of the technology development. And the idea being that we can find some generalized numbers, some milestones around scale of production, and things like that. So megawatts produced, units sold, et cetera. And we have seen these rebates and tax programs work in other places that use these kinds of metrics.

But we can use those generalized metrics to create certainty for individual companies. And in terms of which companies would qualify, which is, I think, to your point, I do think that debate needs to happen. And I don't know that we are going to solve that on this panel here today. But I do think that a lot of people agree around one particular one, and that is energy security.

And I think that here in the U.S. the idea of growing our domestic supplies is a really important one. And we have focused on that politically for the last century. So, hopefully we can continue to do that, and I hope we can continue to do it on the innovation side of the equation.

Ms. JENKINS. Okay, thank you. I yield back.

Chairman TIBERI. [Presiding.] Thank you. Mr. Marchant is recognized for five minutes.

Mr. MARCHANT. Thank you, Mr. Chairman. I can tell you from my constituents back home what they favor is not giving loans like have just been given to Solyndra and seeing a half-billion dollars wasted, which has hurt the entire energy credit reputation. And what they are telling me when I go back home and have town hall meetings and meet with my small business people is, "Do away with all of these credits, lower our tax rate, and let the best product win, the best service win, and get out of the whole business of subsidy."

Realizing that that is going to be a struggle, and realizing that is a goal and this committee is really working on it, I have been

very interested today in a couple of the concepts that have been discussed.

Mr. Auerbach, could you walk through the reverse auction strategy for me, and how would it maximize any taxpayer dollar that was invested?

Mr. AUERBACH. Yes, thank you very much. The reverse auction mechanism, it relies more on the market than on government mandates to set a price. And it is self-limiting, because what we start off with is, say, "Let's encourage more domestic production of energy." And we talk about wind, solar, biomass, and also oil and gas. All of those are—what we are talking about in reverse auctions—are made-in-America energy.

And so, the reverse auction mechanism would divert revenues from expanded oil and gas drilling. Part of it will pay down the deficit, which is, of course, a national priority. And then some of it will be allocated to a trust fund and allow renewable energy developers to compete for that access to that capital.

In the slides that I pointed out, I pointed out that renewable energy costs are coming down already. And I believe if you opened it up to competitive auctions, that fewer and fewer dollars would need to be allocated for every megawatt hour of renewable electricity produced, and you let the market do it.

In the proposal that we are advocating, every year the ceiling price from the reverse auction would go down five percent automatically. And so, we are phasing out—again, with a market-based mechanism, the support for renewable energy technologies, and we are letting that go.

One comment I would make to your constituents, though—and I understand the concern, I understand very well; as an investor, I don't like losing money, and Solyndra is a black eye—but if you analogize where we are today as driving on the highway at 70 miles an hour—65, let's say, because that's the speed limit, so I'm not saying we should be going faster than the speed limit—a light hand on the steering wheel is understandable, and that is the way I believe government should operate. Taking your hands off the steering wheel at 65 miles an hour is perilous.

And so, just abandoning all responsible oversight and government activity to support the growth of the industry would be taking your hand off the steering wheel at a time it is hurtling down the highway at 65 miles an hour. And I believe that the overreaction to some very bad news and distressing news about the Solyndra situation would also create problems and unintended consequences.

Mr. MARCHANT. And as a follow-up question to Mr. Coleman, I don't think I misheard you, but maybe I did. You said that the top five oil companies in America spend almost nothing for R&D. Would you clarify that a little?

Mr. COLEMAN. Yes, they spend less than two percent of their profits on R&D. It is one of the lowest numbers of any industry. And while I think that is an eye-opening number, at the same time I agree with the chairman's statement, which is we have had a tremendous number of innovations over the last 50 to 100 years, particularly in oil and gas, and that is a large reason why we continue to have increased access to supply here in the U.S.

Our point is more that, as an industry that is not investing as much as other industries in R&D, there is an enormous amount of opportunity for new innovation in next generation technologies. And we believe that it is not just going to come from start-up companies and emerging technologies. It is going to come from the oil and gas industry, and it is going to come from some of the biggest players who already exist in the energy industry. And we see those folks as partners.

And so, the hope is that you can create a policy that brings those companies to the table and encourages them to realign their investment choices around not just the things that will increase supply today, which I think is critical, but around those things which will increase supply and decrease cost over the long term.

Mr. MARCHANT. But even at two percent, that gross dollar amount that they are spending, if you compare it against the gross dollar amount that is being spent by all of the other combined industries, aren't they comparable numbers?

Mr. COLEMAN. I don't have the absolute numbers sitting in front of me. I don't believe that they are, although I do—I would say that the oil and gas industry is one of the most profitable industries in the world. So—

Mr. MARCHANT. Thank you.

Mr. COLEMAN [continuing]. It is a good number to have.

Chairman TIBERI. Thank you. Mr. McDermott is recognized for five minutes.

Mr. MCDERMOTT. Thank you, Mr. President—or Mr. Chairman, for having this hearing.

As I look out on this committee, or this panel, I am really pleased to see people who believe in the market. And they think the market is the thing that we must worship at. And as I look—I watched what happened yesterday on the floor, when the floor was controlled by people who really believe that government should have no role in doing anything.

I have a question for all of you, because we had a bill. We had a 48^c extension here in the committee. Members of this panel all signed on, said we ought to extend the manufacturing credit for solar things and other things, and it died. Okay?

Now, 1603, direct payment for wind and solar credits, is going to expire at the end of this year. Ethanol expires at the end of 2011. Renewable diesel and biodiesel expires at the end of this year. And alternative fuel credit, natural gas, expires at the end of this year. If this Congress acts like they acted yesterday, and said, "We don't want the government involved in this stuff," what is going to happen in the market?

How will the market react if the Congress pulls out of all of those programs which are set within four months to be gone? I would like to hear you all respond to that. Sir?

Mr. BOOK. I would be happy to answer that, since I talked to some of those investors every day. And it scares them very badly. And their job is to make money. They are very conservative, and they dump investments that they think are overweighted with risk.

The gentlemen to my left are all very good at making money, so the analogy that I was suggesting was a portfolio. And they don't

put all their eggs in one basket, but they also don't get out of the market entirely, or there wouldn't be anything in it.

I don't think anyone here is advocating dumping all of subsidies—

Mr. MCDERMOTT. You think the Congress is going to extend all these?

Mr. BOOK. I certainly don't, and that is the point of a metrics-based analysis. Figure out what you want to do that is working well, allocate a certain amount to that. Look at the things that are sort of higher risk, given an amount to that, based on efficacy and numbers you can quantify, and then save a little bit for the moonshot, and make sure that you have a balanced returning portfolio, in terms of energy security, environmental benefit, and innovation and the benefit that brings it home.

Mr. MCDERMOTT. Maybe I should have asked the question a little differently. Which ones of these should we save to save the market?

Mr. AUERBACH. Well, can I start off?

Mr. MCDERMOTT. Sure.

Mr. AUERBACH. First of all, I am a believer in the market, I don't worship the market nor government.

But I do believe that the Federal Government, by abdicating any responsibility for the market that exists would create chaos. And as a capital committer that has committed hundreds of millions of dollars of investment capital in the United States, the expiration of some of these incentives is going to create chaos and is going to create job losses.

What I advocated in my testimony, both oral and written, is really—one point about Section 1603. Some people don't like it because it is associated with stimulus. But it represents efficient use of government dollars, as I think every—

Mr. MCDERMOTT. You mean it was a good idea?

Mr. AUERBACH. I think it was a—

Mr. MCDERMOTT. From the Obama Administration?

Mr. AUERBACH. It was a great idea. I was one of the ones who actually was involved in working with the Administration and both Houses of Congress in talking them through how it would benefit the industry.

Ultimately, since I believe that cash is a better way—when cash transfers hands it is a much easier currency than the foreign currency called a tax credit, that the vast majority of our industry cannot efficiently utilize.

Interestingly, 48[©], well, if you look at 48[©], we were a beneficiary of 48[©], and we could not access a dollar of it, because we were not a taxpayer. One of our companies was afforded a \$51 million tax credit that we couldn't use. If we got the cash payment, we would have been creating more jobs. And 60 percent, in my estimate, of the recipients of 48[©] will not be able to access that tax credit.

So, the more we understand about how tax credits are used by taxpayers, I think the more effective your policy can be.

Mr. GREEFF. Just one comment to that to sort of clarify the point, I think that the discussion we are having here now makes the point of where we think the role of government should be. If

you have tax credits that are based on things like arbitrary deadlines, then every couple years we are back here making a decision.

What we would argue is we shouldn't be making this decision. The government can set metrics-based performance standards or, you know, whatever the metrics are, make them long term and predictable enough that the market knows where it is going to head. And I will use an anecdote.

One of the things that I would say in the clean energy sector of the emerging companies that we would say makes a difference between a young and a more mature company is the more mature companies actually have a line item on their spreadsheet that has public affairs, government affairs, as a cost of doing business. And I think that when we have a system that forces companies to have to interact with the government all the time to make sure that every other year, that there is more consistent policy, that is not a helpful system.

We want to have it so that they are spending their money building factories, and they are spending their monies hiring people. They are not spending their money having to interact with the government all the time to make sure that these credits become more consistent, or that a better energy vision is laid out.

Chairman TIBERI. The gentleman's time has expired, but anybody else want to reply? Mr. Lindsey.

Mr. LINDSEY. Senator, I think if you actually look at the cost per gallon on a lot of those, I think you would—I would be one who would certainly want to phase some of them out. I think you mentioned ethanol. I think that is one of the most highly subsidized, and it definitely doesn't meet any kind of standard of cost benefit analysis. You may not want to yank it right away, but it makes sense. I think the same thing is probably true with biodiesel. I think solar credits generally do not pass the cost benefit test. So I would be sympathetic to at least phasing many of them out.

If I might indulge—if you would give—please, related to that—and I have heard the word “jobs” a lot—and, Mr. Lewis, I agree with you 100 percent on the importance of that. To show you how old I am, 29 years ago I was working with a guy named Larry Sommers in the Council of Economic Advisors, and he wrote a memo on Thanksgiving 1982 to the President. There was a proposal then that we create jobs with infrastructure, road building. And Larry Sommers wrote the memo and said, “You know, Mr. President, if you do this, you have to think, ‘Compared to what?’”

Turns out that infrastructure is a less labor-intensive part of the economy than the general economy. So if you take money from the general economy and put it into infrastructure or, frankly, if you put it into energy creation, you are not creating jobs net/net, you are actually destroying jobs. Now, so a lot of what you are talking about will cost jobs in the industries here. But on an economy-wide basis, if your sole objective is to create jobs, I would axe most of those subsidies.

Chairman TIBERI. As I said, the gentleman's time has expired. Anybody else want to—very good questioning, Mr. McDermott. Thank you for always providing some interesting—anybody else?

Mr. BOOK. Could I just add a—

Chairman TIBERI. Sure.

Mr. BOOK. I think that what we are talking about here—in many cases, we are all saying the same thing in different ways. But what Mr. Auerbach said, I thought, was really important. He was asking how much of that money that you are putting into any of these sources flows through to the actual purchase of the thing you are buying? That is the thing I call the return on tax.

And I know it sounds like a crazy thing for people who believe in free markets to say, but if you want to give away money, give it directly away—is a very sensible proposition. What Mr. Lindsey said very eloquently is that, guess what, capitalism works. And the reason why you have lower labor intensity in the things that work at big scale is because that is why they are successful in a capitalist economy.

That does not mean, however, that you won't lose jobs. If you take things that currently benefit those industries away, it does mean—I think you would have to agree—that allocating—if jobs is your only criterion, there is some very labor-intensive things you could do, and renewable energy, in some forms—agriculture-based renewable energy can be very labor-intensive.

We don't necessarily want to live in an agrarian economy, though. I mean I think this is a balanced question. We are an industrial economy, and we want to create high-value jobs.

Chairman TIBERI. Thank you, thank you. I now recognize the gentleman from the booming energy state of North Dakota, Mr. Berg.

Mr. BERG. Thank you, Mr. Chairman. I have been anxiously awaiting to ask questions here. You know, obviously, in North Dakota we have taken a strong approach the last 10 years to not just look at oil, but look at all energy sources, and try and remove barriers and encourage their production.

So, Mr. Greeff, I would like to kind of start just in kind of the big picture. I mean what can Congress do to provide certainty in the energy industry overall, encourage economic, you know, growth, and also, from a big picture, I think our goal should be energy independence.

So, if you were going to say, "Here is three things that Congress can do now," what would they be that would move us towards that end?

Mr. GREEFF. I think, based on energy independence being the goal, I think, number one, we have to set—all policies need to have that fundamental goal as the bottom line. And that would include, you know, reducing our dependence on foreign oil—and I would say oil, overall—diversifying our energy portfolio, like anyone would diversify their investments. We depend far too much on far too few sources of energy. And we would want to make sure that we capture and produce as much of that energy at home as possible, so that the dollars that we do spend on energy are being spent domestically, and driving the economy.

I think a second point is that we can't ignore—because there is often times a focus on the role of the Federal Government, but again, when you get down to the local level, most energy markets are protected monopolies, and they are limited. And getting into—cracking into some of these industries is difficult.

When you look at, for example, that in the rate base of some utilities there is an economic and financial disincentive to be more efficient, that is a failure of the policy system. And we have got to start to fix that, so that actually you are not expecting utilities to lose money if they help end use users become more efficient. Because that is in the public good, that is in the public interest. And so, we can't necessarily just separate the federal policy for more local policies. And we know that that is tricky, but that is something that we need to walk into with our eyes open.

And I think the last point is that we do need to have a more comprehensive view that doesn't just depend on tax policy, doesn't just depend on performance standards. We can't evaluate everything in a vacuum; we have to look at it and make sure it functions together. And if we can look at where we want to get to, if we can set the rules of the game, put them long-term, so that the touches of government intervention and the number of times that we have to have these conversations become fewer and further between, that is going to allow the market to adjust in the long term.

Mr. BERG. Well, thank you. I have been in the commercial real estate investment world for 30 years, so I understand how—I mean we would think that your whole decision is based on tax policy, but the reality is that is just one component of making your investment decisions.

Mr. Lindsey, you had mentioned that the Tax Code discriminates against production. Could you just expand on that, briefly?

Mr. LINDSEY. More precisely, it discriminates against domestic production. So, if you produce something in North Dakota, the workers have to pay both employer and employee side of FICA, they have to pay income tax, they have to pay corporate income tax. If you import the same good from Manitoba, none of that tax is borne.

Now, Canada has got a similar tax structure, so it is there. But if you think about it as China, none of that is taxed. We have a tax—we disadvantage our own manufacturers. What you need is a border-adjustable tax system, and it should be based on cash flow, and not on income, because income is not the thing you really want to tax. You want to tax something more generic than income.

Mr. BERG. Thank you. Mr. Coleman, you had mentioned—I may not have it quite right, but one solution would be a volume-based energy incentive system. I know you talked about it a little bit earlier. Could you just briefly recap that and give me an example of how that would work in real life, if we are transitioning from where we are now to maybe no incentives?

Mr. COLEMAN. Yes. So a volume-based system would be one that shifts from the current approach. So if you think about the way we currently approach tax policy around energy, typically it is—we have technology buckets. So we incent solar a certain way, wind another way, oil and gas a different way, natural gas a different way. And the challenge there is that the government necessarily has to figure out not only what the appropriate allocation is to those individual buckets, but has to listen to us sit here on these panels say whether, you know, one technology is better than the other on a pretty repeatable basis.

And so, the issue there is that when you are trying to figure out how to most effectively then incent those technologies, you also have to figure out when they are ready to move off of subsidies. And we have this semi-annual debate associated with whether or not a technology category is ready.

The challenge is that when you look at the technologies inside even a single bucket—let's just take solar, for example—you have some technologies that have moved all the way down their cost curve to the point—the chart that was brought up here earlier—those cost curves come down very steeply, based on innovation, and then on scale. They may have gotten to the point where they are at the bottom of the cost curve, and there is others that are just beginning to come down it. But they are also solar companies.

And so, the question is, if you roll that tax credit off at that point, the most mature companies may well be able to compete. But the ones that are most innovative—and they may have a cost curve that goes well below where the most mature companies are—the ones that are most innovative won't get any portion of that credit.

And so, when we are investing in some of those early innovative technologies, we look at those policies and we say, "Well, will they be there by the time that these companies actually hit the marketplace?"

And so, the approach that I am proposing is one that looks at the scale of the technology and says there will be a credit for companies that innovate in a given set of categories, and it will last until they get to a certain volume, and then it will start to roll off for that given company. And we have seen it happen in programs all over the place.

One of the ones that is closest to home—and I am going to dare drop a California example here—is the hybrid rebate that was put into place, where, basically, for the initial volume of hybrids, there was a rebate put into place and then it rolled off once an individual company got to a certain volume. So, other companies could enter the market with a new hybrid, and it would roll off for them over time.

But effectively, what that does is it gives us a level of certainty, as investors, to look at how that policy structure—and say that will be there by the time the market hits that scale, and so we can factor it in, and we can invest ahead of it. And it should be applicable, not just to start-ups. It should be applicable to any company that is undertaking technology innovation.

Mr. BERG. So the point is you get to a point where the goal is to make money for the company, and they are making more money by increasing their volume, increasing their sales, and as that happens their incentive reduces.

Mr. COLEMAN. Yes—

Chairman TIBERI. The gentleman's time has expired—

Mr. BERG. I will yield back.

Chairman TIBERI [continuing]. Go ahead and answer the question.

Mr. COLEMAN. Yes, the point is to help these companies get to a scale where their cost is fully reduced. And by the time they are mature, and their cost is fully reduced, they should be able to com-

pete in the marketplace alone, rather than be reliant on subsidies, going forward. We want to invest in the companies that ultimately compete without subsidies.

Chairman TIBERI. Thank you. Mr. Reed is recognized for five minutes.

Mr. REED. Thank you, Mr. Chairman. This has been very informative. I really do appreciate the panel's input. Obviously, as we deal with energy policy going forward, tax policy in the energy field is going to be a critical piece to that comprehensive plan.

I am a guy who believes in all of the above: domestic, renewables, alternatives, fossil fuels, et cetera. And one consistent theme that I am hearing here, and I have heard it before, is the certainty in the tax policy is critical to getting this correct. And, as a new Member—new member of this committee, new Member of Congress—there is a reason why the Tax Code is in the condition that it is, with the short-term extenders and things of that nature.

Mr. Lindsey, you have been around quite some time. I appreciate your candor with us. Could you offer some advice or insight to a new Member as to what is the primary reason why we have the code in the condition that it is? How can we—what are the barriers to that certainty of getting the long-term tax policy initiated?

I have some personal opinions, from the short term I have been here, that there are some institutional issues, the scoring issues and things like that, but could you offer any insights that maybe I am—that would be helpful to me as we develop this policy?

Mr. LINDSEY. Yes, I have been through this quite a few times.

The first thing is—and this is something you can't do anything about, it is the nature of our democracy—obviously, the nature of the committee changes, the Congress changes, and different Members have different objectives. You know, it might be jobs now, it might be inflation another time, and it might be energy production. You can't do anything about that.

I think, though, that the thing you can do something about is the focus on income-based taxation. There is a saying on Wall Street that cash is a fact, income is an opinion. And when you are dealing with an opinion, it is very, very easy to change your opinion. And that is why, "Well, let's see, is this really income now? Maybe we should have a deduction here," I mean all the complexity really comes down to defining income.

On the other hand, if you have a cash flow tax you are really looking at something called receipts. And it is very, very hard to argue about the definition of a receipt, much, much harder than it is income. And I think if you—as a new Member, I think what you would want to do if you actually want to have certainty in the code and everything else, you want to move away from income-based taxation and toward receipts-based taxation, or cash flow-based taxation.

Mr. REED. Any other insights from anyone who has been here a while?

Mr. AUERBACH. Well—

Mr. REED. Mr. Auerbach.

Mr. AUERBACH. Yes. I started my career, actually, as a tax lawyer, and made a living off of the uncertainty, advising taxpayers or clients that were very nervous. And I also worked in Washington

for a couple years in the government, being on the other side of that.

Part of the problem—and I don't want to say this in an impolite way—is, you know, I would actually like to get energy policy outside of this room. And H.R. 909 and the reverse auction mechanism that I am advocating here—and I hope is going to enjoy bipartisan support, but right now is supported mostly by Republicans—is trying to set up a mechanism that is long-lasting, self-implementing, and does not require the constant review before Congress every other year that has been built into a code incentivizing renewable energy since 1993.

There have been 5 times over the last 18 years where the credits just died in their tracks, thousands of people were laid off, capital flows stopped, and then they started again. And so, if we can set up a system that has already been architected—and we have been commenting on it, about how to make this long-lasting and self-implementing—and get revenue sources that are monitored by Congress but actually outside of Ways and Means, I actually think it is going to provide a lot more certainty for capital committers. It is a much more natural way for the system to work.

So, that was—that would be my advice to you.

Mr. REED. I appreciate that. Yes, Mr. Marron.

Mr. MARRON. I guess just—the one other thing I would add is the way the budget process and budget discussions happen in Congress—

Mr. REED. Amen.

Mr. MARRON [continuing]. Which is, as you have experienced, 10-year budget estimates are the coin of the realm.

Mr. REED. Yes.

Mr. MARRON. And that just creates a natural incentive for people who want to extend something to extend it in little bite-sized chunks at a time. And so folks can get enough political will to extend it for a year, and then revisit the next year. And that is not something that necessarily leads to a good long-run policy.

I don't know how you would solve it as a process thing. But if you and all your colleagues could say, "Look, if we are going to consider a tax incentive to encourage some activity, we will commit to either do it for five years, or let it die," that would be kind of the place you would want to end up.

Mr. REED. I appreciate—

Mr. MARRON. At the moment, the budget dynamic is year-by-year.

Mr. REED. Yes, that is exactly what I was looking for on the record.

One last question, just a quick yes or no. Because I am an all-of-the-above person, can we achieve energy independence solely on alternative renewables? Does domestic fossil fuel production and development have to be part of that equation?

Chairman TIBERI. The gentleman's time has expired. Everybody will answer yes or no.

Mr. REED. Thank you.

Mr. LINDSEY. No to the first, yes to the second.

Mr. GREEFF. No to the first, yes to the second.

Mr. COLEMAN. Yes to the first and yes to the second.

Mr. AUERBACH. I would say no to the first, and yes to the second, as well.

Mr. BOOK. No the first, yes to the second.

Mr. MARRON. We will never achieve energy independence within the lives of the grandchildren of the folks here in this room.

Mr. REED. Thank you for that.

[Laughter.]

Chairman TIBERI. We have two more Members who are going to ask questions, and I—yes, cancel the next panel, right. No, I am just kidding.

Mr. Lindsey, I know you had to go, and if you do need to go, you are excused from this panel. Thank you for your generous time commitment. I know you had—

Mr. LINDSEY. Thank you for your forbearance. I appreciate it.

Chairman TIBERI. Thank you. I recognize Mr. Kind for five minutes.

Mr. KIND. Thank you, Mr. Chairman. On that happy note, first of all, I want to thank the witnesses for your testimony, and thank the committee for holding this important hearing. I think it is very, very helpful that we have periodic hearings like this to see whether or not we are getting a good bang for the buck that we are trying to incent or invest as a nation. And these periodic reviews might be a little easier if we went to a biannual budgeting process, as opposed to trying to move everything every year, which provides very little time for oversight with a lot of these programs, and the discussion that we are having today.

One of the concerns I have—and I think it was addressed earlier in the hearing with a question—is if we have got a national strategic energy policy, I don't know what it is. I don't know where we are going, as a country, with all of this. It is just a hodge-podge of a lot of things, and we see it riddled in the Tax Code, too, seeing what might work or what might stick and what doesn't.

And I appreciate the testimony we heard in regards to some predictability and longevity with some of these decisions, so that businesses know what to wrap their arms around, and what is going to be certain in out-years, as opposed to being taken away from them after they are willing to invest capital and time and energy to start moving in that direction.

But what makes this conversation a little bit difficult to have is a lot of the hidden costs with our energy policy today. And let me just cite one example of that. I think it was back in 2002 or 2003 I cited a Department of Interior's website where they had listed the cost of maintaining safe shipping lines to the Middle East to our shores of roughly \$80 billion a year. And I started publicizing that on my own website and started talking a lot about it. And then suddenly the Department of Interior dropped it from their website. And that is one of those hidden costs in our own energy needs as a nation that never really gets explored or factored in to everything else that we are doing. And that makes these type of conversations a little bit problematic to have.

But I also know that, as an example, the 25[¢] tax credit for residential efficiency has had an economic impact for manufacturers in my district, from Trane to A.O. Smith that have benefitted, the Andersen Windows that have benefitted through the increase in sales,

which has meant hiring, but also the impact that it has had for a lot of families.

I recently visited an older couple's house earlier in the year that made an investment with new insulation and high-efficiency furnace and that, because of the tax incentives. That spurred them to do it. And they went from \$410 a month in heating costs to roughly \$90 a month in heating costs. Huge difference in that family's life, but it was because of the tax incentive that spurred them to take that type of action.

So, I guess I would be interested to hear your feedback on how valuable it is to have some of those incentives out there, just to overcome the battle of inertia that we often face in the nation, getting people to do something which makes complete economic sense for them to do, but without that incentive they probably wouldn't, because of the power of inertia.

Does anyone want to take a stab at that? Mr. Book.

Mr. BOOK. Well, Congressman, I have enjoyed conversations about renewable energy with you in the past, and efficiency. And I would have to say that I haven't done the quantifying of that particular example. But what you have just described is something that seems like it had tremendous MMBtu for the buck. And you know, if you are going to judge the efficacy of these policies on a metric—and that was one of the ones that I think a lot of us recommended—it sounds like it is a highly effective policy. And that might be a reason why you would explore continuing the things that are working, saving some for the things that are possible, and allocating a small amount, because we need innovation, irrespective of performance to generate ideas.

Mr. KIND. Yes. And I think it is kind of two different questions here, too. One is: What do we need to do to build in business predictability on what we are doing? But also, what do we need to do to get people to take action?

And part of a way of achieving that is by letting these things expire, and people knowing that they are going to expire, so they got to move now in order to take advantage of it, which, I think, is a lot behind the American Jobs Act, trying to get something done now, rather than knowing it is going to be there for another five years and we have got time to wait.

Mr. BOOK. That just shifts demand forward, it doesn't actually create anything. It creates a lot of lobbying dollars locally spent here in the District of Columbia—thank you for my home value appreciation—but the real effect of creating an innovation center that generates ongoing value is much bigger. And the problem with shifting demand forward is that it is not new demand. And so, I mean you do get a short-term pop. It is like cash for clunkers. But then there is a lag if nothing fundamentally recovered to replace what you shifted forward.

Mr. KIND. I understand and appreciate with the economic models the need to develop something more long term, but we are stuck right now as an economy, because of the lack of aggregate demand. People are scared, and they are hunkered down, they are paying down bills, they are not making purchases, and jobs are not being created. So shouldn't we be trying to juice short-term demand, just to get things going again?

Mr. BOOK. It is messy. It works sometimes very well, but it usually has problems and conflicts. And some of what the first panel was describing sounded like some of the conflicts that come up with it. The rich man's rebate for hybrids for people like me who drive 3,000 miles a year is being spent on vehicles that low-income families can't source. Insulation in walls is what a lot of these families need, but people in my neighborhood can buy solar panel systems for \$80,000.

You do have to look at how these demand-side incentives work. And they are very hard to get right.

Mr. KIND. Great. Thank you. Thank you all again. Thank you, Mr. Chairman.

Chairman TIBERI. Thank you. Ms. Black is recognized for five minutes.

Ms. BLACK. Thank you, Mr. Chairman, and I think I am bringing up the tail end here. Thank you, panel, for being here today. Very informative.

I want to go to the issue of winners and losers when tax credits are created. And in specific, I have a manufacturer of water heaters in my district. And because of the way the tax credit was written, it benefits foreign manufacturers over our U.S. manufacturers. And that means U.S. jobs.

And so, what I would like to hear from you all is how can we be sure that we are not picking winners and losers, and that we are having a level playing ground and, in particular, that we are looking at making sure that playing ground is level, so that our jobs are kept here, in the United States? Anyone want to jump on that one? Yes, Mr. Marron.

Mr. MARRON. Okay, I will be brave and go first. I think the unfortunate reality is that if you try to use the tax system to provide subsidies for these kinds of activities, it is virtually impossible to literally accomplish a level playing field. You will see in the testimony of some of my colleagues up here on the panel the complicated calculations they go through in order to figure out what the implied value per MMBtu or value per CO2 saved, or value per gallon is. It requires an enormous amount of math.

Now, try and imagine to do that here in the committee to design subsidies to target each possible way one might save energy. And the reality is just you are never going to get there. So a fully level playing field is incredibly hard to accomplish on the subsidy side.

I know it is an unpopular message, but actually you can accomplish a level playing field if you are willing to do things on the tax side. If you say, for example, that oil is a bad thing to use because of national security concerns and you have an oil tax, if you believe carbon emissions are bad you tax carbon emissions, that can then filter through the economy and establish a level playing field.

Now, I am not offering that as a raise-tax thing. You can then couple that with cutting other taxes, so that it is net-revenue-neutral. But I recommend that if you really take seriously the level playing field, that that is a place to look.

Ms. BLACK. Others have a comment on that? Mr. Coleman.

Mr. COLEMAN. Well, I would just say, at the risk of sounding like a broken record, I think the issue is you really need to simplify the code, number one, and I think that means trying to figure out

how to carve out the hidden components of the code, and trying to put them all sort of above the table.

And the other is really making sure it is a metric-based system. So, you know, to the points that were made earlier by a number of different panelists, making sure that we align it with the metrics that define the priorities we have. So if it is energy security, then there are certain metrics associated with that, making sure that those that are eligible and those that take those credits fit the bill, and that they get the credits based on the amount that they actually produce, and the amount that they actually meet that objective, I think, is the simplest way to do it, and make sure that you have a level playing field.

Mr. AUERBACH. I would just add that, again, there have been a number of ideas, I think, proposed by the panelists in their testimony, including myself, that go to encouraging increased domestic production of energy of all sorts. We have to be careful, as we design policy, that we do not violate international trade agreements to block out foreign competition, because they are going to retaliate and do that to us, as well. But there is nothing wrong with encouraging domestic production.

But again, the more that we can create market-based mechanisms for all of this, I think the better off we are all going to be.

Mr. GREEFF. I would go back to my comments earlier about the need for a comprehensive vision, that, you know, tax policy is a role, but let's look at international security. And if we look at, for example, our dependence on foreign oil, there is demand side and supply side, and you probably need to have a separate set of policies for that and focus on the demand side, the biggest use in the transportation sector.

Instead of going back to the earlier example about corn ethanol and saying, "That's the one that we are going to pick," you have things that work in concert, such as the café standards that say, "We want to set a fleet average of miles per gallon." It doesn't dictate to the auto makers what type of car technology they have to use. It sets an aspirational target for what the fleet average needs to be. So they still get to make SUVs, but it also pushes them to make more advanced technologies with better combustion engines, hybrids, electric vehicles, et cetera.

And then, at the same time, you can also use tax policy to bolster the next generation technologies. And, to Will's point, not just for start-ups, but also for the large companies, so that they are actually looking and innovating to what is that oh-wow, next big thing that they wouldn't necessarily invest in otherwise. If we have more of a vision and we use all of the different tools in our toolbox, we will have a much more comprehensive policy that picks less winners, and lets the market adjust to what the aspirational goals are.

Ms. BLACK. Thank you all very much.

Chairman TIBERI. The gentlelady's time has expired. Thank you very much.

Last, but not least, the gentleman from Connecticut is recognized for five minutes.

Mr. LARSON. Thank you, Mr. Chairman, and thank you so much for holding these important hearings. And thank all of our panelists, some of which I know had to leave already.

But just a general question. I think all of you are in agreement, in terms of the need for comprehensive tax reform and how that would benefit, overall, all of our industries. And I think there is probably broad agreement on this committee with respect to that, as well.

I am concerned, however, that if the United States doesn't supply various types of technology in commercial adaptation, that we run the risk of having other nations—I come from a state that is a fuel cell sector state, and we see with the great interest that Korea has in making sure that that industry has a place to grow and thrive over there, through government investment.

It is always a concern about picking winners and losers, but in new and breakthrough technologies, what is the feeling of the committee with respect to that? And if we could, just briefly go through whether or not government should be involved. Or is this something that you purely leave up to the marketplace, especially when other countries, especially in the energy-related areas, are looking to eat our lunch?

Mr. AUERBACH. Well, I will just start by pointing out one thing that we haven't talked about. There has been some mention about some due diligence failures associated with one loan guarantee for an innovative company, which is unfortunate. But put in context, where some of our competitors are—that I view also as trading partners—China, the Chinese Development Bank, CDB, which is somewhat equivalent to our Ex-Im Bank, has provided over \$30 billion in loans to support their native industries, scaling up their renewable energy. And many of those are innovative companies that are increasing their scale and lowering their cost.

And so, if we abandon, if we don't provide systems of support to encourage domestic innovation through whatever means we think is most economically efficient, we are going to end up increasing our trade deficit because, ultimately, we will find those products attractive. And instead of having our share of American products, it is going to all be coming from overseas.

Mr. COLEMAN. Yes, I would just add that I do think we need to support emerging technologies, and that was the brunt of my testimony. I think the way that we need to do it, though, is in a technology-neutral way. So I think the closer we can get to a metric-based system, the better off we will be.

Mr. LARSON. There is a great deal of conversation currently in the Congress and several bills that abound with respect to an infrastructure bank that is both partially funded by government providing the base for seed capital, but then with a board, and with investment coming from the private sector. Could the same kind of innovation bank work for the country?

Mr. BOOK. Congressman, I have testified on this before the Senate in the past, and I was sad to see that the—some folks tend to talk about a green bank as a Fannie and Freddie for clean energy, and they don't mean it nicely.

There is actually a problem with the current loan guarantee program that has nothing to do with due diligence. It has to do with the way financing has to work for real industry at a real-time basis. The portfolio that you are able to catch is probably not going to out-perform the portfolio Mr. Auerbach has. He can turn around

a term sheet quickly. He has the autonomy to choose financing mode, he can decide whether he is going to take warrant coverage or equity, he can decide if he's going to debt finance something with venture convertible security interest.

If you give that kind of autonomy to a government agency it has to be limited, because you don't want to crowd the folks who do it for a living out of business, because they do tend to yield an awful lot of it. But having it done right probably would involve giving it autonomy and the ability to work in real time, as the Ex-Im Bank does.

Mr. LARSON. Would that enhance or detract from your efforts, Mr. Auerbach.

Mr. AUERBACH. I think it would enhance. First of all, thank you for the question; it is a very important one. Let me just point out that there are various versions of a bill for supporting a clean energy deployment administration. Some of them call for agency-driven locale for it, others independent. So it is somewhat different, but similar to the infrastructure bank illustration that you have shown.

Let me give you one personal example. We went through the loan guarantee program and successfully procured a loan guarantee. We started our application in December 2008. We were finally awarded the loan guarantee about two months ago. Nearly three years in due diligence and then in documentation in order to get a loan is not exactly fleet-footed, and is not going to support American competitiveness.

We understand the grave concerns about the due diligence process and the capacity of the government to do this efficiently. Ultimately, I believe that it needs to be outsourced to independent folks who have the autonomy to act as quickly as we act in the private equity business.

Chairman TIBERI. The gentleman's time has expired. Anybody else want to answer that question?

Mr. GREEFF. The last thing that I would just add is we think that any time that you can create a public-private partnership as opposed to a wholly public operation, we think that that generally works better. And we would also argue that moving the money closer to the source of the innovation increases the chances that it is going to be spent wisely. So the solutions in Louisiana are going to be different than in Ohio or Massachusetts or Georgia.

And we would say that the public-private partnership done at a more regional, local level actually helps to increase the efficacy with which that money is distributed, and makes sure that that innovation is happening at the ground level, in conjunction with the national labs, in conjunction with the universities, and all the talent that we have in the United States.

Mr. LARSON. Thank you.

Chairman TIBERI. Thank you. Thank you all. One last question on behalf of the panel. If you guys were up here, just a yes or no answer—starting with Dr. Marron—with what you know, would you vote yes or would you support or oppose the Nat Gas Act, which is our next panel? Because I am going to go to our next—

Mr. MARRON. Pass.

[Laughter.]

Chairman TIBERI. Pass? Pass it, or pass?

Mr. MARRON. Oh, sorry. Pass on the question.

Chairman TIBERI. Okay.

Mr. BOOK. I don't know enough until you can give me a comprehensive accounting.

Chairman TIBERI. Stick around.

Mr. BOOK. But leaning oppose.

Chairman TIBERI. Okay.

Mr. AUERBACH. I would have to pass, I haven't studied it closely enough. I apologize.

Chairman TIBERI. All right.

Mr. COLEMAN. I hate to say it, but I haven't studied it closely enough, either.

Chairman TIBERI. All right.

Mr. GREEFF. Pleading the Fifth.

Chairman TIBERI. Pleading the Fifth?

Mr. GREEFF. I am just kidding. It is the same thing; I haven't read the bill.

Chairman TIBERI. You guys should stick around the for the next panel, then.

Mr. GREEFF. Might just do that.

Chairman TIBERI. Really appreciate your testimony today. You guys did great. Gave us a lot of great information. And thank you so much for coming.

We will now seat the third panel. Our third panel today, while they get seated, I will introduce them to save a little time as the second panel departs. Very informative second panel. Again, thank you so much for coming.

We have our third and final panel with us today: Mr. Andrew Littlefair, president, chief executive officer of Clean Energy Fuels; Dr.—oh, not—Dr. Lawrence Lindsey is now gone, he had to leave so he was part of the second panel; our former colleague, the Honorable Congressman Calvin Dooley, president and chief executive officer of the American Chemistry Council, welcome; Dr. David Kreutzer, research fellow in energy economics and climate change of The Heritage Foundation; and finally, our last witness, I will yield to my good friend from Massachusetts, Ranking Member Neal, to allow him to introduce our final witness.

Mr. NEAL. Thank you, Mr. Chairman. I am pleased to introduce one of my constituents, Hank Ziomek, who is the director of sales for the Titeflex commercial division, with global responsibility for the automotive and industrial markets. Titeflex is headquartered in Springfield, and I must tell you it is a very neat story. We are all very proud of what has happened at Titeflex.

Before joining Titeflex, Hank spent nearly 20 years with the Dana Corporation, including as a business unit manager for the Boston weatherhead division. So it is extremely helpful to get the input of individuals like Hank, and I am appreciative of the fact that he has taken the time to come to Washington today to give us his perspective.

Chairman TIBERI. Thank you, Mr. Neal. Thank you all for joining us. You will each have five minutes to present your testimony, and your full written testimony will be submitted for the record.

So, with that, Mr. Littlefair, we will begin with you. You are recognized.

STATEMENT OF ANDREW J. LITTLEFAIR, PRESIDENT AND CHIEF EXECUTIVE OFFICER, CLEAN ENERGY FUELS, SEAL BEACH, CALIFORNIA

Mr. LITTLEFAIR. Thank you, Mr. Chairman. Chairman Tiberi, Chairman Boustany, and Members of the Committee, my name is Andrew Littlefair, and I am president and chief executive officer of Clean Energy Fuels. I am also the immediate past chairman of NGV America, a national trade association, over 120 companies involved in natural gas vehicles and related production distribution and transmission.

I am here to speak in favor of H.R. 1380, the Nat Gas Act, introduced by—on April 6th—by Representative John Sullivan and Congressman Larson, cosponsored by both subcommittee chairmen, along with 181 other bipartisan Members of the House. I would like to focus on the advantages to our economy of jump-starting a natural gas vehicle industry in the United States.

The changeover from diesel to natural gas is going to make huge strides over the next 10 to 15 years. With this short-term boost, we can accelerate that just about five years.

The benefits to natural gas as a vehicle fuel are numerous, wide-ranging, and vital to America's national interest. It is abundant, domestic fuel, it is a proven technology, it is cleaner than petroleum, and it will generate 400,000 new jobs over the next 5 years, and it will reduce our dependence on OPEC oil. Natural gas is one of the most abundant natural resources in America. From just a few years ago, when natural gas was considered an extremely limited resource, it is now widely believed we have enough natural gas reserves to last between 100 and 150 years.

Given the amount of natural gas, we must consider how best to deploy such a widely distributed domestic natural resource. Natural gas is a proven vehicle fuel. There are some 13.2 million natural gas vehicles operating in the world today. Globally, over 4,000 natural gas vehicles are being put on the road each and every day, and 8 new natural gas fueling stations are being opened every day.

However, of the 250 million cars and trucks and light-duty trucks on America's highways, only about 110,000 are natural gas vehicles. The argument against moving from gasoline or diesel to natural gas as a principal transportation fuel for passenger vehicles has been a matter of infrastructure. And that is why H.R. 1380 focuses on the 8 million medium and heavy-duty trucks which burn more than 35 billion gallons of fuel each year.

Over-the-road trucks tend to run the same routes on a regular schedule, and we have determined that the beginnings of a nationwide network is possible with as few as only 150 natural gas stations at existing truck stops along interstate highways which can provide fuel from coast to coast and border to border.

The private sector is doing its part. Recently my company announced an investment by Chesapeake Energy to help build 150 strategically located L&G truck stops. This process, too, can be greatly speeded up through common sense incentives in the bill. H.R. 1380 takes direct aim at the incremental cost of a basic class

A truck, which includes regional tractors, trucks, refuse and recycling trucks. Built to run on diesel, the base cost is approximately \$125,000. A similar truck manufactured to run on natural gas today costs between \$35,000 and \$40,000 more.

To show how quickly the market is changing, just three years ago the incremental cost of a natural gas truck over a diesel was between \$60,000 and \$100,000. So we are moving in the right direction. H.R. 1380 is not a hand-out to major corporations, grocery chains, and retailers. There are over 360,000 trucking companies in the U.S.; 82 percent of these operate 6 trucks or less, and 1 in 10 over-the-road truck drivers is independent, and most own their own rigs. These small businesses will retain a larger share of their earnings in the form of a tax credit to purchase natural gas trucks. And that, plus the savings of \$1.50 per gallon running on natural gas instead of diesel, provides a significant life cycle reduction in cost, and will go a long way in helping to create additional demand for trucks and engines built in America.

Studies have shown that moving America's heavy-duty truck fleet from diesel to natural gas will have the effect of providing over 400,000 direct and indirect new jobs over the next 5 years throughout the NGV supply chain. Every person we hire, every position we create, has to make sense for us so it can help us make money. Yet we believe that 400,000 of new permanent, good-paying jobs to be conservative. These jobs will be created through an anticipated private sector investment of up to \$50 billion over that same 5-year period that we are talking about with the bill.

Using domestic natural gas instead of foreign oil is also a security issue. In June 2011 we imported—this is really staggering—343 million barrels of oil at a cost of \$39 billion in one month alone. That is \$1 million per minute every minute of every day. The cost of importing oil for the first 6 months or so this year is \$227 billion, over a quarter of a trillion dollars.

A look at the list of countries in which we are sending all those dollars is chilling. After Canada and Mexico, the next largest suppliers of oil to the United States are Saudi Arabia, Venezuela, Nigeria, Iraq, Colombia, Russia, and Angola. This is not a list of countries we should be counting on for stable, fairly-priced supplies of oil.

In converting America's heavy-duty truck fleet of about eight million vehicles to liquified natural gas would save 2.5 million barrels of oil per day, meaning we could reduce our reliance on OPEC oil in half. At \$100 per barrel, that means \$250 million per day will stay in the U.S. to circulate through our economy, rather than being shipped off to the governments of Venezuela, Saudi Arabia, and Nigeria.

Natural gas is abundant, it is available, and it is safe. Natural gas is cleaner than gasoline or diesel, produces in between 20 and 30 percent fewer greenhouse gases, and natural gas is cheaper. A typical over-the-road truck running on natural gas will save \$40,000 per year.

Chairman TIBERI. If you could kind of wrap it up—

Mr. LITTLEFAIR. Thank you for your time, and attention. I am happy to answer any questions that you may have.

[The prepared statement of Mr. Littlefair follows:]

Testimony of
Mr. Andrew Littlefair
President & CEO
Clean Energy Fuels

Before the
Subcommittee on Select Revenue Measures
and the
Subcommittee on Oversight
House Committee on Ways & Means
September 22, 2011

Mr. Chairmen, Members of the Subcommittees.

My name is Andrew Littlefair. I am the President and Chief Executive Officer of Clean Energy Fuels which is the largest provider of vehicular natural gas (both Compressed Natural Gas and Liquefied Natural Gas) and related services in North America. I am also the immediate past Chairman of the NGV America, a national trade association of over 120 companies involved in natural gas vehicles and related production, distribution and transmission.

I am here to speak in favor of H.R. 1380 – the NAT GAS Act, introduced on April 6 by Rep. John Sullivan. I am pleased that so many members of the Subcommittees have co-sponsored the legislation, including both Chairmen. I would like to focus on the advantages to our economy of jump-starting a natural gas vehicle industry in the United States. The change over from diesel to natural gas is going to happen over the next 10 to 15 years. What I am suggesting is, with this short-term boost, we can accelerate that to just five years and achieve our goal of energy security.

In addition, I will touch on job creation, revenue generation, national security implications, and environmental advantage of moving a significant number of vehicles from largely imported diesel to domestic natural gas.

The benefits of natural gas are numerous, wide ranging, and vital to America's national interests. I believe that is why, as of today, H.R. 1380 has 183 bipartisan co-sponsors. With what you have just gone through, having that many members from both sides and from all regions of the country coming together on a single piece of legislation is noteworthy in, and of, itself.

Natural Gas is Abundant.

Natural gas is one of the most abundant natural resources in America. In the summer of 2009, the "Potential Gas Committee" under the auspices of the Colorado School of Mines released its groundbreaking report calculating the enormous amount of natural gas contained in the vast shale deposits in Texas, Louisiana, Arkansas and the Appalachian basin states. The Marcellus Shale, extending through Pennsylvania, West Virginia, southern New York and eastern Ohio, has received the lion's share of attention over the past year.

We in business and in government don't think strategically as often as we probably should. It is one thing for report after report to state we have a 100-year supply of natural gas, or a 150-year

supply or a number that continues to grow with advances in drilling technology. It is something else for us to consider how best to deploy such a domestic natural resource – a resource with so many uses, which is already so widely distributed, and which can benefit all Americans by providing more jobs, a cleaner environment, a reduction in our trade deficit, and cheaper food and commodity prices.

Unlike battery and hydrogen technologies which are works in progress, natural gas is a proven vehicle fuel. There are some 13.2 million natural gas vehicles operating in the rest of the world. Globally, over 4,000 NGVs are being put on the road and eight new natural gas fueling stations are being opened every day. However of the 250 million cars and light trucks on America's highways only about 110,000 are NGVs.

The argument against moving from gasoline or diesel to natural gas as a principal transportation fuel has been a matter of infrastructure. If there are not enough fueling stations to support NGVs, then the public won't buy them. If the public won't buy NGVs then companies like Clean Energy Fuels won't build facilities to fuel them.

This "closed loop" thinking has stymied us for decades.

We can talk about the availability of natural gas refueling facilities, as opposed to gasoline stations, for passenger cars but the fact is as long as gasoline was so relatively cheap, there was no need for people to ask for natural gas vehicles (NGVs), there was no reason for the automobile manufacturers to build them, and no need for filling stations to put in natural gas islands.

My focus today will be on medium and heavy-duty trucks which currently burn imported diesel. In the jargon of the Transportation Department these are Class 3 through Class 8 trucks – everything from express delivery and utility company vehicles all the way up to refuse and recycling trucks; and 18-wheelers.

Even if we built a million passenger cars per years to run on natural gas, that would represent only four-tenths of one percent of the U.S. fleet.

However there are only about eight million class five through eight – heavy-duty – trucks in the U.S. These trucks range from refuse recycling trucks to over-the-road 18-wheelers and use upwards of 35 billion gallons of fuel annually. Helping the owners of these vehicles replace their diesel trucks with trucks running on CNG or LNG can have an immediate, measurable effect on our trade deficit, our environment, and on the profitability of these fleets.

Over-the-road trucks tend to run the same routes on a regular schedule. We have determined that the beginnings of a nationwide network is possible with only 150 natural gas stations at existing truck stops along Interstate highways can provide fuel coast-to-coast and border-to-border. Refuse recycling trucks, municipal buses, dump and cement trucks, and express delivery and utility trucks all go home to "the barn" every night and so refueling them is a simple matter.

The private sector is doing its part. Recently my company announced an investment by Chesapeake Energy to help build 150 strategically located LNG truck stops. This process, too, can be greatly speeded up through common sense incentives in the bill.

All that is left is to help trucking companies in the short term defer the additional cost of buying vehicles which will run on natural gas. Because there has been a trickle of a market for heavy trucks running on natural gas, the costs of manufacturing them is far higher than the highly-developed lines building diesel engines. H.R. 1380 takes direct aim at the premium which keeps many truck owners and manufacturers from making the change to natural gas. The cost of a basic Class 8 truck - which includes regional tractors, drayage trucks, and refuse and recycling trucks - built to run on diesel is approximately \$125,000. A similar truck manufactured to run on natural gas will cost between \$35,000 and \$40,000 more.

To demonstrate that the economics of scale I am suggesting will, in fact, work, we should note that just three years ago the incremental cost of a natural gas truck over a diesel was between \$60,000 and \$100,000. I believe that, by providing this modest tax credit for truckers to purchase NGVs that differential will quickly disappear as the benefits of natural gas as a transportation fuel become obvious to users.

In this era of debt limits and spending reductions we should keep in mind that the relatively low cost of H.R. 1380 and its strict time limit of not more than five years will yield many times the amount of the tax credits involved.

There are 360,000 trucking companies in the United States. 82 percent of these operate six trucks or less. One in ten over-the-road truck drivers are independent and most own their own rigs.

I recite these statistics, Mr. Chairman, to show that H.R. 1380 is not a hand-out to major corporations, grocery chains, and retailers. It is a way to give a hand-UP to small businesses from Maine to California by providing meaningful incentives to our transportation infrastructure.

These small businesses will retain a larger share of their earnings in the form of a tax credit to purchase natural gas trucks. That, plus the saving of \$1.50 per gallon by running on natural gas instead of diesel, provide a significant life-cycle reduction in costs and will go a long way in helping to create additional demand for trucks and engines built in America.

As these companies ramp up to meet the expected demand, the per-unit cost will drop to the point where a tax credit is no longer necessary.

Yet the manufacturing facilities and the workers who build these new vehicles within them, designers, engineers, tool-and-dye makers, mechanics and after-market entities, will remain and will grow in a market sector which is crucial to the economic health of states throughout America. Studies have shown that moving America's heavy-duty truck fleet from diesel to natural gas will have the effect of providing over 400,000 direct and indirect new jobs over the next five years, further demonstrating the long-term benefits of this legislation.

The elements of the President's Jobs Bill - both the job creation and the pay-for sides of the equation - are on everyone's lips here this week. Proposals like the NAT GAS Act are not in competition WITH, but are complementary TO, whatever form of the jobs bill comes out of the Congress.

Every person we hire - every position we create - has to make sense for us, so it can help us make dollars. Yet, we believe that 400,000 number of new, permanent and good-paying jobs to be very conservative. These jobs will be created through an anticipated investment of up to \$50 billion over that five year period.

As a national security issue all we need to do is to look at the scale of oil imports and the list of our major oil trading partners. Natural gas vehicles can play a significant role in displacing foreign oil.

In June, 2011 we imported 343 million barrels of oil at a cost of \$39 billion. *That's one million dollars per minute, every minute of every day.* For the first half of this year we have imported 2.1 billion barrels of oil costing \$227 billion; over a quarter of a trillion dollars. Not only is the scale of the amount of money we are shipping offshore sobering, but a look at the list of countries to which we are sending it is chilling: After Canada and Mexico, the next largest suppliers of oil to the United States are:

- a. Saudi Arabia
- b. Venezuela
- c. Nigeria
- d. Iraq
- e. Columbia
- f. Russia
- g. Angola

This is a list of countries we should beware of supplying our national requirements for bubble gum, much less oil.

In April of this year, oil imports accounted for about 60 percent of our three-year high trade deficit of \$50.2 billion.

Converting America's heavy truck fleet of about 8 million vehicles to Liquefied Natural Gas would save 2.5 million barrels of oil per day, meaning we could reduce our reliance on OPEC oil by half. At \$100 per barrel that means \$250 million per day stays in the United States to circulate through OUR economy, rather than being shipped off the governments of Venezuela, Saudi Arabia, or Nigeria.

Mr. Chairman I am in the business of promoting natural gas as a major component of America's transportation fuel future. It is not the perfect fuel, and every fuel has benefits and drawbacks, but natural gas is the cleanest fuel on the American roads today.

Natural gas is abundant – As I noted eminent researchers from the Colorado School of Mines, Cambridge Energy Research Associates, IEA and MIT on down – have shown we have between a 100- and 150-year supply just in the United States.

Natural gas is available – it is the most widely distributed natural resource in the nation.

Natural gas is safe – it is used for cooking, heating, and hot water in over 70 million homes.

Natural gas is cleaner than gasoline or diesel. According to the California Air Resources Board NGVs produce between 20 and 30 percent fewer greenhouse gases than vehicles burning diesel or gasoline. Converting just one trash truck from diesel to natural gas is the equivalent of taking as many as 325 cars off the road in terms of pollution.

Natural gas is cheaper – it costs about 40% less than diesel on a gallon-equivalent basis. For an over-the-road truck burning about 20,000 gallons of fuel per year – that is a savings of up to \$40,000 per year per truck. In an era where commodity prices are on the rise – and a substantial

Testimony of Mr. Andrew Littlefair

September 22, 2011

portion of that rise is shipping costs – lowering those shipping costs should be reason enough to jump-start the NGV industry in the United States.

Natural gas is working. This is an historic opportunity to pass and implement an achievable tax credit that will immediately have a positive and dramatic impact on our energy and national security and greatly reduce our reliance on OPEC. This can happen and can happen NOW.

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

Committee on Ways and Means
Witness Disclosure Requirement – “Truth in Testimony”
Required by House Rule XI, Clause 2(g)

Your Name: Andrew J. Littlefair		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). Clean Energy Fuels Corp. b. Briefly describe the capacity in which you represent this entity. I am President and Chief Executive Officer of Clean Energy Fuels Corp.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have received</u> during the current fiscal year or either of the two previous fiscal years: I have not received any Federal grants or contracts (including subgrants or subcontracts) during the current fiscal year or either of the two previous fiscal years.		
4. Please list any offices or elected positions you hold. None.		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. Clean Energy Fuels Corp. has not received any Federal grants or contracts (including subgrants or subcontracts) during the current fiscal year or either of the two previous fiscal years which exceed 10 percent of Clean Energy Fuels Corp.'s revenues in the year received.		

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Chairman TIBERI. Thank you.
 Mr. LITTLEFAIR. Thank you.
 Chairman TIBERI. Congressman Dooley, you are recognized for five minutes.

**STATEMENT OF CALVIN M. DOOLEY, PRESIDENT AND CHIEF
EXECUTIVE OFFICER, AMERICAN CHEMISTRY COUNCIL,
WASHINGTON, D.C.**

Mr. DOOLEY. Well, thank you, and good morning, Mr. Chairman and Members of the Committee. I appreciate the opportunity to testify on behalf of the American Chemistry Council and our members.

Your hearing today acknowledged that the United States Tax Code is often used to drive energy policy and influence markets, sometimes with unintended and detrimental results. The Nat Gas Act is an example of one such proposal offered at a time when our nation can least afford it.

Most people don't realize that natural gas is vital to the productivity of U.S. manufacturers. This is particularly true of the chemical industry, which uses natural gas both as a power source and a raw material to develop and produce everything from the packaging that keeps our food fresher longer, and to the building products that make our homes more efficient and affordable, to the parts and materials, including high-tech composites that make our cars and planes lighter, stronger, and more fuel-efficient.

Our products and materials are then used by other industry to create new goods on which American families, farmers, and business rely. In fact, more than 96 percent of all domestically-manufactured goods are embraced and enabled by chemistry.

That is one reason why new supplies of natural gas from previously untapped shale deposits are such a game-changer for our industry, and for American competitiveness. In recent months, numerous chemical manufacturers have announced new investments, thanks to the outlook for a predictable domestic natural gas market. And a recent ACC study found that reasonable increases in natural gas, on the order of about 25 percent, would result in nearly 400,000 new jobs in the chemical sector and supplier industries, generating more than \$132 billion in U.S. economic output, and nearly \$4.4 billion in local, state, and federal taxes, annually.

As we move to take advantage of this vast resource, we must not introduce expensive distortions into the natural gas market. The Nat Gas Act would do just that. The act aims to boost the production and use of natural gas vehicles through up to 5 billion in taxpayer-funded subsidies. But, frankly, the bang for the buck just isn't there. A revenue analysis by Ernst & Young conducted on our behalf estimated that the Nat Gas Act would result in about 22,000 new natural gas vehicles on the road. That is a cost to taxpayers of roughly 135,000 per vehicle, regardless of whether Congress has identified a way to pay for the bill or not.

Perhaps most troubling, though, is the bill's potential to create an unbalanced, volatile natural gas market plagued by price spikes. A return to volatile natural gas markets similar to those of the previous decade would undermine a growing resurgence in domestic chemical industry. Data from the last 50 years show that natural gas prices go up, exports from our industry fall precipitously, and manufacturing jobs go right down with them. For example, in the last decade, in large part due to the volatility in natural gas prices, our industry lost over 120,000 jobs.

I think, though, you know, we heard testimony from Mr. Lindsey, for whom I have a great deal of respect, and I think in his testimony that I had the chance to read, I think it even embodies some of the most compelling arguments on why this legislation is not appropriate. In his testimony, he identified that the differential between a truck running on natural gas versus diesel, that it was—it would generate—in 100,000 miles it would generate a fuel savings of \$57,000 for a year. That would have a payback on that conversion of only 15 months, a return on capital investment of 80 percent.

What this legislation would do, if you back up and think about it, if you look at what companies have the largest fleets in the United States, you have FedEx, you have UPS, you have Waste Management, you have the Cokes, you have the Pepsis, you have the Wal-Marts. All of those have central fueling stations today. So we would be putting the taxpayers on the line. A good share of that \$5 billion that we are going to be asking them to pay would go to companies that have the ability to have centralized fueling stations, that would go to their conversions of their heavy vehicles up to \$64,000, when today the market forces would allow them to recoup a return on that investment in 15 months without a tax subsidy.

You know, as we are striving to try to get our country's fiscal house in order, it is important for us, more than ever, to try to define the appropriate role of government. We need to allow the marketplace to work, and the marketplace is working. And Mr. Littlefair's company is a good example. With Chesapeake, they already have announced that they are going to establish 150 natural gas fueling stations throughout the country.

Give this industry time to work. Allow the marketplace to work. Do not pick winners and choosers [sic], and do not put the taxpayers on the hook for subsidies that will create a distortion that aren't needed at this time.

[The prepared statement of Mr. Dooley follows:]

The American Chemistry Council

Statement for the Record

House Committee on Ways & Means
Subcommittee on Select Revenue Measures
Subcommittee on Oversight

September 22, 2011

Submitted by:

Calvin M. Dooley
President and Chief Executive Officer

I appreciate the opportunity to testify on behalf of the American Chemistry Council and our members and to offer my thoughts on the importance of a stable, competitive natural gas market to meet future energy demand and ensure America's economic competitiveness.

Your hearing today acknowledges that the United States tax code is often used to drive energy policy and influence markets – and sometimes, with unintended and detrimental results. The ACC believes that our nation needs a comprehensive energy strategy that promotes the sustainable, efficient use of all energy sources, not a piecemeal approach that relies too heavily on the tax code to promote specific market outcomes.

The New Alternative Transportation to Give Americans Solutions Act (“NAT GAS” Act) is one such ineffective, inefficient proposal, offered at a time when our nation can least afford it. If enacted, subsidies like those in the NAT GAS Act will distort the natural gas market by artificially increasing demand ahead of supply, and will risk stifling investment and job creation.

There is no denying the importance of natural gas to our nation's economic competitiveness, our quality of life, and our clean energy future. Today, natural gas heats millions of American homes and generates over 20% of our electricity.¹ But that is far from the whole story: natural gas is also vital to the productivity of the U.S. manufacturing sector, which uses more than a quarter of our nation's natural gas.²

This is particularly true for America's chemical industry, which uses natural gas as both a power source and a raw material to develop and produce fertilizers, pharmaceuticals, plastics and other advanced materials. Our products and materials are then used by other industries to create new goods on which American families, farmers and businesses rely. In fact, more than 96% of all domestically manufactured goods are enabled by chemistry – everything from the packaging that keeps our food fresher longer to building products that make our homes more energy efficient and affordable, to parts and materials, including high-tech composites, that make our cars, planes, and electronics lighter, stronger and more fuel efficient.

New supplies of natural gas from previously untapped shale deposits offer an abundant and reliable domestic energy source. The U.S. Energy Information Administration (EIA) projects that shale gas will account for an increasing share of our domestic natural gas production in the coming decades, approaching 50%.³

Shale gas has been a “game changer” for the domestic chemical industry. When competitively priced, ethane (derived from natural gas) gives U.S. manufacturers an advantage over many competitors around the world, which tend to rely on more expensive, oil-based raw materials.

¹ Energy Information Administration, *Annual Energy Outlook 2011*, Washington, DC, April 26, 2011, at: http://www.eia.gov/forecasts/aeo/MT_electric.cfm.

² EIA, Natural Gas Consumption by End Use, Washington, D.C., June 29, 2011, at: http://www.eia.gov/dnav/ng/ng_cons_sum_dcunus_a.htm.

³ EIA estimates shale gas will make up 47 percent of total U.S. production by 2035, up from the 16% in 2009. Energy Information Administration, *Annual Energy Outlook 2011*, Washington, DC, April 26, 2011, at: http://www.eia.gov/forecasts/aeo/chapter_executive_summary.cfm#domestic.

In recent months, numerous chemical manufacturers have announced new investments thanks to the outlook for predictable domestic natural gas markets. For example, Dow Chemical announced it will restart operations in facilities idled during the recession and Eastman Chemical has already done so. Executives from Bayer are in talks with companies interested in building new ethane crackers at its two industrial parks in West Virginia, and other companies, including Chevron Phillips Chemical and LyondellBasell, are considering expanding operations in the U.S.

Investments like these will generate high-paying jobs in the chemical industry and hundreds of thousands more throughout the country. A recent American Chemistry Council study found that reasonable increases – on the order of 25% – in U.S. ethane supply (from shale gas) would result in nearly 400,000 new jobs in the chemical sector and supplier industries; more than \$132 billion in U.S. economic output; and nearly \$4.4 billion in local, state and federal taxes, annually. Further, businesses that use ethane-based chemicals, like plastic and rubber products, would benefit as well. ACC's research indicates that these companies stand to gain as many as 80,000 new jobs.

And, stable raw materials costs for the chemical industry mean greater certainty for other manufacturers, helping to keep consumer prices low and encouraging expansion, exports and job creation. Despite a poor economy in 2010, chemistry exports increased 15 percent, shifting the industry's balance of trade from a \$140 million deficit two years ago to a \$4.6 billion surplus.⁴ And we've seen that over the past year, as the price of natural gas has been stable and competitive, the manufacturing sector has begun to add new jobs, albeit cautiously – with over 160,000 added since November.⁵

So it is clear that policymakers should take great care when considering legislation that introduces unnecessary distortions into the natural gas market. And, unfortunately, the NAT GAS is a step in the wrong direction.

The NAT GAS Act aims to boost the production and use of natural gas vehicles (NGVs) by offering, according to the supporters' own estimates, up to \$5 billion in taxpayer-funded subsidies to the manufacturers and equipment suppliers who produce them and the people who buy and operate them. But frankly, the bang-for-the-buck just isn't there. A recent revenue analysis by Ernst & Young conducted for ACC estimated that the NAT GAS Act would result in about 22,000 new natural gas vehicles on the road. That's a cost to taxpayers of \$135,000 per vehicle, whether it is an eighteen-wheeler or a subcompact car. This is an unacceptably high price tag, driven in large part by the need for substantial new infrastructure to support the NGV market.

Even more troubling is that proposals like the NAT GAS Act carry the potential to introduce dangerous volatility into the natural gas market. Incentives like these proposed subsidies artificially increase demand – and will also increase prices as a result. And this would be in

⁴ American Chemistry Council, "2011 Guide to the Business of Chemistry," p. 55, Washington, D.C., July 21, 2011.

⁵ Bureau of Labor Statistics, U.S. Department of Labor, "The Employment Situation – June 2011," Washington, D.C., July 8, 2011, at: <http://www.bls.gov/news.release/pdf/empst.pdf>.

addition to the real increases in demand we're already seeing, and which are likely to continue in decades to come. The EIA projects that, particularly as coal-fired power plants are taken offline, the demand for natural gas will grow, with natural-gas-fired plants accounting for 60 percent of electricity-generation capacity additions between 2010 and 2035.⁶ And this does not even reflect proposed regulatory changes that, according to EIA, would further drive the demand for natural gas for the power industry by as much as 40% above current assumptions.⁷ Add to this artificially supported demand (be it from the transportation or other sectors) and the result could be an unbalanced market, with demand outstripping available supply and prices rising as a result.

I would also note that even as Congress considers mandating new subsidies for the use of projected natural gas resources, some federal and state lawmakers are promoting policies and regulations that would restrict gas production. We cannot, and should not, allocate resources that are not yet out of the ground, nor should we mandate demand ahead of supply. The NAT GAS Act would do just that.

The NAT GAS Act has the potential to create an unbalanced, volatile market plagued by price spikes. And as you know, American manufacturing thrives in an environment with predictable energy prices based on markets where adequate supply meets real demand. A return to volatile natural gas markets, similar to those of previous decades, would undermine a growing resurgence in the domestic chemical industry, a sector that employs 720,000 Americans directly and supports over 5 million more jobs across the economy. We've been on this roller-coaster before, and we've felt the consequences throughout American industry. Data from the last fifty years show that as natural gas prices go up, exports from our industry fall precipitously; and manufacturing jobs go right down with them. Our industry lost over 120,000 jobs as natural gas prices spiked not five years ago.

ACC is not arguing against the continued deployment of natural gas vehicles as one component of a national energy strategy. We are arguing that market forces should determine the appropriate supply and prices of these vehicles and their fuel, rather than introducing additional, expensive distortions. And in fact, the NGV industry is *already* developing in sectors where the economics support it. A few examples: in July, Waste Management announced it had added its 1,000th natural gas truck to its fleet, making it "the largest owner and operator of clean-running, heavy duty refuse trucks in North America," according to its press release.⁸ And compressed natural gas (CNG) fueling stations are popping up from Pennsylvania to Michigan to Texas. At least five new stations were opened during *just one week* in July.⁹

⁶ Energy Information Administration, *Annual Energy Outlook 2011*, Washington, DC, April 26, 2011, at: http://www.eia.gov/forecasts/aeo/MT_electric.cfm.

⁷ Natural-gas-fired electricity generation of 1,797 billion kilowatthours, compared with 1,288 billion kilowatthours in the reference case; Energy Information Administration, *Annual Energy Outlook 2011*, Washington, DC, April 26, 2011, at: http://www.eia.gov/forecasts/aeo/chapter_executive_summary.cfm#domestic.

⁸ "Waste Management Adds 1,000th Truck to Natural Gas Fleet," *Waste Management*, Carson, CA, July 12, 2011, at: http://www.wm.com/about/press-room/pr2011/20110712_Waste_Management_Reaches_1000th_Natural_Gas_Truck.pdf.

⁹ "Fueling Stations Added Across the U.S.," Sam Harper, *America's Natural Gas Alliance (ANGA)*, Washington, DC, July 22, 2011, at: <http://anga.us/media-room/blog/2011/7/22/fueling-stations-added-across-the-us>.

This does not appear to be an industry in need of new or expanded subsidies. I realize that the Act's sponsors are considering so-called "pay for" measures to cover the cost of these subsidies; essentially taking these funds from some other unidentified program. But, whatever the program, and whatever the strategy, the end result is the same: a new government handout to an industry that is already growing, at a time when we should be eliminating such unnecessary federal spending.

What we need instead is comprehensive energy strategy that promotes the sustainable, efficient use of all energy sources. And proposals like the NAT GAS Act will not get us there. If instead, we continue to use the tax code to enact inefficient, ineffective policies that artificially prop up demand for natural gas, the unfortunate results will be volatility and price spikes and higher-prices for U.S. manufacturers and consumers. These efforts will discourage job creation, unnecessarily restrict exports, and suppress revenue generation – at a time when our nation desperately needs all three.

Committee on Ways and Means
Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

Your Name: Cal Dooley		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). American Chemistry Council b. Briefly describe the capacity in which you represent this entity. President + CEO	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which you have received during the current fiscal year or either of the two previous fiscal years: <div style="font-size: 1.2em; font-family: cursive; margin-top: 10px;">I have not received any federal grants or contracts</div>		
4. Please list any offices or elected positions you hold. <div style="font-size: 1.2em; font-family: cursive; margin-top: 10px;">None</div>		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. <div style="font-size: 1.2em; font-family: cursive; margin-top: 10px;">The entity I represent has not received federal grants or contracts exceeding 10% revenue level</div>		

Chairman TIBERI. Thank you.
Mr. Kreutzer, you are recognized for five minutes.

**STATEMENT OF DAVID W. KREUTZER, RESEARCH FELLOW IN
ENERGY ECONOMICS AND CLIMATE CHANGE, THE HERITAGE
FOUNDATION, WASHINGTON, D.C.**

Mr. KREUTZER. Thank you very much. Chairmen Tiberi and Boustany, Ranking Members Neal and Lewis, and other Members of the Committees, thank you for this opportunity to address you concerning the economic consequences of subsidizing natural gas technologies. My name is David Kreutzer. I am research fellow in energy economics and climate change at The Heritage Foundation. The views I express in this testimony are my own, and should not be construed as representing any official position of The Heritage Foundation.

I would like to make several points regarding the Nat Gas Act. Among them, the act would pick winners by providing subsidies in the form of preferential financial benefits for select natural gas technologies, the act would lead to inefficient allocation of resources and lower national income, the act would not necessarily reduce variability in transportation energy prices, the act's national security impact is muddled, and an equivalent impact on petroleum imports could be more quickly achieved by allowing access to our domestic energy supplies.

The act subsidizes preferred natural gas technologies, and should not be considered a tax cut in any meaningful sense. An example illustrates how the act picks winners and losers. Suppose a trucking company considers two options for improving its fleet. The first option is to trade in trucks for new diesel-powered trucks at a net cost of \$80,000 per truck.

The second option is to retrofit its current trucks to run on natural gas, also at a cost of \$80,000 per truck. If the firm has a marginal tax rate of 35 percent, choosing the natural gas retrofit leaves the firm with 41,600 additional bottom line dollars for each truck, when compared to trading in for new diesel trucks. Natural gas is the chosen winner, diesel and gasoline power are the chosen losers.

If the preferred natural gas technologies were, in fact, more cost effective overall, there would be no need to subsidize them. This firm will choose natural gas without a subsidy. However, with a subsidy in place, the firm will choose the natural gas option even if it were \$41,599 worse than the diesel option. The firm may make \$41,599 less with the natural gas option, but the \$41,600 subsidy leaves them with a net \$1 gain. But that net \$1 gain is for the firm. Unfortunately, the taxpayers must cough up the other \$41,600 to cover the difference.

And this sort of incentive could lead to inefficient resource use and lower national income.

Switching to natural gas does not guarantee price stability. As chart one in my written testimony shows, natural gas prices are volatile over both the short run and the long run. For one day in February of 2003, natural gas prices tripled. Investigations determined that a cold front sweeping across the northeast after a relatively cold winter was the culprit.

I am a strong supporter of expanded use of hydraulic fracturing, which I believe to be quite safe. And natural gas prices may well stay low for a long time. But betting on continued low prices is a bet that the government shouldn't subsidize.

If we face a security threat from funding oil exporters, the Nat Gas Act better not be anti-terrorism plan A. Chart two in my written testimony shows the impact of cutting our petroleum imports in half. The calculations used in these projections are for the year 2035. However, the results would not be dramatically different for earlier years. A 50 percent import cut is several times larger than the impact proponents of the Nat Gas offer as a goal. However, even this larger cut, with its 10 percent reduction in exporter revenues, is not likely to scare terrorists or unfriendly regimes any time soon.

In addition, this cut on our part will lower incomes for friendly exporters, and lower the import bills for all importers. For example, in the case just described, China would see its oil import bill cut by \$50 billion because of the cost that we incur.

Expanded production from domestic resources, offshore and onshore, could produce more petroleum than the Nat Gas Act proposes to save, and do so while adding revenues to the Federal Government instead of cutting them.

In summary, the Nat Gas Act would pick winners and losers by subsidizing specific natural gas technology, add inefficiency to the economy and reduce national income, not guarantee low-cost transportation fuel, and not defund terror organizations.

I thank you for this opportunity to address the committees and look forward to your questions.

[The prepared statement of Mr. Kreutzer follows:]



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CONGRESSIONAL TESTIMONY

Subsidizing Natural-Gas Technology

**Testimony before
The Subcommittee on Select Revenue
Measures and the Subcommittee on
Oversight of the Committee on Ways and
Means
United States House of Representatives**

Wednesday, August 3, 2011

**David W. Kreutzer, Ph.D.
Research Fellow in Energy Economics and Climate
Change
The Heritage Foundation**

Chairmen Tiberi and Boustany, Ranking Members Neal and Lewis, and other members of the committees, thank you for this opportunity to address you concerning economic consequences of subsidizing natural-gas technologies.

My name is David Kreutzer. I am Research Fellow in Energy Economics and Climate Change at The Heritage Foundation. For over 25 years before coming to Heritage I taught university-level economics including public finance. In addition, my writing on tax policy has appeared in *The National Tax Journal*, *The Journal of Political Economy*, and *Public Finance Quarterly*.

The views I express in this testimony are my own, and should not be construed as representing any official position of The Heritage Foundation.

The New Alternative Transportation to Give Americans Solutions Act (NAT GAS Act) proposes a variety of subsidies for natural-gas technology in transportation. If enacted we could expect:

- Preferential benefits for special interests,
- Increased burden on the federal budget, and
- Reductions in national income.

These subsidies in the NAT GAS Act have the effect of reducing the price of some technology below its real cost, which distorts the price signals on which markets depend for efficient operation. These resulting inefficiencies reduce the total value of economic output.

How Does the Act Create Subsidies?

Though the subsidies in the act are tax cuts in name, they are too narrowly defined and contrived to be a tax cut in any meaningful sense. For instance, Section 104 (a) reads:

(a) Increase in Credit- Paragraph (2) of section 30B(e) (relating to applicable percentage) is amended to read as follows:

2) APPLICABLE PERCENTAGE- For purposes of paragraph (1), the applicable percentage with respect to any new qualified alternative fuel motor vehicle is--

(A) except as provided in subparagraphs (B) and (C)--

(i) 50 percent, plus

(ii) 30 percent, if such vehicle--

(I) has received a certificate of conformity under the Clean Air Act and meets or exceeds the most stringent standard available for certification under the Clean Air Act for that make and model year vehicle (other than a zero emission standard), or

(II) has received an order certifying the vehicle as meeting the same requirements as vehicles which may be sold or leased in California and meets or exceeds the most stringent standard available for certification under the State laws of California (enacted in accordance with a waiver granted under section 209(b) of the Clean Air Act) for that make and model year vehicle (other than a zero emission standard),

(B) 80 percent, in the case of dedicated vehicles that are only capable of operating on compressed or liquefied natural gas, dual-fuel vehicles that are only capable of operating on a mixture of no less than 90 percent compressed or liquefied natural gas, and a bi-fuel vehicle that is capable of operating a minimum of 85 percent of its total range on compressed or liquefied natural gas, and

(C) 50 percent, in the case of vehicles described subclause (II) or (III) of subsection (c)(4)(A)(i) and which are not otherwise described in subparagraph (B).

For purposes of the preceding sentence, in the case of any new qualified alternative fuel motor vehicle which weighs more than 14,000 pounds gross vehicle weight rating, the most stringent standard available shall be such standard available for certification on the date of the enactment of the Energy Tax Incentives Act of 2005.¹

A truly useful tax cut would reduce and simplify the marginal corporate tax rates, which currently bounce around between 25 percent and 39 percent depending on corporate income.

Just this past week the Oversight Subcommittee of the House Ways and Means Committee held hearings regarding paid tax preparers. In opening statements it was noted that a Government Accountability Office study found nearly all returns completed by paid preparers contained errors. The errors in one category were estimated to cost the

¹“H.R. 1380: New Alternative Transportation to Give Americans Solutions Act of 2011,” at <http://www.govtrack.us/congress/billtext.xpd?bill=h112-1380> (July 31, 2011).

federal government over \$100 billion. This finding is an indictment of the complexity of the tax code as much as it is an indictment of paid preparers. In any event, the NAT GAS Act adds to the complexity with amendments to the current (already too complex) tax code.

The amendments this act superimposes on the existing tax code will only make the job of those paid tax preparers even more difficult and prone to error. Again, the purpose of the complexity is to narrowly tailor benefits to select recipients. This is the hallmark of a subsidy.

An Illustration

An example will illustrate how the act subsidizes certain technologies and distorts investment decisions.

Under the act, converting heavy-duty trucks from diesel to natural gas generates a tax credit of 80 percent for expenditures up to \$80,000 per truck. So, imagine a trucking company considers investing in either a brand new truck that would cost \$80,000 after trade-in or investing in an \$80,000 natural-gas retrofit of its old truck. Under the current tax system that would allow expensing those costs not subject to the tax credit and assuming a marginal tax rate of 35 percent, the decision to choose the natural-gas retrofit reduces the firm's tax liability by \$41,600 more than had it spent the exact same \$80,000 on a brand new truck. That is a subsidy for the natural-gas equipment.

The company spends \$80,000 in either case but receives the additional \$41,600 on its bottom line only when it chooses the natural-gas option. This \$41,600 tilting of the scales comes at the expense of taxpayers—either current payers if taxes are raised now, or future taxpayers if the government simply borrows to cover the lost revenue. Though the taxpayers bear the full cost, the trucking company is unlikely to actually receive the full \$41,600.

Why Would the Subsidy Be Inefficient?

The need for the subsidy is a clear signal the natural-gas technology would not be able to compete on a level playing field. If the \$80,000 natural-gas retrofit were the better business choice, the trucking company would buy it without a subsidy. If, on the other hand, the before-subsidy profit of the new diesel truck (staying with the example above) were greater, then the subsidy of the natural-gas choice is partially offset by lower profit.

At the limit, the natural-gas retrofit could be \$41,599 less profitable without the subsidy but still be the choice with the subsidy. In this case, the taxpayers pay \$41,600 to provide a net gain to the trucking company of \$1. The \$41,599 difference is the net loss to the economy.

This loss is not redeemed by moving the analysis upstream to the supplier of the natural-gas technology. Yes, the supplier is receiving the full \$80,000 and hiring workers,

buying inputs, and paying dividends that will sum up to the \$80,000, but the same story would have been true for the diesel-truck manufacturer. The difference is that the diesel truck creates greater value for the trucking company.

Cost-Effective Technology Does Not Need a Subsidy

Of course it would be possible to imagine a scenario where the natural-gas retrofit provides the greater profitability. If so, there is no need for the subsidy as it already makes better economic sense. Fuel purchases are the single largest component of a trucking company's operating expenses and there is ample incentive to switch to cost-saving technology.² Indeed, some companies track their fuel economy to the hundredths of a mile per gallon and thousands have already adopted a variety of fuel-saving technologies.³

Will Low Natural Gas Prices Continue?

Of course the relative advantage of natural gas depends on its cost as well as the cost of petroleum-based fuel. The recent employment of hydraulic fracturing technology has dramatically expanded the economically viable unconventional reserves both in the U.S. and worldwide. This new technology is at least partially responsible for the recent reduction in natural gas prices. However, natural gas prices are susceptible to fluctuation and prices spikes. Further, concern over the environmental impact of hydraulic fracturing and the relatively short experience with long-term production profiles of hydraulically fractured wells create uncertainty about the ability to produce these unconventional reserves at low prices.

The attached chart shows natural-gas spot prices since 1997. The price variability is evident. In February of 2003 there was a one-day spike that tripled the price of natural gas. The anomaly was so stunning that it precipitated investigations by the Commodities Futures Trading Commission and the Federal Energy Regulatory Commission.⁴

The conclusion of the investigations was that a cold front sweeping across the Northeast near the end of a cold winter taxed already depleted supplies. Though that spike was short-lived, the event highlights that natural gas is not immune to price fluctuations. Eyeballing the chart also gives little confidence that consistently low prices will hold for extended periods. The average price for the five years from 2004 to 2009 was 77 percent higher than the price has been since 2009.

²American Transportation Research Institute, "An Analysis of the Operational Costs of Trucking: 2011 Update," at http://www.atrri-online.org/research/results/Op_Costs_2011_Update_one_page_summary.pdf (August 1, 2011).

³Peter Christopher, "SmartWay Helps Fleets Quantify Savings of Emissions, Fuel," *Transport Topics*, August 3, 2009, at <http://www.ttnews.com/articles/printnews.aspx?storyid=22464> (August 1, 2011).

⁴Lee-Ken Choo *et al.*, "Report on the Natural Gas Price Spike of February 2003," Federal Energy Regulatory Commission, July 23, 2003, at <http://www.ferc.gov/legal/maj-ord-reg/land-docs/The-Price-Spike-Report-07-23-03.pdf> (July 31, 2011).

Perhaps there is little risk that hydraulic fracturing will be blocked by local or federal regulations, or that unconventional reserves will prove more costly to exploit than has been anticipated. There is reason to be optimistic, but there are no guarantees. In any event, this risk is best evaluated by those consumers and producers who bear it.

NAT GAS Act is a Poor Anti-Terror Plan

Virtually every energy plan promises to reduce revenues to foreign regimes hostile to the U.S. Some supporters of the NAT GAS Act claim that it will reduce oil imports by 1.5 million barrels per day some decades hence. Reducing imports makes sense, only as long as the replacement costs less than the imports. Expanding drilling, both onshore and off, meets this criterion and no subsidies are needed to promote expanded drilling.

Whether or not cutting imports saves money is important for our economy, but whether we cut imports by 1.5 million barrels is not that important when it comes to defunding unfriendly foreign actors. The reason is that there are many other consuming countries that buy significant amounts of petroleum and who would buy up at least some of the barrels we would save.

If the goal is to cut imports, increasing domestic production is an option that requires no preferential tax treatment or burden on the federal budget. Opening access for additional production in domestic onshore and offshore areas that are known to have significant petroleum reserves could achieve the 1.5 million-barrel-per-day reduction in imports more quickly than the subsidies in the NAT GAS Act and the additional domestic production would create government revenue to help balance the budget.

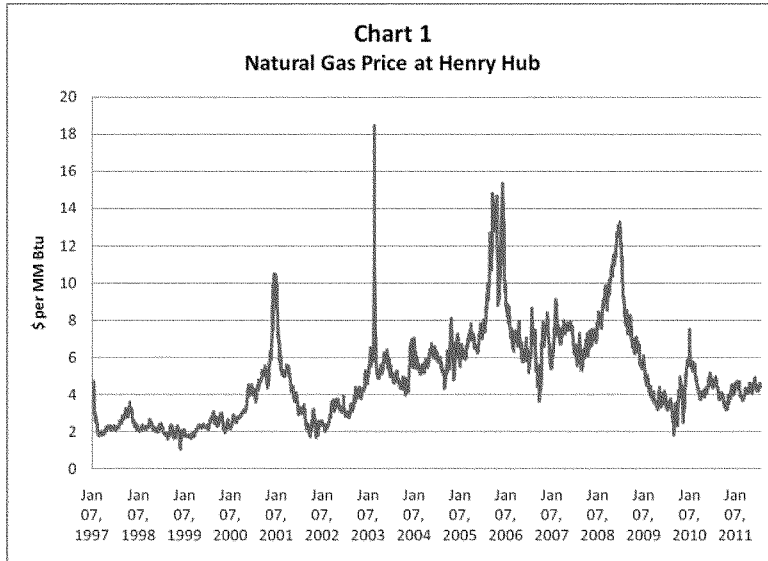
The second chart shows the impact of cutting in half our oil imports in 2035 from the EIA projected level of 8 million barrels per day to 4 million barrels per day. This 4 million-barrel-consumption cut would reduce price by about 10 percent. For illustration, the chart lists total revenue for OPEC and its members.⁵ Without cutting U.S. imports, OPEC revenue is projected to be about \$2.3 trillion per year in 2035. By cutting our imports in half this revenue would fall to \$2.1 trillion. Though \$200 billion per year is a significant amount of money, oil exporters would still have huge revenues to use as they want.

It should be noted that whatever costs the U.S. incurs to cut the imports also cuts revenues to friendly democratic exporters of petroleum and provides reduced costs to other importers. For instance, China's oil import bill, for an unchanged level of imports, could drop by more than \$50 billion per year in 2035 if we cut our imports in half.

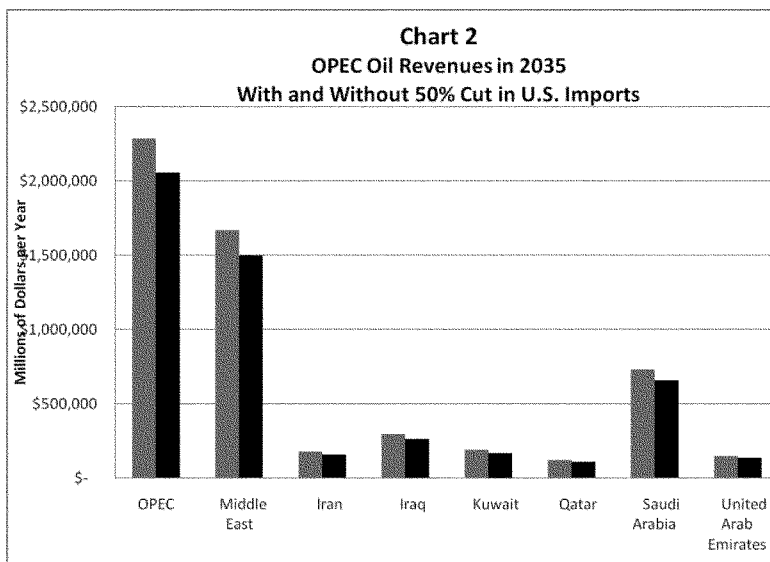
Conclusion

⁵No judgment is made here regarding the relative friendliness of OPEC or any of its individual members. OPEC is chosen because of its high profile in the petroleum market.

With narrowly targeted amendments to the tax code, the NAT GAS Act creates subsidies for selected technologies. These subsidies promise preferential benefits for special interests, greater burdens on the federal budget, and less economic output. The NAT GAS Act would not significantly cut funding for hostile foreign regimes.



Data from the United States Energy Information Administration, at <http://www.eia.gov/dnav/ng/hist/rngwhhdd.htm> (July 31, 2011).



Data from the United States Energy Information Administration, *International Energy Outlook 2010*, at <http://www.eia.gov/oiaf/ieo/index.html> (July 11, 2011). Calculations by the Author.

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Committee on Ways and Means
Witness Disclosure Requirement – “Truth in Testimony”
Required by House Rule XI, Clause 2(g)

Your Name: <i>David W. Kreutzer</i>		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have</u> received during the current fiscal year or either of the two previous fiscal years: <div style="text-align: center;"><i>None</i></div>		
4. Please list any offices or elected positions you hold. <div style="text-align: center;"><i>None</i></div>		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. <div style="text-align: center;"><i>None</i></div>		

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Chairman TIBERI. Thank you.
Mr. Ziomek, you are recognized for five minutes.

**STATEMENT OF HANK ZIOMEK, DIRECTOR OF SALES,
TITEFLEX CORPORATION, SPRINGFIELD, MASSACHUSETTS**

Mr. ZIOMEK. Thank you very much, Chairman Tiberi, Ranking Member Neal, Chairman Boustany, Ranking Member Lewis, and the other Members of the Committee. Thank you for affording me the opportunity to come before you on behalf of the people of Titeflex in support of the Nat Gas Act.

Headquartered in Springfield, Massachusetts, Titeflex is in its 95th year of operation with locations in Springfield, Massachusetts; Vista, California; Laconia, New Hampshire. Titeflex is a subsidiary of Smiths Groups, PLC, and under the FlexTech division, Smiths Group is a world leader in the practical application of advanced technologies, and delivers products and services for threat and contraband detection, medical devices, energy, communications, and engineer devices markets worldwide.

We have a long history of supplying high-quality fluid-handling components for fuel, hydraulic, pneumatic systems, ranging from implant robotics, automobile brakes, to the space shuttle landing gear. Titeflex Commercial Group manufactures PTFE Teflon hose and fittings for the automotive, industrial, aerospace industries, and the leading supplier of C&G flex hoses for the natural gas vehicle market.

I come before you today to support—in strong support—of H.R. 1380, the Nat Gas Act. You have already heard today the facts about natural gas are clear. Natural gas is the cleanest commercially available fuel for transportation today. Domestic reserves of natural gas are estimated to be twice that of petroleum. Natural gas has been between 25 and 42 percent cheaper than diesel over the last 14 years. Ninety-eight percent of all natural gas consumed in America is produced in North America, while sixty-four percent of crude oil is imported.

Natural gas vehicles in use are approximately 12 million worldwide. There are only 110,000 NGVs in the United States. With appropriate government policies, use of domestic natural gas to power the nation's trucks and buses could reach as high as 10 billion gallons per year by 2020 and displace up to 20 percent if diesel fuel. Should the Natural Gas Act pass, heavy duty haulers and fleet vehicles can immediately displace some of the foreign oil we rely on today.

For Titeflex, total sales have increased by over 50 percent over the last 2 years. That is 400 percent in the natural gas segment for us. There has also been a 12 percent increase in overall employment for Titeflex. However, in the processes related to natural gas vehicles, it has increased 41 percent. And since the tax credits were in place in 2006, our sales have increased 600 percent for natural gas vehicles.

Smiths recently also invested \$4 million in the Titeflex plant, and a lot of it had to do with this market and other markets which are fast-growing. Also employed locally over 100 people in construction and trades. And as far as new technology, we also put some very efficient new technology that were more efficient and also more environmentally friendly.

The short-term benefits for our economy from NGV market growth are evident. The Nat Gas Act would provide the additional

impetus needed to achieve the step change that will achieve—will advance technology, lower overall cost to users, further enhance employment, and bring the United States closer to energy independence.

To close, the Natural Gas Act provides a limited five-year program that accelerates wider adoption of this American vehicle fuel. This legislation is a real solution to our nation's challenges. On behalf of the people of Titeflex, thank you again for affording me the opportunity to come before your committee.

[The prepared statement of Mr. Ziomek follows:]

STATEMENT FROM HANK ZIOMEK, VICE PRESIDENT, TITFLEX

UNITED STATES HOUSE OF REPRESENTATIVES

**SUBCOMMITTEE OF SELECT REVENUE MEASURES AND
SUBCOMMITTEE ON OVERSIGHT**

WAYS & MEANS COMMITTEE

Joint Hearing on Energy Tax Policy and Tax Reform

Thursday, September 22, 2011

House Ways and Means Committee Subcommittee Joint Hearing on Energy Tax Policy
and Tax Reform

Thank you for affording me the opportunity to come before your respective committees to speak on behalf of Titeflex, to discuss the promising benefits of natural gas vehicles.

Headquartered in Springfield, MA, Titeflex is in its 95th year of operation with locations in Springfield, Massachusetts; Vista, California; and Laconia, New Hampshire. Titeflex is a subsidiary of Smiths Group plc under the Flex-Tek Division. Smiths Group is a world leader in the practical application of advanced technologies, and delivers products and services for threat and contraband detection, medical devices, energy, communications, and engineered components markets worldwide.

We have a long history of supplying high-quality fluid handling components for fuel, hydraulic, and pneumatic systems ranging from in-plant robotics and automobile brakes to the Space Shuttle landing gear. Titeflex Commercial Group manufactures Polytetrafluoroethylene (PTFE) -- better known as Teflon -- hose and fittings for the Automotive, Industrial, and Aerospace industries and is a leading supplier of CNG flex assemblies to the Natural Gas Vehicle (NGV) market.

I come before you today in strong support of H.R. 1380, the New Alternative Transportation to Give Americans Solutions Natural Gas Act of 2011.

As you have already heard today, the facts about Natural Gas are clear:

- Natural Gas is the cleanest, commercially available fuel for transportation today;
- Domestic reserves of natural gas are estimated to be twice that of petroleum;
- Natural gas has been 25-42 percent cheaper than diesel over the last 14 years;
- 98 percent of all the natural gas consumed in America is produced in North America, while 64 percent of the crude oil we use is imported;
- Natural Gas Vehicles (NGVs) number almost 14 million in-use worldwide. There are only about 110,000 NGVs on U.S. roads today.

With appropriate government policies, use of domestic natural gas to power the nation's fleets and trucks and buses could reach as high as 10 billion gallons per year by 2020 and displace up to 20 percent of diesel fuel. Passage of the NAT GAS Act will help heavy-duty haulers and fleet vehicles to quickly accelerate the introduction of NGVs into their businesses and immediately displace foreign oil.

For Titeflex, total sales have increased by over 50% the past two years while sales related to the natural gas vehicle market have increased over 400%! There has also been a 12% increase in overall employment for the Titeflex Commercial Division. However, the employment increase related to the processes that support the natural gas vehicle market increased 41% over the same period! When reviewing the Titeflex sales history from the first full year when tax credits began for natural gas vehicles and infrastructure (2006), the sales increase has been over 600%. This growth shows that targeted incentives work.

Smiths recently invested more than \$4 million in the Titeflex plant infrastructure and advanced technology. The development of growth markets, such as natural gas powered vehicles, has enhanced Titeflex's long-term outlook. Just this past year, we have employed more than 100 local construction and trades people in Springfield, MA, which is contributing to the local economy.

We support the NAT GAS Act because it will help us to continue to grow our business faster and hire more workers. But the benefits of this legislation go beyond our business. This legislation will achieve a true "step change" that will advance technology deployment, lower overall costs to users, further enhance employment, and bring the United States closer to energy independence.

To close, the NAT GAS Act provides a limited, five-year program that accelerates wider adoption of this American vehicle fuel. This legislation is a real solution to our nation's challenges. On behalf of the employees of Titeflex, thank you again for affording me the opportunity to address the committee.

Committee on Ways and Means
Witness Disclosure Requirement – "Truth in Testimony"
Required by House Rule XI, Clause 2(g)

Your Name: <u>HANK ZUMER</u>		
1. Are you testifying on behalf of a Federal, State, or Local Government entity? a. Name of entity(ies). b. Briefly describe the capacity in which you represent this entity.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
2. Are you testifying on behalf of any non-governmental entity(ies)? a. Name of entity(ies). <u>TITELFLEX CORPORATION</u> <u>SPRINGFIELD, MA</u> b. Briefly describe the capacity in which you represent this entity. <u>DIRECTOR OF SALES</u>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
3. Please list any Federal grants or contracts (including subgrants or subcontracts) which <u>you have received</u> during the current fiscal year or either of the two previous fiscal years: <div style="height: 40px; border: 1px solid black;"></div>		
4. Please list any offices or elected positions you hold. <div style="height: 40px; border: 1px solid black;"></div>		
5. Does the entity(ies) you represent, other than yourself, have parent organizations, subsidiaries, or partnerships you are not representing?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
6. Please list any Federal grants or contracts (including subgrants or subcontracts) which were received by the entity(ies) you represent during the current fiscal year or either of the two previous fiscal years, which exceed 10 percent of entity(ies) revenues in the year received. Include the source and amount of each grant or contract. Attach a second page if necessary. <div style="height: 100px; border: 1px solid black;"></div>		

Chairman TIBERI. Well, thank you all for your very good testimony.

Mr. Littlefair, you just heard Mr. Dooley talk about the fact that the marketplace is working, and that you and others are making significant investments. So why is the legislation needed? Can you tell us?

Mr. LITTLEFAIR. Well, yes, Mr. Chairman. You know, first off, put it in context. We have seen some growth. You today have 1,500

heavy-duty trucks on natural gas, and you have 8 million that are on diesel. So we think this is exactly the right place to use tax policy to spur the growth.

Now, what Mr. Dooley talked about, I think, is—I understand that he wants cheap natural gas. And if I was running the chemical industry, I would want that too. The beauty about this today is we have enough natural gas for both, relatively reasonably-priced natural gas for chemicals, and also moving our gas into transportation.

You know, there are winners and losers, I think, as we look at this. And the winner is domestic natural gas resource that happens to be clean, that creates jobs. And the loser is foreign, imported oil.

But I think if we will just give a little bit of a boost here, it will drive the manufacturers in to bring down the cost, and I think that we can—what do you call it—sunset this bill over the next few years, and I feel confident that we don't require an ongoing long incentive.

You know, the Congress passed a version of the Nat Gas Act years ago. And I think it is very instructive. It took a while—I think it was passed in 2006, and it took a while for it to actually get implemented through the IRS. It really hit its stride in about 2008, and at that time we really only had trash trucks. We didn't have the engines for these big, heavy-duty trucks that could really impact foreign oil. But we had trash trucks.

The first year that the tax incentive was in place, the penetration was three percent of the new trash trucks purchased in the United States. This year, this coming year, 2012, it will be 35 percent. And that tax credit is now gone, as you know. I think that is the same exact thing that you will see if we can have a few years of tax—this doesn't go to us, this goes, the incentive, to the trucks—you put that in place today, you will kick-start a huge business, moving us off of imported, dirty diesel fuel and using our own domestic fuel.

Chairman TIBERI. Thank you. Mr. Kreutzer, you—in your testimony you talk about the fact that national security is muddled. One of the arguments the proponents have had with respect to this bill is weaning ourselves off of foreign oil. And I am a supporter of what you talked about, expanding offshore and inland drilling for oil and natural gas.

But in addition to that, can you tell us why you believe that expanding domestic production, or domestic tax credits to—as Mr. Lindsey said earlier—to get the private sector over the hump of an established private sector already in the petroleum and diesel market on a temporary basis kind of muddles that national security issue?

Mr. KREUTZER. Yes, yes. First, as the chart shows, even cutting our imports by half, 4 million barrels a day—if we cut from 8 to 4, in 2035 the EIA projects we will import 8 million barrels—cuts OPEC revenues from 2.3 trillion per year to 2.1. Now those are huge numbers. But I don't know that anybody said that the terrorists get their funding from the last 10 percent.

So, I—what I think it muddles is it takes our focus away from actual security policies that we need to implement, not pretending

that cutting our oil imports a decade or two from now is going to make us safer any time soon.

Second, when you implement policies that make the economy less efficient, that reduces the robustness of the U.S. and its economy and its ability to support a military. So that is my only thing.

There are lots of questions about who should support the transportation lines for oil. Why is it the U.S. instead of the Persian Gulf nations, and so on? And I don't have the expertise to talk about that. And those may be great questions. But would cutting our imports by 2.5 million barrels a day eliminate the need for the Navy? We had a tremendous amount of money that we spent countering the Soviet Union's military might, and we got nothing from them. We imported zero.

Chairman TIBERI. Okay.

Mr. KREUTZER. Yes, okay.

Chairman TIBERI. Last question. If all of you could, answer this question.

We have heard from the other panel, we have heard about not all tax credits are created equally. Using different kinds of metrics with respect to tax credits and overall tax reform, I think everybody has agreed to reduce the number of credits, reduce the number of tax breaks across the board.

Starting on this side if you care to answer it, and then moving down the line, what makes the Nat Gas Act different, in terms of those metrics, in terms of job creation, in terms of energy security, in terms of cheaper natural gas for vehicles versus what we have on the books today?

Mr. ZIOMEK. Well, from the basic sense of looking at this tax credit, looking at natural gas as a fuel, in general, you have a situation where the rest of the world has supported this technology, and the United States has not. Why is that?

Every nation, almost bar none, supported it with a tax policy, including Venezuela, that had abundant oil and decided, well, it is cheaper, it is much more profitable for us to export the oil, and we are going to have our citizens use natural gas. So they incentivized them to use natural gas. And this has happened in a lot of other areas, as well.

But the bottom line is we have pretty much not supported the natural gas part of our economy, and we have plenty of it. It is something that we produce here, and it is something that will allow us to grow faster. And what you need, why the tax policy is important, is we need to have this change.

We need to take the curve from where we are today to—like a hockey stick. We need to move the technology faster, we need to get that money to people in manufacturing, particularly, who can invent new things, who can lower the cost of all the equipment that is put into this economy of the natural gas vehicles. And it is happening, but we need to have it happen faster so that we can compete. Bangladesh thinks we are an opportunity for growth for them to sell their products here. We are that far behind when it comes to technology in that area.

Chairman TIBERI. Mr. Kreutzer, you might have a different view?

Mr. KREUTZER. Yes, I do. If it comes to choosing—guiding our policies according to what Hugo Chavez in Venezuela does or what American markets choose, I am going with American markets, no questions asked.

But getting back to your question of how does this differ, I don't think it does. I think this is a tax credit subsidy scheme, like many others we have, that needs to be simplified. We need to weed those out, get down to a simpler tax structure. And this is going in the wrong direction.

I would like to say I am not against natural gas. I am not against shifting the trucks over. But I think—I don't know, and I don't think anybody here actually knows—all of the costs that all of the trucking companies have to go through and the trade-offs they have to make. And it is for them to decide. I fully believe if the numbers are as they said with Congressman Dooley, Coca Cola, FedEx, all those companies will switch over. There is not a chicken and egg problem here. Thank you.

Chairman TIBERI. Congressman Dooley.

Mr. DOOLEY. Yes, I would respond in this manner, is that, you know, I think, you know, it really is your charge to really define what the appropriate role of government is. And how can you allocate the resources, which are taxpayer resources, in a way that achieves societal or economic objectives?

Mr. Littlefair talked about in 2006 that there was a tax credit to try to encourage natural gas vehicles. You know what the price of natural gas was in 2006, 2007? It spiked up to \$12 and sometimes \$14 an MMBtu. It is \$4 today. Now, from a policy-maker's standpoint, you can make—you have to question. Are the circumstances the same that you need a tax credit today when the fundamental driver is much different, in terms of the price of natural gas? And I would suggest no.

And that is where I go back. Do you want to tell your constituency out there that Congress is enacting a taxpayer subsidy that, by our calculations that were done by Ernst & Young—and we would be more than pleased to share with you—amounts to about 137,000 per vehicle that is converted. Do you want to tell your constituents that you are supporting a tax subsidy for the conversion of a vehicle that if the private sector, where the market forces are in place today, if they made that investment on their own they would get an 80 percent return on that investment for that conversion without any tax subsidy? And I suggest they would say no, that is not the appropriate role of government.

And so, I contend we are all for natural gas. We want them to be successful. We want a domestic energy policy that enhances our domestic security. But this isn't the policy that is going to achieve that, and it is going to be one that creates distortions in the marketplace.

Chairman TIBERI. Thank you. Mr. Littlefair.

Mr. LITTLEFAIR. Well, what we hear from a couple of my fellow panelists, "We want the status quo." And I think when you go home and you talk to your constituents, I think the real question is, "Do you want to continue to import oil from people that don't like us," or should you do something, use your tax policy to create jobs?

And I think that this is a unique position in history. Yes, it is because it is cheap, because we have so much of it. That is why all your factories are using all the natural gas right now. But we are in a unique position to be able to move our country away and create jobs. And only natural gas can really do that. That is the truth here, is that we only really have one resource that can make this kind of bold shift. And in order to move it, I think we are talking about a very modest tax policy. And so I think it is a unique opportunity that you don't have in hardly anyplace else.

Chairman TIBERI. Thank you. Thank you. Thank you all. Mr. Neal is recognized.

Mr. NEAL. Thank you, Mr. Chairman. Hank, certainly the priority here, as you have expressed it and the other panelists have expressed it in different ways, is to create more jobs. And could you spend a couple of minutes talking about what has happened at Titeflex, given the use of the Natural Gas Act?

And because the issue has been raised by other panelists, why you think that keeping the credit for only a handful of more years, five more years, is necessary. So we are talking, I believe, from your perspective, sunseting the credit down the road. Could you respond?

Mr. ZIOMEK. Well, I think that right away the evidence for us is very clear. We have been engaged in this market for quite some time. Since the credits were established, that market has accelerated tremendously for us. We have made decisions, including \$4 million in a plant renovation, some advanced technology that is—environmental technology for one of our processes. We have also now done some innovation in the process of making the hose that goes into this market based on the future growth we anticipate. And we believe this kind of credit is going to allow that growth to happen.

In fact, we are counting on this type of policy in the government to allow that—as I said before—this leap forward, so that we can continue to advance technology in our own business. Like I said, we have increased our employment in Springfield. I mean Massachusetts, manufacturing has been beat, beat to heck in Massachusetts. And we have had some winners there, but we have had more people leaving Massachusetts.

So, to be able to do this, there had to be some technological improvements. There had to be something that we do that no one else can do in the world. And this kind of policy is allowing us to grow in that area, where we do have advanced technology in our product. And that is for the support of natural gas vehicles.

And the five-year—the reason you only need five years is if you could get that infusion, you get that hockey stick, you have advanced far enough that you have a competitive market. We are not asking you to support this for the rest of our business lives. We are asking for a fairly short period of time here. And bottom line is I think it will be even more—it will be faster than that, and you will find that the jobs are going to multiply, based on this policy.

Mr. NEAL. For you and for Mr. Littlefair, the Natural Gas Vehicle America has suggested that there are 12 million natural gas vehicles on the road, worldwide, and only 110,000 of them can be found in the United States. We are ranked 16th in the world, as

far as natural gas vehicle deployment, behind countries such as India, China, and Bangladesh. Why?

Mr. LITTLEFAIR. Well, part of the reason is some of those countries have put in place incentives to encourage it because they are importing oil, much like we do, and so they have natural gas and they want to move to natural gas vehicles. And we have certainly seen that in China, and we are seeing it—and China has just adopted a policy to build 4,000 natural gas vehicles and put in an L&G truck corridor. And we are selling equipment in China right now, natural gas fueling stations, and they are going at it, big time. So—and that is what is happening in South America. I mean Peru is doing the same thing.

I mean we look like the odd man out. And it didn't happen here for a long time, because we had cheap oil. Well, we don't have cheap oil any more. And so they have put in place tax policy to move the industry along.

Mr. NEAL. Hank, do you want to comment to that?

Mr. ZIOMEK. Well, I agree. Again, what I said earlier about what happened in Venezuela, I know Hugo Chavez is a different person in the way we look at that, but if you look at all the countries in South America, every one of them put tax policy in place to drive their people to want to use natural gas. It is more environmentally responsible, and it also is cheaper for them, because it is more accessible. And now we are finding out, here in the United States, natural gas is probably way more accessible to us than oil.

So, to me, it is kind of like—I have had a couple of people in your bodies, both Senate and House over the last couple of years—it is a no-brainer. That is the way I look at it. And it is going to advance employment.

The other thing is we have to understand. By us being able to advance the technologies into this market, just like we have done in so many—aerospace, I mean the space shuttle, yes, okay, you can call that a big WPA project like somebody told me once, but that was—we needed that kind of a catalyst to get the kind of technologies to go to space.

The same thing is true in an economy like this. We are developing new things. And we are just a hose manufacturer. Just imagine what is happening with tanks and valves, and everything else.

So, bottom line is we just need that five years to get this thing going.

Mr. NEAL. Thank you.

Chairman TIBERI. Dr. Boustany is recognized for five minutes.

Chairman BOUSTANY. Thank you, Mr. Chairman. I come from Louisiana, and my congressional district is on the Gulf Coast. And we are a leader in oil and gas production, we have got lots of pipelines, the Henry Hub, where gas prices are set for the market, I've got one of the largest strategic petroleum reserves in my district. So it goes on and on.

In fact, in 2005, the newest L&G facility in the country was built in my district. And now they are retrofitting, planning a retrofit to export natural gas, which we would have never thought this, five years ago.

And it is interesting, with the shale plays that have come online, now five shale plays, which not only hold the potential for gas, nat-

ural gas, but also for oil, we are seeing sort of a shifting environment with regard to our energy security in this country. And it is exceedingly frustrating to me to see that we don't have a strategy, going forward, for our country on energy security and to move us forward.

And I think all of you were here—I am not sure with the previous panel—but when I made my comments I said, you know, I want tax reform, I want to clean up this Tax Code and simplify it. But at some point you have to make a decision, how do you move the ball forward and jumpstart the movement in the right direction for an energy strategy for this country, which means we have to have a transition.

First, don't punish your current energy production. And, Mr. Kreutzer, I share your sentiments about expanding the access to our reserves, not increasing taxes, getting rid of this de facto moratorium on drilling, and in fact, a moratorium on areas that are currently off limits. We could do a lot for our country if we were to do all these things.

So, I have a question. Mr. Kreutzer, I saw that chart looking at the volatility of prices. And at the very tail end it seems to be smoothing out a bit. We don't know what is going to happen. But with all the shale plays coming on, and everything else, I suspect—and given what these L&G guys are going to do in planning exports—that we should see some price stability. But we don't know that.

And so, are you aware of any studies, analyses projecting what is going to happen with natural gas prices in this country? And I would ask the same question to my friend, Congressman Dooley, as well.

Mr. KREUTZER. Well, the Energy Information Administration certainly makes their projections regularly, and they have been dramatically revising them because of the hydro-fracturing giving access to the shale gas. But they are also maybe revise them back a little bit because the USGS came out with their estimates of the likely natural gas reserves that are available.

And I am not the geologist or the engineer. I am fully willing to believe we are going to have low natural gas prices that some of these experts tell us. That argues against needing subsidies to get people to shift over.

I would also just briefly—because we are talking about energy independence and security—a previous panel member said he absolutely didn't think under anybody's lifetime, his grandchildren, we would have energy independence. And that is a bet that I might have gone with him a couple of years ago. But they have just found 20 billion barrels of petroleum and natural gas in Ohio. We are going to get three million barrels a day from resources in Texas that we didn't think we were going to get anything from.

So, it is not inconceivable that just without any strategy—this is the markets working, looking to find this stuff, getting access right now on private lands—if we could get it on public, make it even better—that we are getting lower prices, access to more energy of conventional types.

Chairman BOUSTANY. Thank you. Congressman Dooley, I have a lot of refineries in my district, as you are probably well aware.

And I certainly do have that concern about what is going to happen with prices, and what is the impact on our energy, whether you are talking about upstream, downstream, and so forth.

So, are you aware of any analyses projecting the concern you expressed with regard to natural gas prices? And could you provide those analyses to the committee?

Mr. DOOLEY. Let me respond this way, is that we are not, as an industry—I mean we are not—it is not that we are for cheap natural gas. We are for competitively priced natural gas, and however you define that. And we are in a situation now where we are coming off a decade where we had great volatility in natural gas. And that is what, in large part, drove a lot of the chemical industry outside the United States.

We have moved in the last—if you look at the five years, if you looked at a cost curve, five years ago the U.S. chemical industry was a high-cost producer. We were more expensive than even Western Europe. We compete with the rest of the chemical industry globally. They are primarily NAFTA-based, which is oil based. The break-even point for us was about one to six, with gas to oil. So when you had a \$24 barrel of oil, we would have \$4 gas. We would be in relative equilibrium. We didn't have that, and that is why we were at the high cost.

Now we have a distinct advantage, and that is why you have our companies lined up to invest billions and billions of dollars in new capacity. But what we are concerned about is not solely about the market distorting and picking winners in the Nat Gas Act. If you look since 2000, power generation shifting from coal to natural gas has increased by 42 percent. Last year it was by seven percent.

Now, we have a lot of promise. I was in Ohio yesterday at Governor Kasich's energy summit, touting the potential of the Utica and the Marcellus shale. There is—a lot of this natural gas isn't out of the ground yet, and we are making some of these projections. There is a lot of public opposition to how you can bring that out.

So, we are kind of looking at what are all the uncertainties that are out there. There is the regulatory uncertainty in order to capitalize on all this natural gas. There is also market uncertainty, because of regulatory policies that might have even a more rapid shift from coal-based generation to natural gas, and then we overlay another tax policy that drives demand for natural gas through tax subsidies, and that is what is our concern here.

Chairman BOUSTANY. No, I appreciate that, because I am certainly concerned about our competitiveness, especially with the chemical industry in my state, and it is our second largest export, and we are fourth in exports among the 50 states right now.

So—but if you have data, or an analysis, I would love for you to share—

Mr. DOOLEY. Yes. No, we will—and you have been—we appreciate the openness of your office, and we will provide that information.

Chairman BOUSTANY. Thank you, sir.

Chairman TIBERI. The gentleman's time has expired. But Mr. Littlefair, you had a comment, I could—

Mr. LITTLEFAIR. Well, I was just going to say—and I don't have it right here in front of me—but, Congressman, if you look at

the 10-year strip price—and the former congressman knows this—I mean you have pretty low natural gas prices. I don't know if it ticks up—I don't believe it hits \$6. I think you go out 10 years and it is \$5. And so you are going to have, I believe, long, stable, relatively cheap natural gas prices.

Chairman TIBERI. Mr. Lewis is recognized for five minutes.

Mr. LEWIS. Thank you very much, Mr. Chairman. Thank you for being here. Good to see you, Congressman Dooley, again. Welcome.

I have a question for each member of the panel. As a member of the Oversight Subcommittee, I am always concerned with how we administer tax policy. Our subcommittee works hard to make sure that government has the necessary tools to detect fraud and abuse of taxpayers' dollars. Could you tell me what kind of documentation you think the IRS service should use to verify peoples' claims for deduction under the Nat Gas Act?

Mr. LITTLEFAIR. I am not an expert, Congressman, on this, though—

Mr. LEWIS. Just try.

Mr. LITTLEFAIR. A lot of our customers have, until they expired. So when a trucking company in the port of Los Angeles buys a truck, they basically provide the bill of sale, and that is what they use to verify that they have paid an incremental cost, and they submit that to the IRS. Same with fuel. So it is very similar to the fuel credits, very similar to what goes on today. You make that available to the IRS, and they can audit it if they don't believe you.

So I don't think we have a very complicated way to monitor the effectiveness and the distribution of the tax incentive. In what I have seen it is through the sale of the vehicle, and it is through the sale of the fuel.

Mr. LEWIS. Any of you want to respond?

Mr. DOOLEY. Yes, I would just—

Mr. LEWIS. Is there another recommendation you would have?

Mr. DOOLEY. I would just suggest you could eliminate that as a concern by not passing the Nat Gas Act.

[Laughter.]

Mr. LEWIS. Oh. Wouldn't you consider that the easy way out?

[Laughter.]

Mr. KREUTZER. I guess not quite as jovial, I was going to suggest—yes, when you make the tax system more complicated, it makes compliance, honest compliance, more difficult and evasive activities easier. So the simpler the tax structure is, the better compliance we will have. The Nat Gas Act adds a lot of complexity for just a few pages. It is amazing. And in my testimony, my written testimony, I copied just one section, which is gibberish to most anybody.

Mr. ZIOMEK. From my perspective, since we are really what we call tier two, we are way down the chain, as far as the customer. But as Mr. Littlefair said, it is with the purchase of the vehicle, they provide a receipt, and that is the way this is being paid for. I think it is pretty straightforward. I don't—I cannot profess to give you any more information on that, because I am not that close to that end of the curve here.

So, my position is that it is very straightforward. You buy a vehicle, you submit the receipt, and that is how you get the credit. Thank you.

Mr. LEWIS. I asked the panel just before you a basic question, and I would like to hear your thoughts on this same question. In these tough economic times, more and more people are saying we want to reduce the deficit. Many of them would prefer we do it by making deep and severe budget cuts. With this in mind, please answer the question for us.

Do you believe the Federal Government has a role—and I mean not just a role, but a meaningful role—in accelerating the adoption of these renewable energy technologies? Why or why not?

Mr. LITTLEFAIR. Congressman, I do. I look at the role of Congress—and I think one of the most important roles you have is to provide for the national security for the country. And I don't think anybody here today would say that energy—the reason we are talking about it is because energy is key to that security.

And so, I think you do have a role to do it, and I think the tax policy is a perfectly legitimate way to go about it.

Mr. DOOLEY. My response would be—is that our industry is one of the most innovative in the country. A lot of people don't realize, but the chemical industry has issued more patents than any other sector in our economy, about 1 out of 10 patents. We benefit by broad-based tax policies that encourage, you know, investment in R&D. So the R&D tax credit, which is—doesn't pick winners and losers, is across the board, is something that we think is very important.

Mr. LEWIS. I don't want to cut you off, but my time is running out. But with the Nat Gas Act, do you believe that we would be picking winners and losers?

Mr. DOOLEY. Absolutely. And——

Mr. LEWIS. Do you believe we would be picking winners and losers?

Mr. DOOLEY. Absolutely, in terms of consumers. And, you know, prior to joining the American Chemistry Council I was part of, you know, the Grocery Manufacturers. And we were concerned there, with our ethanol policy picking winners and losers——

Mr. LEWIS. Let me just——

Mr. DOOLEY [continuing]. Among consumers there.

Mr. LEWIS. You know I come from a city like Atlanta. And when I am driving my own car, moving around the city, I see so many trucks: Coca Cola, UPS, Federal Express, and many others. I even see buses, part of our transit, saying, "This vehicle is operated by natural gas." So seem like there is a movement.

Mr. DOOLEY. Absolutely.

Mr. LEWIS. There is a movement. So how do we catch up with this movement?

Mr. DOOLEY. The movement is even——

Mr. LEWIS. It is natural—it is cleaner, isn't it?

Mr. LITTLEFAIR. Absolutely.

Mr. DOOLEY. Yes. And, Congressman Lewis, what I would say is the movement is going to accelerate. It is going to accelerate——

Mr. LEWIS. Should we be part of the acceleration? Should we be left behind?

Mr. DOOLEY. We—you know, it is—our position is that when you have the market forces at work now, when we both would acknowledge that you are going to have relatively sustained, competitively priced natural gas, maybe in that \$6 range, you are going to continue to see market forces encourage the conversion of fleets to natural gas. You don't need a tax subsidy to accelerate that at this time. It is not needed.

And it does pick winners and losers. When I am competing—my member companies are competing for a product, and they—you are enhancing, through tax policy, increased demand that increases—it is going to have an impact, to some degree, on increasing the price of that product, that works to the detriment of those folks that aren't benefitting from that tax subsidy. And that is what we conclude is picking winners and losers.

Mr. LEWIS. Thank you, Mr. Chairman.

Chairman TIBERI. The gentleman's time has expired. The gentlelady from Kansas is recognized.

Ms. JENKINS. Thank you, Mr. Chairman. Thank you all for being here.

As today's testimony points out, the cost of operating on natural gas is significantly cheaper, when compared to diesel fuel, about 40 percent cheaper on a per-gallon equivalent. With the price of diesel at \$4 per gallon, this translates into an annual savings of \$60,000, or roughly the same amount as the tax credits proposed by this legislation. And I believe, as Congressman Dooley has already pointed out, the savings can be covered in less than 15 months.

So, it seems to me that the certainty the market needs is that of supply. While we have an abundant domestic resource in natural gas, it is under constant threat of halting or significantly curbing its production. So, Congressman Dooley, I have just a few questions for you in that regard.

Would that certainty, together with the tremendous fuel savings, provide the market incentive to shift investments toward natural gas? And does this legislation do anything to ensure that we would have access to our natural gas? And finally, can you elaborate on what tax credits and other incentives currently exist for installing natural gas fuel infrastructure?

Mr. DOOLEY. There was a lot of questions in there, but let me respond that, no, I don't think there is anything in this legislation that has any impact on encouraging the development of natural gas supplies and the production of it. And I think that is what we think, in terms of—you know, I personally think we are poised in an era that we are going to see a renaissance in manufacturing. But that renaissance is going to have to be built upon a foundation of a sound, comprehensive energy policy.

Whether it was Congressman Kind or—I think it was a congressman as well that said, "All of the above." It needs to be—I mean we have, basically, from our industry's perspective, you know, we are an energy-rich nation. We have chosen to make ourselves, you know, in some ways, dependent on imported oil because of our regulatory policies put in place, and those energy resources that we have put off limits. And that is why we are so excited about the shale gas and the natural gas supplies, and are committed to devel-

oping those regulatory policies that fully allow us to access those supplies.

And this is where we have the benefit of not having to have a policy now to encourage the use of natural gas, because the marketplace is dictating that that is a good choice.

Ms. JENKINS. Okay, that is fair enough. Thank you. Switching gears a bit, Congressman Dooley, I am sure everybody is aware the cost of fertilizer depends primarily on the price of natural gas, and natural gas costs represent between 70 to 90 percent of the cost of producing ammonia, the building block of nitrogen fertilizers. And being from a farm state, Kansas, I am concerned about family farmers getting hit on both sides, one with decreasing support for agriculture programs, and also seeing a dramatic rise on their input costs.

While seemingly a small issue, an affordable supply of natural gas is very important to the fertilizer industry, and on which 60 percent of the world's food supply also relies. Forecasts for 2011 show that fertilizer costs for wheat were up 30 percent from the 2010 levels. The last time we saw a spike in natural gas prices, over two dozen ammonia plants in the U.S. were forced to close their doors.

So, as someone familiar with the industry, Congressman Dooley, again, would you mind talking just a bit about your concerns regarding demand for natural gas on the ag industry?

Mr. DOOLEY. Well, prior to coming to Congress, I would even have had greater concerns, because I was a farmer in the Central Valley of California. And so now it is my family that is still operating the farm that is concerned about the ability to access, again, affordable fertilizers, particularly NH₃ ammonia, which is obviously an integral component to the production of many crops.

And so, you know, this again is—you know, we are looking at not only an enhanced global competitive situation for the chemical industry, but also for our United States farmers, because of the ability to access natural gas at a price that looks, for the foreseeable future, to be very affordable and competitively priced. And that is why we have become very concerned—the fertilizer manufacturers and farmers, as well as chemical manufacturers—when we see Congress considering policies that are going to increase demand through tax policies or regulatory policies that will then drive up prices.

And so, you know, we would—the fertilizer and a lot of the farm industry would share some of our concerns, again, about this interference in the marketplace that create market distortions that result in some constituencies benefitting over the expense of others.

Ms. JENKINS. Okay, thank you. I yield back.

Chairman TIBERI. Thank you. The gentleman from Connecticut is recognized for five minutes.

Mr. LARSON. Thank you, Mr. Chairman, and thank you again for holding this hearing. And I want to thank our panelists, and I especially want to welcome my old friend and dear colleague, Cal Dooley. While I might not agree with everything that he said, I am glad that he is here, participating. In fact, all the panelists have done an extraordinary job, and I commend the chair and the ranking members for creating this kind of opportunity.

I am—would have to say that I am more of a student of Thomas Friedman than I am of Milton Friedman as we get—evolve into these discussions. But I do think, at the heart of this, is something that is vitally important to the Congress.

The winner here actually, if you talk about picking winners, was Mother Nature. She happened to create, in this instance, an opportunity for us to capitalize on. And to capitalize in on a time, frankly, when it has been very difficult for Congress to act at all. Again, I am very proud of the fact that there are 180 cosponsors of this bill, and growing. And why? Because Congress does need to act. Yes, we would all love to have a comprehensive energy policy. Yes, we would all love to have comprehensive tax policy. The fact of the matter is we don't.

But where are we in agreement on? We are in agreement on the critical issues before us, as it relates to foreign policy that happens to be coupled by an environmental benefit, an economic benefit, in terms of jobs that we have heard about, and also in terms of an energy benefit. Finally we have a source that is abundant, accessible, and it is ours.

And so, we have this enormous advantage. I agree with Cal Dooley. We are going to see the opportunity for an industrial renaissance. So, as other countries gather strategically and are looking to eat our lunch, shouldn't we be doing everything within our power to gain the advantage, recapture that industrial base, augment what we have already, and provide the opportunity to move forward?

Friedman points out—Thomas, not Milton—that what we are doing here is exporting our dollars abroad, sending our money to fund the very countries and nations that are attacking our troops. It becomes a subsidy that is unthinkable, and consequences that we will live with for a number of years.

And so, that becomes the rallying point, and also a point that Mr. Pickens has made testifying before this committee. The United States currently in negotiations globally, as it impacts everything, is on the outside looking in. It is time to put the United States back at the center of these discussions and negotiations that transpire globally. And that is why I think that it is so important.

But I do think two things have to be underscored. And Mr. Littlefair, I would ask you to again review. In terms of national security and reducing our dependence on foreign oil, how much foreign oil would be displaced if the Natural Gas Act passed?

Mr. LITTLEFAIR. Well, Congressman, over time we believe—as you know, over 5 years, we think you will be on your way to 100,000 vehicles—actually, about 150,000 vehicles in the fifth year. But that is going to set you up to a point where you would be able to reduce Middle Eastern OPEC oil by 50 percent, which is about 2.5 million barrels a day. So it is significant.

It doesn't make—the real answer to—the question on the earlier panel was can we be energy independent. I don't think you can be energy independent. Nobody else on that panel. But you can sure go a long way to make sure you are back at the table, and reduce your dependence. And so, reducing OPEC by 50 percent is a hell of a first step.

Mr. LARSON. And the other aspect of this, with 14 million Americans unemployed, the jobs here that you discussed. What is the jobs—what are the jobs that you see immediately available? And then long term—all the panelists—

Mr. LITTLEFAIR. Sure. The ones that I have here—and I have them right in front of me, Congressman—direct jobs. And I know our company is building things right now, we are spending millions and millions of dollars, and we are hiring people. In the 5 years you get 100,000 direct jobs. That will happen in the first 2 years, 27,000 jobs in vehicle fuel system, hardware installation, production of fuel stations, production of plants. And then you get, you know, about 330,000 indirect jobs.

I am not even counting what happens in the oil patch and in the gas patch. I am talking about, really, fueling stations and vehicles and the money that is spent. It is really breathtaking. I don't think there are that many kinds of deals out there before Congress right now that can generate that kind of jobs.

Mr. LARSON. And is there any other source of energy that can get us there?

Mr. LITTLEFAIR. No. And that is the other thing. You know, I sit here and get a little frustrated because I—look, I want there to be cheap gas for chemicals, and I want cheap gas for a fertilizer plant. But, you know, that assumes that we are just going to continue to import foreign oil. And we kind of act like that is fine, you know, let the market worry about that. Sixty-three percent of our foreign oil every day is being imported—or oil is being imported every day, and seventy percent of that goes to transportation.

We now are the world's—you know, we have three times the amount of—if you take our natural gas today and convert it in oil, we have three times the amount of oil as Saudi Arabia does. And here, we are not doing anything about it. We are going to talk about exporting our natural gas. Now, wouldn't that be something? Export our natural gas and import more oil?

Chairman TIBERI. The gentleman's time has expired. If anyone in the room doesn't know what your position is, Mr. Larson, I think they probably know objectively where you are on this piece of legislation.

[Laughter.]

Chairman TIBERI. The gentleman from New York is recognized for five minutes.

Mr. REED. Thank you very much, Mr. Chairman, and I am glad to hear my colleague on the other side of the aisle join me in support of natural gas development in a clean and responsible way. And that is my question to this panel.

You know, I come at this from a cosponsor to this act. I come at this from the founder of the Marcellus Shale Caucus in Congress. And I do believe that this shale development is a game changer when it comes to our energy policy. And so I was intrigued, and I am very excited to hear the immediate response to Mr. Lewis's question about this is a clean energy. I heard yes, yes, yes, yes, immediately.

Yet there are some people that are out there that have indicated that, with hydrofracking and other issues and concerns, that it is not a clean energy, and that there are significant risks with it.

Would anybody care to respond to the criticisms of exploring natural gas because of the environmental concerns about it?

I guess, Mr. Kreutzer, you have——

Mr. KREUTZER. No, I have said I would fully support hydrofracking. I think it is safe. I hope they go forward with it. But that is different than saying I think we should subsidize users of natural gas.

Mr. REED. Understood.

Mr. KREUTZER. We wouldn't have the hydrofracking if we depended entirely on government policies to run our energy policy—run our energy markets.

Hydro fracturing technology was developed by George Mitchell at Mitchell Energy using his own money, no government subsidies. And so we didn't need an energy policy to get this huge increase in domestic energy. And that is why I support markets.

Mr. REED. Yes. And I understand that point, and that is why I am kind of deviating, because all the good questions—when you go last, all the good questions are taken before you get an opportunity to ask the questions.

[Laughter.]

Mr. REED. So I am kind of deviating from the jurisdiction of this committee, because I do see a concern, or a potential barrier to the positive development of this resource that is floating out there.

I hear the director of the EPA, Ms. Jackson, talk about hydrofracking and how she is going to try to get at it and regulate it at the federal level. Are there any concerns coming from any of the panelists as to any other threats to the potential development of natural gas, outside of the tax disagreement?

Mr. DOOLEY. No, and that is where I made a statement earlier, is that we are making a lot of projections on a energy resource that is still in the ground, by and large. And we do have some concerns about the regulatory impediments that could develop and emerge that could preclude our ability to really develop this resource. You know, EPA is involved in a study, you know, and we hope that that will come out and will demonstrate, as the industry has great confidence, that we can extract this resource in a very environmentally-responsible manner.

But we are also concerned, as an industry, when we are seeing local municipalities that are implementing more of land use restrictions that have the potential to impede the development of this resource. And there is obviously some questions on the constitutionality of some of those.

But you know, the regulatory arena here is not entirely clear yet, which gives some uncertainty in terms of the ability to have the great confidence in the long-term supplies that we can actually transform into the chemicals that are critical to the entire manufacturing sector.

Mr. REED. Excellent. With that, Chairman, I will yield back.

Chairman TIBERI. Thank you. This has been a fabulous panel. We thank the four of you for your time today, and for waiting until now to give your testimony.

This concludes today's hearing. Please be advised that Members may submit written questions to the witnesses. Those questions and the witnesses' answers will be made part of the official record.

I would like to thank the participants of all three panels today for appearing. It has been a great discussion on energy tax
 Thank you so much. This hearing is concluded.
 [Whereupon, at 1:28 p.m. the subcommittees were adjourned.]

MEMBER QUESTION FOR THE RECORD

Question for the Record

Kevin Book
Managing Director, Research
ClearView Energy Partners, LLC

October 27, 2011

Mr. Roskam: Mr. Book, in your testimony, you reference the importance of "common metrics" to investors when considering investing in the certain types of alternative energy. A company in my district, Gas Technology Institute, recently did a study that showed no correlation between the amount of credit received, and actual efficiency achieved from various alternative energy sources. You have this issue reflected in your testimony as well. Can you describe whether there appears to be any overall national energy strategy driving the differences in value among the different federal energy tax credits?

Thank you for the question, Representative Roskam. The history of U.S. energy policy does not appear to reflect a well-coordinated national strategy to direct federal spending towards highest-performing fuels, technologies or behavioral initiatives. As I mentioned during my testimony before your Committee, this lack of a metrics-based standard for federal energy incentives may actually complicate even the best-conceived efforts to leverage taxpayer dollars for increased innovation, greater energy security and improved environmental performance. It is hard to know when one has met a goal that cannot be clearly quantified and readily measured.

The first metric I would consider is the amount spent per million British thermal units (Btu) of energy consumption, production or savings (\$/MMBtu), a ratio I referred to in my testimony as "incentive cost" of energy or efficiency. The Joint Committee staff included this calculation in their briefing memo prior to the hearing, as well. Measuring "bang for the buck" in this fashion is relatively straightforward, particularly when analysis spans multiple years to capture fluctuations due to economic or policy changes. I also suggested considering the amount spent per metric ton of greenhouse gas emissions reduction (\$/MtCO₂e) and the amount spent to displace imported petroleum either physically (\$/barrel) or in terms of actual energy content (\$/MMBtu).

Any of these metrics would help identify and optimize U.S. energy, environmental and economic benefits derived from federal energy outlays. Ultimately, I would suggest that the choice of metric should reflect the primary energy policy goal being pursued by the Congress. Whatever metric(s) one chooses, a well-reasoned policy should also consider (a) how long it will take to deliver the benefit in question; and (b) how much of the nation's energy portfolio will be affected. A "reverse auction" intended to subsidize the cleanest, cheapest and most secure sources could also be structured to reward fuels and technologies that might deliver their benefits soonest and at the greatest scale.

PUBLIC SUBMISSIONS FOR THE RECORD

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October 6, 2011

The Honorable Pat Tiberi,
Chairman of the Subcommittee on Select Revenue Measures,
The Honorable Charles Boustany,
Chairman of the Subcommittee on Oversight
Committee on Ways and Means
United States House of Representatives
Washington, DC 20515

Mr. Chairmen, Members of the Subcommittees:

I contact you on behalf of **A Royal Flush, Inc.**, located at 146 Andover Street, Bridgeport, CT 06605. A Royal Flush is a portable restroom and pumping company that owns a fleet of heavy-duty trucks. The natural gas transportation fuel model proven effective in California and other western states is a model they seek to duplicate.

There is an energy crisis in America and Congress must act now. Decreasing our nation's dependence on foreign oil is a critical national security goal. H.R. 1380, the "New Alternative Transportation to Give Americans Solutions" Act of 2011 (NAT GAS) provides a real solution to this vital problem of immediate concern.

The methods and goals of NAT GAS are practical, proven and will enable the nation-wide momentum that is needed to reduce our consumption of foreign oil. The environmental, energy-security and economic benefits to using natural gas as a transportation fuel - particularly, using LNG in high fuel-use fleet vehicles - are significant and real. Natural gas is an alternative transportation fuel that is domestically-available, cleaner-burning and more affordable and stable in pricing than petroleum-based fuels, particularly diesel. Replacing one diesel-fueled heavy-duty tractor with one fueled by LNG has the environmental equivalent of taking as many as 325 gasoline-fueled personal vehicles off of the road.

On March 30, 2011, President Obama spoke at Georgetown University regarding our nation's energy future. In his address, he encouraged fleets to switch to alternative fuels such as natural gas and praised fleets that have already done so. The benefits offered by natural gas as a transportation fuel are shared by the entire country. Cleaner air, self-sustainability and economic savings are collective goods that this Congress must work toward.

The NAT GAS Act offers a concise five-year plan targeted to the segment of the transportation industry that will display the most beneficial results from the legislation's objectives. This kick-start to the transportation industry will confirm and display that natural gas vehicle technology is here and now and that no major technical breakthroughs are needed. The emissions reductions and balance sheets numbers will show that natural gas is a clean and economically viable alternative transportation fuel that must be embraced and encouraged immediately.

The benefits to this bill continue with its job creation facet. At a time when we critically need jobs in our country, according to a study, over half a million jobs will be created by the passage of NAT GAS. Another reality to be felt on "Main Street" is that this bill would help lower the price of gasoline by reducing the demand.

In conclusion, on behalf A Royal Flush, who realizes the undeniable, real multitude of benefits offered by natural gas as a transportation fuel, I urge Congress to pass the NAT GAS Act and help make American proud of your work on behalf of the future of all Americans.

Please contact me if I can provide any additional information on the above. Thank you in advance for your time.

Sincerely,

Deirdre Fox

Joint Statement of

**Air Conditioning Contractors of America (ACCA)
Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
Heating, Airconditioning & Refrigeration Distributors International (HARDI)**

Submitted for the joint hearing of the

**Subcommittee on Select Revenue Measures
and the
Subcommittee on Oversight**

**Committee on Ways and Means
U.S. House of Representatives
on
“Energy Tax Policy and Tax Reform”**

September 22, 2011

The Air Conditioning Contractors of America (ACCA), the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), and the Heating, Airconditioning & Refrigeration Distributors International (HARDI) appreciates the opportunity to submit this joint written statement for today’s hearing on “Energy Tax Policy and Tax Reform.”

Our three organizations represent the manufacturers, distributors, and installers of residential heating, ventilation, and air conditioning (HVAC) and hot water equipment, employing more than one and a half million workers who help homeowners enjoy the comforts and cost savings of higher efficiency appliances.

We hope this submission for the hearing record on federal energy tax incentives will assist the Committee on Ways and Means members in future policy decisions that impact small business owners and homeowners in these trying economic times.

Nonbusiness Energy Property Credit (Section 25)

Since 2006, Section 25C of the tax code has allowed eligible taxpayers to claim tax credits for qualified improvements designed to make their primary residence more energy efficient. The tax credits help defray the initial investments costs and shorten the payback period of qualified furnaces, central air conditioners and heat pumps, hot water heaters, and other energy savings appliances or building improvements.

The 25C tax credit was originally authorized in the Energy Policy Act of 2005 for tax years 2006 and 2007. At that time, lifetime claims were limited to \$500, with caps placed on individual appliances or retrofit measures.

The American Recovery and Reinvestment Act of 2009 (ARRA) renewed the tax credits for 2009 and 2010, with several important modifications, most significantly boosting the value of the tax credits to equal 30% of the installed costs, up to a \$1,500 limit. Other changes eliminated the lifetime cap on cumulative claims, making a homeowner eligible for claims each time the credit was renewed; and removal of the caps on individual appliances or retrofit measures.

The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 enacted last December extended the 25C tax credits for 2011 but at a significantly lower value for homeowners. The tax credit value was reduced to 10% of the installed costs, the \$500 credit limit was reinstated, as were the caps on individual appliance or retrofit measures.

When comparing the tax credits for residential HVAC appliances available to eligible taxpayers in 2009/2010 and 2011, the maximum amount a taxpayer could claim for a qualifying furnace was reduced from \$1,500 down to \$150. The maximum amount a homeowner could claim for a qualified central air conditioner, heat pump, or hot water heater was reduced from \$1,500 to \$300. In addition to these drastic drops a taxpayer is limited to a cap of \$500 credit over his/her lifetime for qualifying energy efficient upgrades.

Success of the 25C Tax Credits

Surveys of ACCA contractors conducted in 2009 and 2010 found the 25C tax credits to be an effective financial incentive to encourage homeowners to reach for and obtain higher efficiency HVAC equipment while stimulating economic activity.

A key finding of the surveys demonstrate that the 25C tax credit helped homeowners afford products with a higher efficiency while helping the HVAC industry maintain a steady demand for its products and services, despite the severe economic downturn.

According to the surveys, 46% of ACCA's contractor members saw a "significant" increase in the sale of qualifying HVAC equipment after the passage of the stimulus bill. Another 32% saw a small increase in the sales of qualifying HVAC equipment. When taken in tandem, more than 75% of ACCA's contractor members saw some increase in the sale of qualifying higher efficiency furnaces, central air conditioners, heat pumps, and hot water heaters.

And even though 25C tax credits are aimed at individual taxpayers, these valuable incentives helped the small businesses of the HVAC industry.

Our survey had a number of positive comments from members:

"Without the stimulus bill for 95% efficient furnaces we would have had an extremely bad time of it last year. The stimulus helped us to stay in business and helped a lot of consumers as well.

“My business has grown and prospered through our down economy and my customers are more than ever more comfortable and saving more money month to month for the more precious things in life such as their children’s welfare.”

“It is crucial that these tax credits stay in effect as proposed and not cancelled prematurely.”

“Thank goodness for the tax credits or our business would have seen a much larger drop off as people’s spending habits changed whether out of concern for their jobs or due to the inability to obtain financing.”

“Last fall was my busiest season in the 30 years I have been in business. All of my equipment sold was top of the line high efficiency.”

“The tax incentive helped us not only survive a down year, but turn it into a reasonably profitable one.”

“Without the \$1500 tax credit, we would have had massive temporary and some permanent layoffs. Instead, we have been able to keep steady work during a traditionally slow time.”

Indeed, the higher value tax credits are helping homeowners elect to replace equipment that may be in need of repair, reversing a three year trend in the industry.

IRS Data

According to IRS statistics, fully 93% of tax credit claims under 25C and 25D (for solar, geothermal, wind, and photovoltaic properties) were made by taxpayers who have an adjusted gross income of no more than \$200,000, which is indicative of a middle class tax program.

Examining the 2009 Estimated Data Line Counts for Individual Tax Returns gives a clear picture of how homeowners used \$1,500 residential energy tax credits in 2009.

Taxpayers use Form 5695 worksheet to claim one of several available residential energy credits. The taxpayer first calculates the total cost of qualified expenditures, reduces that amount by 30%, and compares that value with \$1,500. The taxpayer is eligible for tax credits equal to the lesser amount.

Data from the Form 5695 forms in 2009 tells us how many taxpayers claimed the residential energy tax credits; how many claimed a credit for the purchase of a qualified central air conditioner, heat pump, or hot water heater; a qualified furnace or hot water boiler, or an advanced main air circulating fan; and the total expenditures on these improvements.

In 2009, 6,753,885 households filed Form 5695 to claim a credit against their tax liability for installing some type of energy efficient appliance or retrofit measure in their primary home.

Of that total amount, 976,380 households claimed for purchasing and installing “energy efficient building property,” otherwise known as qualified central air conditioner, heat pump, and hot water heater totaling \$3,968,715,000 in expenditures

In 2009, 1,290,640 taxpayers claimed tax credits for “qualified natural gas, propane, or oil furnace or hot water boilers” and reported total expenditures of \$4,310,456,000.

And 221,274 taxpayers claimed some credit for an advanced main air circulating fan, with an aggregate expenditure amount of \$694,422,000.

For all retrofit measures and appliances that qualified for the tax credit, including energy efficient windows and door, insulation, and roofing materials, American taxpayers claimed \$5.17 billion in tax credits on \$25.1 billion worth of work. This is a significant number, especially when you consider that is only represents what was filed. What’s missing is the work performed for a taxpayer who ended up not being able to use the tax credit because it turned out they weren’t eligible.

The National Association of Home Builders estimates every \$100,000 in remodeling expenditures generates 1.11 full-time jobs.

25C Should Be Extended for 2012 At the 2009/2010 Levels

The section 25C tax credits are set to expire at the end of this year and our three organizations recommend that Congress return the 25C credits to the 2009/2010 value so that taxpayers can continue to make energy efficient retrofits to their homes.

The extension should remove the lifetime cap on claims so that taxpayers who may have already claimed credits for improvements to their HVAC systems, windows and doors, insulation, or hot water heaters, should be eligible for qualified tax credits for other energy efficient improvements. Furthermore, the credit-eligible water heater levels should be divided into storage and tankless, to better reflect the advantages of both technologies and allow for more consumer choice.

As a result of changes made by ARRA, heating, ventilation, and air conditioning (HVAC) contractors saw an increase in the number of qualifying systems sold and installed in the United States. The 25C tax credit succeeded in helping millions of Americans afford higher quality and higher efficiency HVAC equipment, resulting in lower utility bills and more spending money, and improved indoor air quality for homeowners, fewer greenhouse gas emissions and the retirement of systems using refrigerants with a higher global warming potential, and a boost to the economy through the creation of jobs for HVAC equipment manufacturers, distributors, and installers.

Finally, we urge Congress to move to extend the 25C and other energy and small business related tax incentives well before they are set to expire. It hurts a small businesses ability to plan and compete. The entire HVAC supply chain budgets for purchasing and marketing months in advance. Not knowing whether or not there will be tax credits available to customers makes it very difficult for small businesses to plan ahead.

IG Report

Our organizations are aware of the April 19, 2011 Department of Treasury's Inspector Generals Report that finds fault with IRS's ability to verify eligibility for the 25C and 25D tax credits.

The IRS could not verify whether individuals claiming Residential Energy Credits are entitled to them at the time their tax returns are processed. It is true that the IRS does not require individuals to submit any third-party documentation supporting the purchase of qualifying home improvement products and/or costs associated with making energy efficiency improvements or whether these qualified purchases and/or improvements were made to their principal residences. However, a taxpayer is required to retain a manufacturer's certificate verifying a products qualifying efficiency rating. In case of an IRS audit, the homeowner should be able to present such documentation.

While the report did note a number of deficiencies with the IRS process for establishing verification of eligibility for the credit, not being able to establish eligibility does not mean they were all illegitimate claims. In addition, the IRS notes that it can improve its processes to add additional safeguards and improve its ability to verify eligibility. The HVAC industry stands ready to assist the government in making sure that the credit is only going to those who truly deserve the benefit.

There are a variety of methods that should be explored to provide an identifying number or code that could be included on tax returns to help the IRS establish the eligibility of a product for the tax credit which could be implemented for use with electronic filing. As an industry, we are willing to continue to work with Congress and the IRS to improve the system of product verification and taxpayer eligibility.

Section 179

Section 179D, the Commercial Building Tax Deduction, allows a \$1.80 per square foot tax deduction for building owners who make qualified improvements in overall performance. Unfortunately, the incentive falls short and is not meeting expectations. Although the deduction has been successfully used to build and retrofit some larger energy efficient buildings, the economic crisis has reduced the amount of building design, construction and renovations across the country. In addition, the deduction is based on energy consumption reductions compared to model building code ASHRAE 90.1 2004, which some older builders do not meet without major and expensive retrofits. Furthermore, the expensive nature of many HVAC and water heating upgrades require major initial outlays of capital, another difficult hurdle in today's difficult economy.

Our organizations support the passage of legislation to increase the maximum allowable deduction from \$1.80 per square foot to \$3.00 per square foot (\$1.00 in the case of individual subsystems) to create jobs. Furthermore, allowing deductions or tax credits for specific HVAC and water heating components such as chillers, boilers, or roof top units, combined with an allowable square footage deduction of \$3.00, Congress could immediately stimulate building design, construction, and renovation across the country, spurring job creation in every state and region, while enhancing our energy independence and improving our nation's infrastructure for the 21st century.

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The American Gas Association (AGA) is pleased to provide comments to the Subcommittee on Select Revenue Measures and the Subcommittee on Oversight, both of the Committee on Ways and Means, on the intersection of energy policy and tax policy.

AGA was founded in 1918, and represents 201 local energy companies that deliver clean natural gas throughout the United States. There are more than 70 million residential, commercial and industrial natural gas customers in the U.S., of which 91 percent — more than 64 million customers — receive their gas from AGA members. AGA is an advocate for natural gas utility companies and their customers and provides a broad range of programs and services for member natural gas companies, pipelines, marketers, gatherers, international natural gas companies and industry associates.

We wish to thank Chairman Tiberi and Chairman Boustany for their leadership in holding this hearing and bringing attention to an important issue. We will focus our comments on the specific piece of legislation, H.R. 1380, the NAT GAS Act, which the Subcommittees have elected to consider as an example of energy tax policy.

AGA strongly supports greater use of natural gas as a transportation fuel. The shale gas revolution has supplied our nation with a new abundance of natural gas, and with it the potential to significantly reduce our reliance on foreign oil. Displacing petroleum fuels with natural gas for transportation can simultaneously help us improve our energy security, strengthen our trade balance, provide environmental benefits, and create jobs here at home.

We believe in comprehensive, technology-neutral policies to promote alternative fuel vehicles, infrastructure and fuels. That is why we strongly support the NAT GAS Act, because it represents an approach that can help achieve those results. It would level the playing field between natural gas vehicles and other alternative fuels and vehicles that already receive favorable treatment in the tax code.

We thank Representatives Sullivan, Boren, Larson, and Brady for introducing the NAT GAS Act and highlighting the role that natural gas can play in transforming our transportation sector and strengthening our economy.

Other nations in Europe, South America, and Asia are moving to advance natural gas as a transportation fuel, while the United States lags behind. There are over twelve million vehicles running on natural gas worldwide today, yet only about 120,000 are in the United States. To put this in context, in 2009, the United States overtook Russia to become the world's largest natural gas producing nation – yet only about one percent of the world's natural gas vehicles are in use on U.S. roadways.

Natural gas has a proven track record across multiple segments of the transportation sector. Light-duty natural gas vehicles are well suited both for fleet operators and for ordinary American households. In the medium- and heavy- duty segments, cities across the country are replacing diesel buses with cleaner-burning natural gas buses for public transit. Communities are also discovering the benefits of cleaner, quieter refuse trucks operating on natural gas. Switching more of our long-haul trucking to natural gas offers one high impact way to reduce foreign oil imports.

The new abundance of domestic natural gas supply, unimagined just a few years ago, means we can accommodate growing demand for natural gas in the transportation sector even as demand grows in other parts of the economy. Independent estimates of our natural gas reserves produced by the Department of Energy's Energy Information Administration and the Colorado School of Mines' Potential Gas Committee project that we have – within our own borders – more than a one hundred year supply at current rates of consumption.

Some industrial users of natural gas have expressed concerns about encouraging natural gas use in transportation. They argue that increased demand in the transportation sector would cause price spikes for natural gas. Recent analysis conducted by the National Petroleum Council at the request of DOE Secretary Chu suggests that these fears are unfounded. The just released (September 15, 2011) report of the National Petroleum Council finds that even under the most aggressive estimates of natural gas demand, including dramatic increases in gas demand for electricity generation, natural gas vehicles, LNG exports and exports to Mexico, U.S. demand for gas can be met for a minimum of 50 years. Furthermore, transportation fleets take many years to turn over, so the transition to greater natural gas usage for transportation will build slowly over time. The addition to the demand curve that natural gas will create will be one of measured,

steady growth – exactly the type of signal that is needed to incentivize continued exploration and production and support supply.

Natural gas is available at about 500 publicly accessible refueling stations across the country, with an average price per gasoline gallon equivalent of about \$2.00 nationwide. The projections of abundant natural gas suggest that prices are likely to remain low and relatively stable for years to come. But although natural gas is competitively priced as a fuel relative to petroleum, natural gas transportation must still compete with an entrenched technology. Gasoline and diesel-powered vehicles have significant advantages, with well-developed refueling infrastructures and nearly universal familiarity among consumers.

In the long run, the economics will drive us towards an expanded role for natural gas-fueled transportation. But markets alone will not move us quickly enough, because the price of oil does not reflect the true costs of our energy dependence.

Our reliance on foreign oil has placed our national energy security in peril. We have an urgent need to lessen, and eventually to eliminate, this dependence. It is because of this urgency that AGA favors tax incentives for a targeted program to support the adoption of alternative vehicles and fuels, including natural gas. Other vehicle technologies and fuels such as battery electric vehicles and biofuels already receive favorable treatment in the tax code. We should strive for parity between all the alternative fuel options, and level the playing field for natural gas to compete fairly.

As a nation, we face important choices that will determine our future. In this time of severe budget constraints, these choices are even tougher. We need to be strategic, take the long view, and consider carefully how our dependence on foreign oil will further constrain us going forward. For less than the cost of a single new aircraft carrier – \$14 billion – we could fund a tax incentive program to transform our transportation sector. We could reinvent our refueling infrastructure and bring cleaner vehicle choices to consumers. We could transition away from foreign petroleum and towards greater energy security. The choice is ours. Let's make it count.

Statement for the Record
by AGC Flat Glass North America
Committee on Ways and Means
Subcommittee on Select Revenue Measures and Subcommittee on Oversight
Joint Hearing on Energy Tax Policy and Tax Reform
September 22, 2011

AGC Flat Glass North America would like to thank the Subcommittee on Select Revenue Measures and the Subcommittee on Oversight for their interest in the tax code's role in our nation's energy policy as this is an issue of consequence to our company.

AGC Flat Glass North America strongly believes that tax policy has an important role to play in supporting the nation's energy policy. Both should work to increase the nation's energy supply, encourage corporations and individuals to become more energy efficient, and reduce energy costs. Since 1916, energy tax incentives have advanced the national interest by supporting the energy sector, and this role should be continued. Therefore, as Congress considers fundamental tax reform, we urge it to consider reforms which make the nation's energy tax policy more efficient and effective at a lower cost to taxpayers. In order to accomplish this goal, AGC Flat Glass North America believes that the nation's energy tax policy should be based on sound science and technology neutral standards. Too often past energy tax incentives have strayed from these two core principles, resulting in an inefficient allocation of capital and lack of coordination amongst federal agencies' energy programs.

AGC Flat Glass North America

With thousands of employees in the U.S., AGC Flat Glass North America supplies high-quality products to the construction, specialty, solar and automotive glass markets through three strategic business units: Building Products; Solar Glass; and Automotive Glass. AGC Flat Glass North America offers one of the broadest product lines in the flat-glass industry – supporting a wide range of customer needs. AGC Flat Glass North America offers clear and tinted flat-glass products, energy efficient coated glass, reflective products, solar solutions, automotive glass, and specialty products such as patterned, acid-etched and painted glass. A leader in product innovation, AGC Flat Glass North America has designed and assembled an array of advanced products to address recent market demands for lower emissivity, increased solar control, enhanced solar panel performance, and improved clarity and visibility. AGC Flat Glass North America is committed to making high-quality, energy efficient glass products that continue to lead the way in the glass industry.

The Lessons of ARRA

AGC Flat Glass North America, like many other glass companies, was forced to deal with the unintended negative consequences of technology-specific language included in the American

Recovery and Reinvestment Act (ARRA). The Energy Policy Act of 2005 established section 25C's tax credit for nonbusiness energy property, which allowed homeowners to claim a 10% credit up to a maximum of \$500 for the costs of all their qualified energy efficient property improvements, with a \$200 cap for windows. ARRA enhanced the section 25C credit, allowing homeowners to claim a 30% credit up to a maximum of \$1,500 for the costs of their qualified energy efficient property improvements, with no caps for individual types of property.¹ In the process of enhancing and extending the section 25C credit, however, ARRA established a technology-specific efficiency standard for windows which undermined the credit's goal of incentivizing energy efficiency.²

ARRA provided that only a unique and limited type of glass qualified for the \$1,500 replacement window tax credit. Under ARRA, windows must have had a U-factor and Solar Heat Gain Coefficient (SHGC) less than or equal to 0.30 to qualify for the credit. SHGC refers to the amount of solar heat that is admitted through a window. It is expressed as a number between 0 and 1. The lower a window's SHGC, the less solar heat it lets into a room. According to the Department of Energy (DOE), different SHGC levels are necessary to provide the optimum energy savings across various climates. For example, a higher SHGC will allow more solar heat into a home which helps alleviate energy use in colder climates. In warmer climates, a lower SHGC blocks solar heat alleviating air conditioning energy usage. Rather than specifying an energy savings goal or establishing technology-neutral standards, ARRA dictated that glass must possess a specific SHGC in order to qualify for the credit, ignoring the fact that depending on the homeowner's location, this criteria would not always advance the credit's energy savings goals.³

Technology-Neutrality Standards

The technology standards established by ARRA were not technology neutral and did not reflect certain scientific realities that the DOE had uncovered through its own research. Prior to ARRA, the DOE, with input from interested stakeholders such as glass and window manufacturers and energy efficiency organizations, worked for over a year to determine whether or not allowing more solar heat into northern homes through windows would save energy. In-depth studies by DOE labs and private researchers concluded that in order to save the maximum amount of energy, northern climates should capitalize on passive solar heat by installing windows with a higher SHGC. According to the DOE, there were significant differences in what SHGC provides the lowest energy cost for households based on the regional climate.

Section 25C's language, as modified by ARRA, disregarded the DOE's expertise and research and implemented tax policy which did not achieve the highest possible amount of energy savings in certain climates. Indeed, ARRA's section 25C window criteria actually *cost* homeowners money in certain climates by incentivizing them to purchase windows eligible for the credit which were not best-suited to keep their homes a comfortable temperature in their specific

¹ The \$1,500 is an aggregate cap applicable to windows and other qualified energy efficiency improvements such as doors, skylights, heat pumps and water heaters after February 17, 2009, and before January 1, 2011.

² Under ARRA, the tax credit applied to property placed in service after February 17, 2009, and prior to January 1, 2011.

³ The updated 2010 Energy Star Criteria were not available when Congress enacted ARRA.

climates. Specifically, the ARRA tax credit encouraged northern homeowners to buy windows which did not save the maximum amount of energy for their climate: cool-climate homeowners spent more to purchase windows which save less energy than less expensive windows which are more suitable for their climate; consumers then pay more to heat their homes, using more energy and increasing carbon emissions.

In addition to the impact on individual consumers and the environment, the language of section 25C had a profound impact on the windows manufacturing sector. Jobs were lost at glass manufacturing companies which produced energy efficient glass for cool-climate windows, but which were not eligible for the section 25C credit under ARRA. Consequently, even though the credit was intended as a stimulative measure to combat the fiscal crisis of 2008, it actually resulted in the *loss* of jobs within the glass manufacturing industry. For example, as a result of the technology-specific language of the tax credit, demand for AGC Flat Glass North America's cool-climate windows fell, ultimately contributing to the closure of an AGC Flat Glass North America plant in Michigan.

Conflicting Federal Policies

Additionally, ARRA's prescriptive section 25C windows criteria would eventually come to conflict with DOE policy. On April 7, 2009, two months after ARRA's enactment, the DOE's Energy Star program published final Energy Star criteria to take effect in January 2010 which set regional SHGC rates for windows based on climate. The Energy Star criteria, unlike the section 25C criteria, was developed through a process informed by scientific research, public meetings, comment periods, and reviews of comments by experts at the DOE.

Thus, the ARRA tax credit, which required that windows have a U-factor and SHGC less than or equal to 0.30, was at odds with the updated Energy Star criteria. As a result, the vast number of new window purchases in 2009 and 2010 were from the slice of the replacement window market that qualified for the ARRA tax credit, regardless of whether those windows were the most energy efficient choice for a particular home. The evidence supporting windows with a higher SHGC in the north (even in advance of the 2010 Energy Star Criteria) resulted in significant research and development investment by glass companies to diversify their product lines. This industry-wide effort was significantly undercut by section 25C's technology-specific language because consumers immediately focused on purchasing windows that were eligible for the enhanced federal tax credit. In many cases, these were the only windows consumers were interested in buying because receiving the tax credit drove their choice regardless of the windows' impact on the overall energy performance of their home.

Consequently, ARRA's modification of the section 25C credit had the unintended consequence of allowing tax policy to undermine the nation's energy policy. This separation of energy policy from tax policy resulted in significant confusion in the marketplace and lost jobs, not to mention tax credits for installation of windows which may not have been the most energy efficient for certain homes.

The Section 25C Homeowners Tax Credit Today

The Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 corrected the windows tax credit criteria so that it comported with Energy Star standards. AGC Flat Glass North America applauded this change. However, in doing so, the credit was reduced to its pre-ARRA levels, providing a 10% credit with a \$200 cap for windows. The \$200 cap renders the tax credit completely ineffective. Replacing windows is a very expensive endeavor. A \$200 credit does not incentivize homeowners to replace their windows, but instead merely rewards those homeowners who were already going to replace their windows with the advantage of a \$200 tax credit. Consequently, under current law, taxpayer dollars are being spent with no impact on energy policy.

AGC Flat Glass North America Recommendations

AGC Flat Glass North America supports continuing the section 25C tax incentive for energy efficient window upgrades. We also support using the Energy Star criteria as the criteria for the tax credit, ensuring that tax and energy policy remain aligned. However, in order to ensure the tax credit acts as an effective incentive to taxpayers, we advocate increasing the credit to a minimum of \$1000 and, preferably, \$1500, for the costs of taxpayers' qualified energy efficient property improvements.

Furthermore, as was made public by the May 18 report from the Treasury Inspector General for Tax Administration, compliance with the window tax credit has been problematic. AGC Flat Glass North America supports the strongest possible compliance efforts. We also believe that a windows tax credit which does not support the very visible Energy Star program leads to consumer confusion and unintended fraud in the system because consumers naturally assume that an Energy Star window would qualify for the tax credit.

Thank you again for your attention to this important issue. If AGC Flat Glass North America can be of any assistance to you, please do not hesitate to contact me.

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Statement for the Record
by the Algal Biomass Organization
Committee on Ways and Means
Subcommittee on Select Revenue Measures and Subcommittee on Oversight
Joint Hearing on Energy Tax Policy and Energy Tax Reform
September 22, 2011

The Algal Biomass Organization (ABO) would like to thank the Subcommittee on Select Revenue Measures and the Subcommittee on Oversight for holding this hearing on the future of energy tax policy, which is an issue of fundamental importance both to our member organizations and to our nation's future.

ABO represents stakeholders involved in the use of algal biomass for the production of next generation biofuels. We believe that the nation's energy and tax policies should be aligned in order to ensure that future generations have access to an affordable, abundant energy supply that is environmentally sustainable and not dependent on imported oil. Although this is an ambitious goal, every year breakthroughs in renewable energy technologies bring the country closer and closer to making this goal a reality. Our country has always had robust energy and tax policies, yet these policies have not always been well-integrated, and tax incentives in particular have not always been carefully designed to achieve the most efficient outcomes. Comprehensive tax reform provides Congress with an opportunity to re-examine the nation's energy policy and ensure that it enacts tax provisions that support these broader policy objectives.

Specifically, ABO believes that energy tax reform should be guided by the following principles: (1) providing certainty for market participants; (2) establishing technology-neutral tax subsidies that advance specific policy goals; (3) promoting American energy independence; and (4) providing targeted support for nascent, cutting-edge technologies to assist their progression from the demonstration phase to commercialization.

Before we discuss these three principles of energy tax policy, we would like to provide an overview of our membership as well as the significant benefits of algae-based biofuel.

The Algal Biomass Organization

As an industry trade association, ABO promotes the development of viable technologies and commercial markets for renewable and sustainable products derived from algae. Specifically, we focus on facilitating the commercialization and market development of algal biomass into fuels that can serve as direct substitutes for petroleum fuels, such as gas, diesel, and jet fuel, as well as producing other renewable fuels like ethanol.

By way of background, algae is one of nature's most prolific and efficient photosynthetic organisms; in fact, it is the source, millions of years ago, of all of the Earth's crude oil. Over the

past two to three years, more than 90 algae-based fuel companies have emerged, each making its own unique contributions to the field. ABO members are among the most prominent firms in the algae-based fuel industry. Most are producing transportation fuels or developing state-of-the-art algae-based biological carbon capture and beneficial reuse applications. For example, Sapphire Energy – a California-based company with operations in San Diego and Las Cruces, New Mexico – has successfully produced 91-octane gasoline (regular, unleaded fuel) that fully conforms to ASTM certification standards. Additionally, Sapphire has also produced renewable diesel and jet fuels that have been successfully tested in two commercial flights (Continental and JAL). Algenol, a Florida-based company, is developing algae-based ethanol, as well as valuable co-products, such as plastics and animal feed. Finally, Solazyme, a California-based company, produced the algal-based fuel used in the military’s first flight ever using algal-based jet fuel in June 2011.

In many respects, algae is an ideal energy crop: algae-based fuels are renewable, produced in the United States, possess a low carbon footprint over their lifecycle, have no adverse environmental impacts, are price-competitive, and can be drop-in fuels that fit seamlessly into the country’s existing energy infrastructure. Thus, algae-based fuels have tremendous potential to ensure America remains an energy-rich country that is fueled by domestically-supplied, environmentally-friendly and cost-competitive fuels. Further, algae-based fuel is not a science fiction fantasy or a theory that works in the test tube but not in application. The algae fuels industry is on the verge of commercialization and is ready to provide viable alternatives to petroleum fuels, either through “drop-in” fuels that are direct substitutes for, and in some respects superior to, traditional petroleum fuels, or other renewable fuels like ethanol. As such, ABO expects that algae-based fuels will have a profound impact on the nation’s economy, energy policy, and national security in the near future. Commercial scale projects are being developed today. We expect to be able to provide significant market volumes – millions of gallons per year – by 2016. And close to 6 billion gallons by 2022.

Energy Density

Algae-based fuels are very low in sulfur, have no benzene, result in superior diesel fuels with high cetane levels, and are slightly higher in energy density than traditional petroleum-based fuels. Algae’s high energy content is due to its unique composition. Nearly all of algae’s biomass is concentrated in the chloroplast – the engine that turns sunlight and CO₂ into organic carbon – so algae does not “waste” energy making stalks, roots, leaves, or fruits. This efficiency leads to very high yields of oil. For example, while palm oil (a first generation biodiesel) can yield 554 gallons of oil per acre, algae can yield approximately 5,000 gallons per acre, increasing the oil output by a factor of ten. In fact, algae produces 50 times more energy per acre than traditional biofuel feedstocks.

Environmentally Sustainable

Algae does not compete with other feedstocks used to produce biodiesel and ethanol. Unlike other feedstocks, algae does not require arable land or potable water. Instead, algae can be grown quickly in brackish or salt water in the desert. Consequently, algae-based fuels do not

pose any of the land use or “fuel versus food” issues which often accompany other types of biofuels.

Further, algae’s short growing cycle makes it scalable to millions of barrels per day. Since a full algae crop can be harvested every 7-13 days, a small amount of land can produce large quantities of algae-based fuel. For example, seven MM acres of algae can displace 15 percent of the country’s transportation fuel; to displace that same amount, corn ethanol requires 90 MM acres.

Impact on Climate Policy

On average, algae fuels have a life-cycle carbon impact that is roughly 2/3 less than that of petroleum-based fuels and significantly lower than other conventional biofuels. Algae-based fuels meet and exceed the 50% reduction in green house gases as required by the EPA in the RFS. One of the reasons for algae’s low carbon footprint is the role that carbon dioxide plays in the cultivation of algae. Carbon dioxide is one of algae’s principal feedstocks. Algae actually consumes enormous amounts of carbon dioxide, drawn from both industrial and atmospheric sources, in its growth process. For example, in order to produce one gallon of crude oil from algae, algae consumes between 29 and 33lbs (13-15 kg) of carbon dioxide. Consequently, the environmental benefits of using algae as a feedstock are exceptional: algae-based fuel provides a “two-for-one” benefit over the use of fossil fuel, by using the carbon dioxide emitted by commercial facilities (such as coal-fired electric utilities) as a feedstock for the production of algae-based fuels that displace traditional fossil fuels with heavy carbon footprints.

Potential of “Drop-In” Fuel Technology

Most algae companies are producing “drop-in” transportation fuel that is fully compatible with the country’s existing energy infrastructure, including the existing network of refineries, pipelines, and terminals and the existing fleet of cars, trucks, and jets. Given the nation’s current fiscal situation, the ability of algae-based fuels, such as green crude, jet fuel, diesel and gasoline, to fit seamlessly into our current fuel infrastructure saves the country billions in additional capital investments needed to make certain renewable fuels compatible with existing infrastructure.

The Practical Prospects for Algae-Based Fuel

ABO recognizes that in order to serve as an alternative to imported oil, algae-based fuels must be cost-competitive in the long term with current and future crude oil prices. Technological advances in the production of algal biomass have brought the industry closer to commercialization and cost-efficient production than ever before. Certain ABO members are undertaking large-scale production projects which, at full scale, will be able to produce one million gallons of fuel annually beginning in 2012. Indeed, as algae fuels move down the cost curve, ABO anticipates that at the point of commercialization, algae-based fuels will be cost-competitive with petroleum fuels at \$75-85 per barrel, producing millions of gallons a year by 2016.

In addition to providing a competitive alternative to petroleum fuels, the rapid expansion of the algae industry has other practical consequences. Currently the algae sector employs, either directly or indirectly, more than 20,000 workers at approximately 100 companies. ABO estimates that once algae fuel production reaches commercial scale in 2022 the industry could provide approximately 107,000 direct jobs. This figure does not include indirect job creation, such as those positions related to infrastructure construction, transportation and shipping, marketing, and other key positions along the value chain. If one includes these ancillary jobs, then ABO's job estimate increases by at least threefold. Further, the jobs being created in the algae fuel industry are steady, high-paying jobs for skilled workers, spanning across a wide variety of educational backgrounds and occupations.

National Security

Algae fuel also has a pivotal role to play in advancing national security interests and weaning the country off of its dependence on foreign oil. For every one dollar increase in the price of a barrel of oil, the U.S. Navy and Marine Corps pays an additional \$30 million in fuel costs. During his testimony before the House Energy and Commerce Subcommittee on Energy and Power in June 2011, Tom Hicks, the Deputy Assistant Secretary of Navy for Energy, testified:

A robust advanced drop-in biofuels market is an essential element of our national energy security. Energy security for the Nation requires unrestricted, uninterrupted access to affordable energy sources to power our economy and our military. Traditional fossil-fuel based petroleum derived from crude oil has increasingly challenging market and supply constraints. Chief among these is limited, unevenly distributed, and concentrated global sources of supply. Advanced biofuels that use a domestic, renewable feedstock provide a secure alternative that reduces the risks associated with petroleum dependence.¹

Accordingly, the Navy has adopted a goal of replacing one-half of conventional petroleum-based fuel use with domestically sustainable fuel alternatives by 2020. As the Navy strives to replace foreign oil with domestic fuel alternatives, algae fuels emerge as one of the few cost-competitive, viable energy sources in the near term. Additionally, the capacity of some algae-fuels to be drop-in fuels further advances the country's path toward energy independence.

Energy Tax Policy

ABO believes that tax policy can play a critical role in supporting and advancing the nation's broader energy policy. Currently, the tax code contains numerous provisions pertaining to energy production or conservation; in 2010, tax provisions specifically targeting energy cost the

¹ *The American Energy Initiative: Hearing on H.R. 909, A Roadmap for America's Energy Future before the H. Subcomm. on Energy and Power of the H. Energy and Commerce Comm.*, 112th Cong. 4 (2011) (statement of Tom Hicks, Deputy Assistant Secretary of Navy for Energy).

country \$37.2 billion.² Although the federal government currently provides significant tax subsidies to the energy sector, often times these subsidies are technology-specific and not well-integrated into broader energy policy goals, such as developing alternative fuel sources to foreign oil. Comprehensive tax reform provides Congress with the opportunity to clearly define the objectives of the nation's energy and tax policies and make sure the two are aligned.

As stated above, ABO believes that tax reform should be guided by basic principles in order to create an energy tax regime that accomplishes certain objectives, including: (1) providing certainty for market participants; (2) establishing technology-neutral tax subsidies that advance a specific policy goal; and (3) providing targeted support for nascent, cutting-edge technologies to assist their progression from the demonstration phase to commercialization. ABO will address each structural feature of the energy tax code below.

Certainty

Currently, the majority of energy tax provisions are temporary. For example, at the end of 2011, 17 energy tax provisions are scheduled to expire.³ Yet while most energy tax provisions are temporary, the vast majority of energy projects are long-term investments. In order to attract the private investment necessary to finance the significant up-front capital costs many of these projects require, tax policy needs to provide long-term certainty to investors. Tax provisions with a long-term horizon enable investors and companies to accurately price projects so that market participants can accurately predict what their rate of return will be years out. For example, a typical biofuels plant could take five years to site and construct; if the production tax credit for the fuel produced by the facility expires in three years, private companies are unlikely to make the investment. Indeed, Robert Carroll, the former Deputy Assistant Secretary for Tax Analysis at Treasury and now a Principal at Ernst & Young, testified before the Senate Finance Committee earlier this year that, "[u]ncertainty over tax provisions also undermines their effectiveness The uncertainty of these provisions makes it difficult for businesses to incorporate them into planning and investment decisions, thereby undermining their effectiveness."⁴

Tax Incentives Should Be Technology Neutral

In effect, tax incentives establish the price the federal government is willing to pay for a certain unit of energy production or conservation. To be economically efficient, the federal government should identify specific goals for its energy tax policy and then craft specific tax incentives that

² U.S. ENERGY INFO. ADMIN., DIRECT FEDERAL FINANCIAL INTERVENTIONS AND SUBSIDIES IN ENERGY IN FISCAL YEAR 2010 xi (2011).

³ STAFF OF JOINT COMMITTEE ON TAXATION, JCX-2-11, 112th CONG., LIST OF EXPIRING FEDERAL TAX PROVISIONS 2010-2020 7-17 (2011).

⁴ *How Do Complexity, Uncertainty and Other Factors Impact Responses to Tax Incentives Hearing Before the S. Comm. on Finance*, 112th Cong. 8-9 (2011) (statement of Robert Carroll, the former Deputy Assistant Secretary for Tax Analysis at Treasury and now a Principal at Ernst & Young).

provide the same dollar amount of subsidy per energy unit regardless of how that energy unit is produced or conserved.

Currently the energy tax code is technology-specific, resulting in several negative consequences. From ABO's perspective, the section 40 production tax credit for alcohol used as fuel excludes certain forms of alternative fuel production, like algae-based fuels, which provide comparable, if not superior, energy benefits to the fuels covered by the credit. More specifically, in recent years Congress has established a series of tax incentives, including a tax credit of \$1.01/gallon for the production of cellulosic biofuel. However, most of these tax incentives are *not* available for algae-based fuel. This is not the result of a policy decision to exclude algae-based fuel; rather, algae-based fuel, which was not well-known when the relevant tax incentives were created, simply does not fit the existing technical definitions. For example, to qualify for the tax credit for cellulosic biofuel under section 40, a fuel must be either hemicellulosic or lignocellulosic, and algae-based fuel is neither. As a result, current federal tax policy actually *discourages* the production of algae-based fuel, by failing to treat it equivalently to the production of other renewable fuels.

To address this disparity, members of Congress have introduced legislation in both the House and Senate that amends the section 40 cellulosic biofuel credit and the section 168(l) bonus depreciation allowance to include not only cellulosic ethanol but also algae-based biofuel.⁵ While ABO believes that Congress should transition to a technology-neutral energy tax regime over the long-term, during the interim transition Congress should amend the existing code provisions to include algae-based fuels. Providing algae-based fuels with tax parity under the existing tax regime enables them to compete on a level playing field with comparable renewable fuels currently covered by the tax code, and ABO strongly supports these legislative efforts.

Indeed, the case of algae-based fuels is only one example of the unintended consequences of a technology-specific tax regime. The tax code contains myriad examples of technology-specific provisions that exclude the newest technologies, forcing Congress to periodically amend the

⁵ Senator Nelson (D-FL), along with Senators Bingaman (D-NM) and Kerry (D-MA) introduced the "Algae Fuel Tax Parity Act" (S. 748) which would include algae-based fuel under both the section 40 production tax credit and section 168 bonus depreciation provisions. H.R. 1149, introduced by Representatives Bilbray (R-CA), Bartlett (R-MD), Bono Mack (R-CA), Carnahan (D-MO), Davis (D-CA), Dreier (R-CA), Hunter (R-CA), and Inslee (D-WA) and cosponsored by Reps. Calvert (R-CA), Filner (D-CA), Hanabusa (D-HI), and Hirono (D-HI), similarly provides tax parity for algae-based fuel, while also allowing algae-based fuel to be used to meet the Renewable Fuel Standard. Most recently, a group of senators introduced the "Ethanol Reform and Deficit Reduction Act" (S.1185) which also provides tax parity for algae-based fuel while scaling back the Volumetric Ethanol Excise Tax Credit and modifying and extending the alternative fuel vehicle refueling property credit. Importantly, in order to be most effective, legislation establishing tax parity for algae-based fuel should also include a special rule in the case of "green crude." Many algae companies use a combination of algae, carbon dioxide, and sunlight to produce unrefined, renewable biocrude rather than renewable finished fuel. This biocrude can then be shipped to conventional refineries where it is refined into finished fuel. The special rule clarifies that the companies producing the green crude, rather than the operators of the conventional refineries, can claim the benefits of the section 40 production tax credit and bonus depreciation allowance. It also clarifies that biocrude which is later refined into renewable fuel does not violate the section 40(b)(6)(F)(iii) exclusion for low-quality fuel, so long as the refined fuel itself produced from the green crude feedstock meets the credit's quality standards.

code to correct these flaws. While Congress can correct these inadvertent exclusions over time, as it is attempting to do in the case of algae-based fuels, a technology-specific tax regime still creates inefficiencies not present in a technology-neutral regime.

A regime which excludes technologies which are equally capable as technologies covered by the code is ineffective and arbitrary; in effect, it undersubsidizes the desirable activities it was designed to incentivize. Additionally, since tax policy directly impacts investment decisions, technology-specific provisions can lead to a misallocation of capital and market inefficiencies. A new technology that is excluded from the tax code may be just as cost-effective and beneficial as an older, covered technology, yet its disparate tax treatment reduces its ability to compete in the marketplace and may make it less profitable than investments covered by the code.

The Valley of Death: Support through Commercialization

ABO believes that energy tax policy should reflect the various phases of business development energy firms undergo. Ultimately, energy tax incentives should support incipient, cutting edge technologies as they grow to reach commercial scale, at which point it may be appropriate for federal tax incentives to be scaled back.

More specifically, tax incentives that are established to foster the development of emerging energy technologies should be designed to help these technologies reach the point of commercialization. Energy projects are typically capital intensive with high variable costs. For example, in the case of emerging advanced biofuels, the main cost component is capital costs, which comprise 35 percent to 50 percent of a firm's costs, followed by feedstock expenses, which comprise 25 percent to 40 percent.⁶ As technologies reach commercial scale, firms move down the cost curve to become more cost-competitive. For example, as solar energy power has increased its scale, the cost of solar photovoltaics modules has fallen by 50 percent.⁷

The practical effect of this cost curve is the "valley of death," which refers to the gap between venture capital and project finance. More specifically, the valley of death is the period of time where a technology is too capital intensive to attract venture capital investment, but too risky to attract bank or private equity investment.⁸ Tax policy should be structured to help start-up firms bridge this gap.

Supporting energy firms to the point of commercialization, at which point their costs often precipitously fall, corrects a market failure in the energy sector. Positive discoveries in technology and modes of production have spillover effects to others in the energy industry, such that while the "first movers" incur all of the costs, the entire industry benefits from their discoveries. The phenomenon of energy costs declining as scale increases has also been characterized by some as the "learning by doing" effect. As a recent CRS report explains,

⁶ INTERNATIONAL ENERGY AGENCY, TECHNOLOGY ROADMAP: BIOFUELS FOR TRANSPORT 31 (2011)

⁷ BLOOMBERG NEW ENERGY FINANCE, CROSSING THE VALLEY OF DEATH: SOLUTIONS TO THE NEXT GENERATION CLEAN ENERGY FINANCING GAP 4 (2010).

⁸ Stephen Lacey, *The Valley of Death: Why Energy is Not like IT*, THE RENEWABLE ENERGY WORLD (September 14, 2010), <http://www.renewableenergyworld.com/rea/news/podcast/2010/09/the-valley-of-death-why-energy-is-not-it>.

“[L]earning-by-doing refers to the tendency for production costs to decline by experience. As firms become more experienced in the manufacturing and use of energy-efficient technologies their knowledge may spill over to other firms without compensation. In energy markets, early adopters of energy-efficient technologies and practices may not be fully compensated for the value of the knowledge they generate.”⁹

Thus, the tax policy of supporting emerging technologies through the valley of death to the point of maturity corrects a market failure and ensures that next generation technologies have the opportunity to compete at full-scale with older, established energy technologies.

Conclusion

ABO would again like to express its gratitude for the Ways and Means Committee’s interest in the future of energy tax policy. Tax policy must support the nation’s broader energy policy. Indeed, as Congress undertakes fundamental tax reform, it is important to remember that America’s tax regime does not exist in a vacuum. Energy is a global commodity and American energy firms often compete internationally. Consequently, the nation’s energy tax policy can play an important role in ensuring that America remains energy-rich and other countries continue to look to her for their energy solutions.

In closing, ABO looks forward to working with the Ways and Means Committee as it tackles energy tax reform to establish an equitable, economically efficient, and purposeful new energy tax regime.

⁹ Margot Crandall-Hollick and Molly Sherlock, CONG. RESEARCH SERV., R41769, ENERGY TAX POLICY: ISSUES IN THE 112TH CONGRESS 3 (2011).

Gregg S. Rosen, President

The American 99ers Union

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Note: All statements contained in this submission for the record are to be attributed to the American 99ers Union

Assessing the President's Proposals to Help the Long-Term Unemployed

As we collectively work toward rebuilding the American economy and getting Americans back to work, we must assure the financial security of all long-term unemployed Americans, until such time as the jobs return. It also must be acknowledged, that with so many out-of-work job-seekers and so few available openings, unemployed workers already face a tough job market. But when employers exclude qualified and job ready applicants based upon; credit scores, employment status and age, at a time when we as a country are still trying to gain some form of economic footing, having just exited the most severe economic downturn since the Great Depression, the job of finding a job becomes impossible.

To this end, the American 99ers Union offers into record, The Four Point Plan to a Fair Recovery Proposal. We strongly recommend these measures be considered and integrated into The American Jobs Act or into existing legislation where applicable.

- 1) According to the Department of Labor, in August 2011 (the most recent official data), 6.0 million individuals were classified as long-term unemployed. As President Obama continues to speak of creating jobs by building bridges throughout the country, the time is now to build a bridge that connects the "long-term unemployed", defined by the Department of Labor (DOL) as those individuals unemployed for 27 weeks or longer and who are guaranteed legislative support in this bill via the extension of unemployment insurance, to the estimated 7.0 million individuals who comprise the "longest-term unemployed", defined as those individuals who are unemployed and have exhausted all State and Federal unemployment insurance. These Americans have no legislative support in this bill, as relates to an extension of unemployment insurance.

No matter what side of the aisle, the question that is asked by both Republican and Democrat is, “Where are the jobs?” The data supplied by The Department of Labor (DOL) as relates to job separation and job creation dating from December of 2007, through to August 2011 (the most recent official data) would suggest that this is not a matter of “lazy Americans”, but rather a “lazy job market”. How are unemployed Americans supposed to afford the costs that are incurred when seeking employment, if they have been without any form of income, in most instances for over eighteen months?

On February 9th 2011 H.R. 589 was introduced. This bill would allow for an additional 14 weeks of extended unemployment insurance for all unemployed Americans. As is widely acknowledged, consumer spending accounts for 70% of all economic activity. The National average for an unemployment check is \$303.00 per week. Allowing those dollars to be invested back into the hands of the 7 million longest-term unemployed, as a country we recognize an immediate return of \$2,121,000,000.00 in economic spending each and every week. If we want to create jobs, we need to once again create demand. In August 2011 (the most recent official data) The National Federation of Independent Business (NFIB) has again reported, “Sales remain the largest problem for small firms.” Couple this data, coming from small business owners across the country, along with the following data:

- The Non-Partisan Congressional Budget Office (CBO) determined on two separate occasions in 2010 the value of extending unemployment insurance. The most recent being on November 15, 2010, when in the CBO’s Fiscal Policy Choices Report, it was stated that, “the single best way to help stimulate the economy and create jobs is to extend unemployment benefits.”
- In the November 18th 2010 U.S. Congress Joint Economic Committee (JEC) Report, it was stated that, “extending unemployment insurance is one of the most powerful and effective tools we have for boosting economic growth.”

There should be no question as to the need to include a provision providing for the addition of H.R. 589 in The American Jobs Act.

- 2) A provision must be included in The American Jobs Act, or an amendment need be added to The Fair Credit Reporting Act of 1970 (codified at 15 U.S.C. § 1681 et seq.) that would prohibit the use of most employee credit checks.

With the loss of a job and the ensuing loss of income in today’s economy, difficult choices need be made as a matter of survival. This can translate into late payments; so long term unemployment can easily mean damaged credit. Should Americans be denied the ability to re-enter the workforce because they chose to pay a bill in 31 days, in order that they put food on their families table, or purchased lifesaving medication for their children?

- 3) A provision must be included in The American Jobs Act that would create tier based tax incentives for business hiring, as relates to the total time an applicant is unemployed through no fault of their own.

Under the President's plan, employers would get a special tax credit of up to \$4,000 for each unemployed person hired who has been out of work for 6 months or more. As previously addressed, this vague terminology creates an environment that allows for discrimination against the longest-term unemployed (those who have exhausted all State and Federal unemployment insurance). By offering graduated tax credits that would correspond to the length of time a new hire was out of work through no fault of their own, incentives would be in place that would create parity for all Americans seeking employment.

- 4) A provision must be included in The American Jobs Act that would create tier based tax incentives for business hiring, as relates to the age of prospective job applicants.

Under the President's plan, employers would get a special tax credit of up to \$4,000 for each unemployed person hired who has been out of work for 6 months or more. Once again, this vague terminology creates an environment that allows for age discrimination against the longest-term unemployed. By offering graduated tax credits that would correspond to the age of a new hire, incentives would be in place that would create parity for all Americans seeking employment.

Creating incentives for businesses to hire the "first waves" who lost their jobs through no fault of their own during the recession of 2007, is preferable than to see Americans who are already suffering, face possible discriminatory hiring practices. It should be assumed that Americans want to return to the workforce as soon as possible, not get involved in lengthy and fruitless legal battles relating to unfair hiring practices. Not at a time when the official estimate is that there are five applicants for every one job and the realities of homelessness and hunger have become the rule rather than the exception.

If both Republicans and Democrats truly want to see all of America's unemployed get back to work, regardless of how they feel this task is best accomplished; the aforementioned obstacles cannot be considered as a matter of debate and need be incorporated into The American Jobs Act to expedite the process of achieving full employment.

Respectfully,

The American 99ers Union

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The Honorable Pat Tiberi, Chairman of the Subcommittee on Select Revenue Measures
The Honorable Richard E. Neal, Ranking Member of the Subcommittee on Select Revenue Measures
The Honorable Charles Boustany, Chairman of the Subcommittee on Oversight
The Honorable John Lewis, Ranking Member of the Subcommittee on Oversight
Ways and Means Committee Office
1102 Longworth House Office Building
Washington D.C. 20515

September 29, 2011

RE: Joint Hearing on Energy Tax Policy and Tax Reform

Dear Chairmen Tiberi and Boustany and Ranking Members Neal and Lewis,

On behalf of the members of the American Biogas Council, I welcome the opportunity to submit the following written comments regarding the Joint Hearing on Energy Tax Policy and Tax Reform held on September 22, 2011.

The American Biogas Council (ABC) is the first and only industry association in the United States dedicated to maximizing the production and use of biogas from organic waste. Our member companies include municipalities, digester designers, equipment providers, farmers, natural gas providers, waste management companies, engineering and law firms, non profits and universities and other organizations covering the entire biogas supply chain. Anaerobic digesters turn waste into baseload renewable energy. They break down organic waste—including manure from livestock operations, wastewater treatment sludge and municipal solid waste—to produce biogas (a combination of methane, carbon dioxide, and trace amounts of other gases), which can then be turned into electricity or used as a substitute for natural gas in transportation or heating. In the U.S. we have only begun to build the biogas industry, which has experienced considerable success abroad. In fact, the methane in renewable biogas could displace

as much as 10-15 percent of current fossil natural gas use by 2025-2035. In rural and urban areas alike, the members of the ABC are creating jobs, and maximizing the efficient use of local resources to make domestic, base-load, renewable energy.

In the background for the joint hearing originally scheduled for August 3, the Chairmen mention three general and differing views regarding energy tax policy: 1) that energy tax provisions are an effective and efficient way to advance important public policy goals; 2) that the current structure of energy tax incentives picks winners and losers; 3) and the tax code should not subsidize energy at all. The ABC would like to address each of these views in turn.

1) Tax provisions are an effective and efficient way to advance important public policy goals like energy independence

Federal energy tax policy is an effective and efficient means for the deployment of renewable energy, including anaerobic digestion technology. With Farm Bill programs that have helped the biogas industry like the Rural Energy for America Program (Section 9007) facing large cuts in the current fiscal environment, federal tax policy will become an even more important driver for deploying technologies that reduce our dependence on foreign oil and create U.S. jobs.

The Renewable Electricity Production Tax Credit (26 U.S.C. §45) is an important source of financial assistance offered for anaerobic digestion projects that produce electricity from open-loop biomass or municipal solid waste. Congress made this credit more flexible in 2009, allowing eligible facilities to elect instead the Investment Tax Credit (26 U.S.C. § 48), which has had very positive effects across the renewable energy sector. When taken in the form of a cash grant through the Section 1603 Treasury Grant in Lieu of Tax Credits program, the incentive becomes even more valuable to small agricultural producers that may not have a large tax appetite but want to invest and expand their operations. Moreover, the cash grant option plays a pivotal role in financing larger capital intensive renewable energy anaerobic digestion projects during this era of economic uncertainty and lending constraint. Its continued availability is critical to advancing the development of renewable energy capacity in the U.S. and in turn advancing the public policy of creating local jobs, increasing domestic energy security, sustainably managing our waste streams, and protecting water quality.

2) Tax policy will always pick and choose, and in this case it should favor innovative renewable technologies with potential to create new industries, and technologies which enhance our energy security.

The argument that renewable energy tax incentives should be scrapped because such policies "pick winners and losers" implies that the government should not incentivize certain technologies even if their development and adoption lead to better national outcomes such as economic growth or energy security. Tax policy should reinforce our national objectives to increase use of sustainable, reliable forms of energy, both to create new industries that can lead the world, and enhance our energy independence. The Defense Department recognizes the need to reduce its dependence on vulnerable and volatile fossil fuel supplies and an increasingly outdated and exposed power grid—all of which is driving the military to explore deeply a full range of alternatives, including biogas. The Department of Defense's 2010 Strategic Sustainability Performance Plan states that "heavy reliance on fossil fuels creates significant risks and costs at a tactical

as well as a strategic level" which can result in "lost dollars, in reduced mission effectiveness, and in U.S. soldiers' lives." The Committee should embrace tax policies that encourage emerging technologies that meet these sustainability objectives.

This investment in our future also spurs domestic economic growth and job creation. A July 2011 Brookings Institution study entitled "Sizing the Clean Economy: A National and Regional Green Jobs Assessment" recognized that while the clean economy can be difficult to adequately quantify, "newer 'cleantech' segments produced explosive job gains" between 2003 and 2010. The report concluded "that vigorous private sector-led growth needs to be co-promoted through complementary engagements by all levels of the nation's federal system to ensure the existence of well-structured markets, a favorable investment climate, and a rich stock of cutting-edge technology."

Over the past decades, federal support has facilitated the emergence of many new industries. Federal support also allows innovative capital intensive energy projects with long-term economic benefits. For example, sizeable federal investments in hydroelectric dams made years ago continue to provide clean, affordable electricity for large portions of the country. Likewise, tax policies incentivizing biogas production will produce reliable, clean energy and economic benefits for years to come.

While beneficial, the energy provisions in the tax code are far from perfect. Most of the favorable tax provisions to fossil fuels were written into the U.S. Tax Code as permanent provisions. By contrast, many renewable energy tax provisions were implemented through energy bills and contain expiration dates that limit their usefulness to the renewables industry. Moreover, even within the sphere of these short-term renewable energy credits, the value of tax credits for different technologies varies, as do the expiration dates. For instance, biogas producers can only take advantage of the \$45 credit if they generate electricity, and this credit expires at the end of 2013, while other technologies have tax credits that extend to the end of 2016. Depending on the rate the utility will pay to buy excess power, a biogas producer may find it more economically feasible to forgo producing electricity and to use the biogas produced on-site for heating purposes. Or the producer may decide to use the biogas as a fuel, either to be used on site or to be cleaned up and sent into a pipeline or used as vehicle fuel.

While using biogas as fuel saves energy, reduces methane emissions, and does not impact food prices, no comparable tax benefit exists for biogas production that is not used for electricity generation. As a 2010 Congressional Research Service report highlighted, "Recent legislation pertaining to agricultural sources of renewable energy has focused primarily on corn-based ethanol and cellulosic ethanol for liquid fuel purposes, and not biogas." Consequently, we support past efforts by Rep. Kind and Sen. Nelson to provide parity for biogas production, no matter the final use. We also support efforts to extend the \$45 open-loop biomass credit until December 31, 2016 so as to be in line with other §48 sunset dates.

Despite the imperfections of the tax code, eliminating renewable energy focused tax provisions is inconsistent with national economic and security interests. Emerging and underutilized technologies like anaerobic digestion increase our energy independence and create domestic jobs. Increasing deployment of these renewable technologies drives down costs, reducing the need for future subsidies. In addition, the United States spends a great deal to ensure our national security. Devoting a small fraction of that

amount to deploying clean energy technologies is a cost effective way to increase our energy security for the long term.

To the extent that federal energy tax provisions pick "winners," they attempt to make certain technologies competitive with traditional fossil fuel energy technologies that have received federal subsidies in a variety of forms over decades, many of which are permanent features of the Code. Consequently, extending renewable energy tax policy is crucial to ensuring a fair and a balanced approach that encompasses a variety of solutions. Allowing renewable tax provisions to lapse while ignoring the permanent provisions in the code for fossil energy would only undermine the Committee's stated aims.

3) The tax code should subsidize energy technologies to the extent that those technologies improve our natural environment and strengthen our energy security

The American Biogas Council agrees that tax provisions that create jobs and enhance energy security should continue. ABC disagrees with those who assert that the tax code should not subsidize renewable energy. While we would welcome a simplified tax code in theory, removing energy tax incentives in the absence of substantive federal non-tax policies such as feed in tariffs, a clean energy standard, or well-funded grant programs would decrease our energy independence.

While the ABC is intrigued by the technology-neutral reverse auction concept proposed by Rep. Nunes, we remain concerned about shifting to an incentive structure where the trust fund is subject to appropriations. The annual appropriations process gives investors little certainty, and it would be a step backwards to eliminate existing tax incentives without an adequate replacement policy. It is also our understanding that the reverse auction would only apply to electricity production and so would not provide any incentive to the deployment of biogas as a fuel.

Anaerobic digestion produces many ancillary benefits apart from producing local jobs and renewable, base load power or biogas—it reduces methane emissions, controls odors and water pollution at livestock operations, and creates a valuable fertilizer product, to name a few. Biogas projects are relatively small and lend themselves to partnerships with local businesses with tax-liabilities that can be offset with participation in a biogas project. While the government must make difficult spending decisions in the coming months, we must also make targeted investments to grow our economy and increase our reliance on clean, domestic sources of energy. Tax incentives for biogas production and electricity from biogas achieve these aims and deserve your support.

The ABC appreciates the opportunity to provide these comments and would be happy to answer any questions the Committee may have. Thank you for your consideration.

Sincerely,



Patrick Serfass
Executive Director



**American
Public Power
Association**

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**Statement of the
AMERICAN PUBLIC POWER ASSOCIATION (APPA)**

**For the
HOUSE COMMITTEE ON WAYS AND MEANS
SUBCOMMITTEE ON SELECT REVENUE MEASURES
And
SUBCOMMITTEE ON OVERSIGHT**

Hearing on Energy Tax Policy and Tax Reform

September 22, 2011

The American Public Power Association (APPA) appreciates the opportunity to provide the following statement for the record for the House Ways and Means Subcommittee on Select Revenue Measures and Subcommittee on Oversight joint hearing on "Energy Tax Policy and Tax Reform."

APPA represents the interests of more than 2,000 not-for-profit, publicly-owned electric utility systems across the country, serving approximately 46 million Americans. APPA member utilities include not-for-profit state public power agencies and municipal electric utilities that serve some of the nation's largest cities. However, the vast majority of these publicly-owned electric utilities serve small- and medium-sized communities in 49 states, all but Hawaii. In fact, 70 percent of our member systems serve communities with populations of 10,000 people or less.

Overall, public power utilities' primary purpose is to provide reliable, efficient service to their local customers at the lowest possible cost, consistent with good environmental stewardship. Like hospitals, public schools, police and fire departments, and publicly-owned water and wastewater utilities, public power systems are locally-created governmental institutions that address a basic community need: they operate on a not-for-profit basis to provide an essential public service, reliably and efficiently, at a reasonable price.

As various tax reform proposals have been developed over the last year, APPA members have seen their access to tax-exempt financing, our most important infrastructure development tool, fall under attack. For example and most recently, a proposal included in the President's American Jobs Act of 2011 would prevent certain high-income earners from using the full tax-exemption on municipal bonds, and this provision would be applied retroactively—an unprecedented proposal in the municipal bond world.

This proposal, even if not enacted, creates an uncertainty in the municipal bond market, given that retroactive elimination of the exemption for certain investors has been proposed for the first

time. In the past, municipal bond investors could feel fairly certain that the investment would remain stable—that is simply not the case now. The President’s proposal, in reality would not be a tax on high-income investors, but a tax on state and local governments. Investors will continue to invest in municipal bonds, demanding a higher yield to make up for the lost benefit, and municipal interest rates will increase. **Any repeal or restriction of tax-exempt financing would be a tax on customers of public power electric utilities and state and local tax-payers, and would therefore result in decreased job creation.**

Background

In 1895, the Supreme Court decided that the federal government could not tax interest on municipal bonds under the U.S. Constitution. The Supreme Court later ruled, in 1988, that subsequent cases had proven that the federal government could, in fact, tax interest on municipal bonds, if it desired, but Congress has wisely refrained from doing so because the underlying “federalism” principle embodied in the original 1895 court case is based in the idea that one level of government should not tax another. For example, state and local governments do not assess property taxes on all the federal property within their jurisdictions. Upsetting the “federalism balance” could lead to unintended consequences.

Benefits of Tax-Exempt Financing

- Results in lower capital costs to public power utilities, which they can then pass along to electricity customers. In addition, tax-exempt bonds result in lower taxes and user fees for states, counties and cities overall—resulting in a lower cost burden for communities. Given the lower cost burden, community services are less likely to be interrupted due to budgetary constraints.
- Creates an economic incentive for government units and public power utilities to continue to make timely investments in infrastructure, thereby keeping the community safe, and keeping electricity distribution efficient.
- Allows government units and public power utilities’ consistent access to a financing tool instead of having to rely on the annual federal appropriations process.
- The legal and regulatory process for tax-exempt bonds is well established, and ensures that states and localities cannot abuse the tax-exemption.
- Provides a natural project viability test. If issuers cannot convince investors of viability, projects are unable to move forward.
- Efficient and affordable way for the federal government to assist states, counties and cities to develop infrastructure and jobs.

Tax-exempt financing is an extremely important tool for public power utilities, and has been important to our nation’s infrastructure development for over 100 years. Any elimination or further restriction of tax-exempt bonds would be a direct tax on local communities and public power rate payers.

D. FOX CONSULTING, LLC

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October 6, 2011

The Honorable Pat Tiberi,
Chairman of the Subcommittee on Select Revenue Measures,
The Honorable Charles Boustany,
Chairman of the Subcommittee on Oversight
Committee on Ways and Means
United States House of Representatives
Washington, DC 20515

Mr. Chairmen, Members of the Subcommittees:

I contact you on behalf of **Bridgeport Biodiesel, LLC.**, located at 146 Andover Street, Bridgeport, CT 06605. Bridgeport Biodiesel is a biodiesel producer. They collect brown "trap" grease from restaurants to use as the feedstock to produce biodiesel and as such, own a fleet of heavy-duty trucks. The natural gas transportation fuel model proven effective in California and other western states is a model they seek to duplicate.

There is an energy crisis in America and Congress must act now. Decreasing our nation's dependence on foreign oil is a critical national security goal. H.R. 1380, the "New Alternative Transportation to Give Americans Solutions" Act of 2011 (NAT GAS) provides a real solution to this vital problem of immediate concern.

The methods and goals of NAT GAS are practical, proven and will enable the nation-wide momentum that is needed to reduce our consumption of foreign oil. The environmental, energy-security and economic benefits to using natural gas as a transportation fuel - particularly, using LNG in high fuel-use fleet vehicles - are significant and real. Natural gas is an alternative transportation fuel that is domestically-available, cleaner-burning and more affordable and stable in pricing than petroleum-based fuels, particularly diesel. Replacing one diesel-fueled heavy-duty tractor with one fueled by LNG has the environmental equivalent of taking as many as 325 gasoline-fueled personal vehicles off of the road.

On March 30, 2011, President Obama spoke at Georgetown University regarding our nation's energy future. In his address, he encouraged fleets to switch to alternative fuels such as natural gas and praised fleets that have already done so. The benefits offered by natural gas as a transportation fuel are shared by the entire country. Cleaner air, self-sustainability and economic savings are collective goods that this Congress must work toward.

The NAT GAS Act offers a concise five-year plan targeted to the segment of the transportation industry that will display the most beneficial results from the legislation's objectives. This kick-start to the transportation industry will confirm and display that natural gas vehicle technology is here and now and that no major technical breakthroughs are needed. The emissions reductions and balance sheets numbers will show that natural gas is a clean and economically viable alternative transportation fuel that must be embraced and encouraged immediately.

The benefits to this bill continue with its job creation facet. At a time when we critically need jobs in our country, according to a study, over half a million jobs will be created by the passage of NAT GAS. Another reality to be felt on "Main Street" is that this bill would help lower the price of gasoline by reducing the demand.

In conclusion, on behalf of Bridgeport Biodiesel, who realizes the undeniable, real multitude of benefits offered by natural gas as a transportation fuel, I urge Congress to pass the NAT GAS Act and help make American proud of your work on behalf of the future of all Americans.

Please contact me if I can provide any additional information on the above. Thank you in advance for your time.

Sincerely,

Deirdre Fox

**Biomass Thermal Energy Council Statement
on Energy Tax Policy and Tax Reform
Hearing of the Subcommittee on Select Revenue Measures and
the Subcommittee on Oversight
House Committee on Ways and Means
September 22, 2011**

The Biomass Thermal Energy Council (BTEC) appreciates the opportunity to share our perspective on federal energy tax policy in the context of comprehensive tax reform. BTEC is an association of biomass fuel producers, forest landowners, appliance manufacturers, combined heat and power project developers, supply chain companies and non-profit organizations that view biomass thermal energy as a renewable, responsible, clean and energy-efficient pathway to meeting America's energy needs. BTEC engages in research, education and public advocacy for the biomass thermal energy sector.

Summary

Our nation's tax code has long played a key role in shaping and influencing national energy policy. In the renewable energy arena, the code features numerous incentives for most renewable energy technologies in residential, commercial and industrial installations. In fact, analysis provided by the Joint Committee on Taxation in preparation for this hearing lists 80 separate energy-related tax provisions in existing law. Unfortunately, none of these incentives extends to high efficiency biomass thermal energy, despite the fact that biomass thermal energy fulfills all the same public policy objectives as other renewable energy sources. Examples of biomass thermal projects and technologies include heating of homes, businesses, commercial and industrial buildings; district heating of campuses, densely developed commercial and industrial parks; and whole neighborhoods and city downtowns; domestic hot water for large consumers such as hospitals; industrial process heat for companies in food processing, metallurgy, and pharmaceuticals, and combined heat and power projects that produce both heat and electricity for consumers.

BTEC strongly supports tax reform efforts that provide a level playing field for competing energy technologies. Specifically, we propose parity in tax incentives for high efficiency biomass thermal combustion technology to include:

- Eligibility for the 30 percent residential renewable energy tax credit under section 25D of the Internal Revenue Code
- Eligibility for the 30 percent business energy investment tax credit under section 48 for commercial and industrial installations.
- Accelerated depreciation of capital investments similar to what also exists for other renewable technologies, including biomass electric generation.

The incentives will help build a market for high efficiency systems that can reduce American dependence on foreign fossil energy, reduce greenhouse gas emissions, and create jobs and local economic development from a renewable domestic energy resource.

Including biomass thermal in Sections 25D and Section 48 will provide the highest possible return for the country in terms of reductions in fossil fuel imports and jobs created. Per dollar of federal support, biomass heating displaces ten times more fossil fuel than solar installations or ethanol and is proven to create a greater number of ongoing jobs. Biomass has accounted for 40 percent of the renewable energy jobs in Germany, more than wind, solar or liquid fuelsⁱ. Even if the existing incentive levels were reduced to address current fiscal constraints, inclusion of biomass among renewable energy incentives will provide the United States the greatest possible economic growth from that investment.

Background

America's energy consumption can be divided into thirds: roughly one-third transportation, one-third electricity, and one-third heat (or thermal). Energy policy to promote renewable energy has focused almost entirely on transportation fuels such as ethanol and biodiesel, and electricity from hydro, wind, solar, geothermal and biomass. These fuels and technologies have received support from the federal government in the form of production and investment tax credits, accelerated depreciation, research and development funding, direct project grants, and renewable energy credits (e.g. state-level renewable electricity programs). The 2005 Energy Policy Act, the 2007 Energy Independence and Security Act, and the 2009 American Recovery and Reinvestment Act boosted support for these technologies in many areas.

Absent from the list of qualifying technologies is biomass used to make thermal energy for space heating or industrial process heat. Congress overlooked biomass thermal in 2005, 2007, and 2009 because many lawmakers were unaware of the potential of biomass thermal to cost-effectively address American energy and clean air challenges. As Congress begins to the task of reforming our nation's tax code and reviewing its energy-related provisions, we have the opportunity to correct this oversight.

Potential of Biomass Thermal

Biomass can be used to make heat or combined heat and power in many forms: densified biomass such as pellets or briquettes, wood chips, agricultural residues, fast-growing woody energy crops such as willow and poplar, and grasses such as switch grass or *Miscanthus*. The United States Department of Agriculture (USDA) estimates that there are 1 billion tons of forest and agricultural residues that can be produced sustainably each year for energy. In regions such as the northeast and north-central states that rely heavily on imported fossil energy for home and business heating, biomass has the potential to greatly reduce our consumption of heating oil, propane, and natural gas. The northeast, in particular, is extremely vulnerable to heating oil price shocks and supply disruptions; in that region, biomass can sustainably offset as much as 25% of oil used to heat homes and businessesⁱⁱ.

Super clean, highly efficient combustion technology is rapidly entering the domestic US marketplace. Efficient fuel distribution systems are in place to expand the adoption of central heating systems in home and business heating, industrial process heat, district heating of whole communities, and combined heat and power. This proven technology has been widely deployed in Europe in homes, schools, municipal buildings, factories and any other large institutional, commercial or industrial setting.

Public Interest

Biomass thermal fulfills all the same public policy objectives that are by necessity the basis and justification for renewable energy tax incentives. These include:

- Reduced consumption of foreign fossil energy, thereby increasing America's energy independence
- Increased efficiency of utilization for equivalent energy output, as compared to biomass electric generation and cellulosic biofuels
- Reduced emissions of greenhouse gases due to the carbon neutrality of biomass
- Reduced emissions of certain air pollutants such as sulfur dioxides and mercury, as compared to fossil fuels
- Strengthened local economic development and job creation through domestic production of fuels, system installation and service, and fuel distribution.

Why Are Tax Incentives Necessary?

Because of the relatively small market penetration of new biomass combustion, these systems are expensive compared to fossil-fueled systems: installed systems can cost twice as much as a similarly sized oil or gas system. Fuel transport logistics have yet to reach critical mass with few customers spread over large geographic areas, thus increasing the unit cost of fuel distribution. Incentives are necessary to make biomass thermal technology more competitive in the market. In time, with increasing market penetration, these incentives can be scaled down or eliminated. As an example, in Europe, there is a thriving biomass heating business employing tens of thousands of people – and the supply of these fuels continues to be cost competitive, even without ongoing government subsidies.

Crafted correctly, incentives can satisfy the twin objectives of supporting innovation while attracting private capital that is critical to driving long term economic growth.

Conclusion

The current fiscal environment in which our nation is operating necessitates that tax payer dollars be deployed in a manner that maximizes return on investment. BTEC believes that investment in technologies like biomass thermal that achieve optimal efficiency and job creation potential should be a focus of energy tax reform efforts moving forward. We look forward to working with the Committee as it begins its work on this critical issue.

ⁱ <http://www.renewableenergyworld.com/rea/news/article/2008/04/renewable-energy-jobs-soar-in-germany-52089>

ⁱⁱ Northeast Thermal Biomass Working Group 2025 Vision, <http://www.nebioheat.org/vision.asp>

Submitted By:

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Using Tax Policy to Support Advanced Truck Technologies

**Comments from Bill Van Amburg, CALSTART Senior Vice President
CALSTART and the Hybrid, Electric, and Advanced Truck Action Group (HTAG)**

**U.S. House of Representatives Committee on Ways and Means
Subcommittees on Select Revenue Measures and Oversight
Joint Hearing on Energy Tax Policy and Tax Reform**

CALSTART and the Hybrid, Electric, and Advanced Truck Action Group (HTAG) thank the House Committee on Ways and Means, subcommittee Chairman Tiberi and subcommittee chairman Boustany, and committee members for the opportunity to share our knowledge on energy tax policy as it relates to advanced truck technologies. As noted by Chairman Tiberi, “Energy security and comprehensive tax reform are two of the most important priorities we can pursue to create jobs and ensure the long-term strength of the U.S. economy.” We agree, and our comments here will focus on the role of the tax code in driving advances in transportation technologies and reductions in oil usage.

In that regard, we believe the core recommendations we will share with you can be summarized as follows:

- Addressing energy security (oil reduction) requires targeting actions in transportation, not stationary power; transportation uses 70 percent of the nation’s oil;
- Transportation has received much less funding and other support than other sectors in relation to its energy security benefits, particularly medium- and heavy-duty vehicles (commercial trucks and buses);
- Commercial trucks and buses are “big bang for the buck” platforms; individually they are the nation’s biggest fuel users, and targeted assistance/tax credits for these vehicles can reap great benefits for fewer dollars than other segments; a truck can use three to thirty times the fuel use of a car
- US companies are currently leaders in advanced, fuel efficiency technologies for trucks such as hybrid and electric drive systems; targeted assistance here benefits energy security and American jobs;
- In an age of tough choices there are several pieces of targeted tax credit legislation already proposed, at extremely reasonable (low offset) cost, that can have tremendous benefits for US industry and oil use.

These comments outline and provide detail for these recommendations and your consideration.

CALSTART and HTAG: Working Together to Support Advanced Truck Technologies

CALSTART is North America’s leading advanced transportation technologies consortium. It is a national, fuel and technology neutral, non-profit organization with more than 150 private industry company as well as public agency members, dedicated to expanding and supporting a high-tech advanced transportation industry that addresses energy security through reducing imported oil use while also reducing air emissions and creating economic opportunity. We operate across all fuels and technologies, and across all vehicle platforms sizes, from two-wheeled vehicles through heavy-duty trucks. We target those solutions that can achieve multiple benefits.

As one example of CALSTART’s work across multiple technologies and fuels, one of our major programs in efficiency and oil reduction is the Hybrid, Electric and Advanced Truck Users Forum (HTUF). HTUF is operated by

CALSTART in a unique partnership with and under contract to the U.S. Army Tank-Automotive Research, Development and Engineering Center (TARDEC) – National Automotive Center (NAC)¹. Its focus has been to speed the development deployment of dual-use (military and commercial) technologies to increase the efficiency of commercial and military vehicles.

The Hybrid, Electric and Advanced Truck Action Group (HTAG) is a group of HTUF stakeholder companies that have come together to advocate for strong and consistent policies to advance the industry. Current Steering Committee members include Azure Dynamics, BAE Systems, Bosch Rexroth, Daimler Trucks, Eaton Corp, FedEx Express, Meritor, and Volvo Group.

Advanced Truck Technology Investments Should be Part of Portfolio Approach to Energy Policy

Nearly 70 percent of the oil used in the United States goes for transportation according to the U.S. Energy Information Agency. To effectively address energy security and oil use, we must make transportation the top focus of our national efforts. It is therefore very important to ensure that any “clean energy” discussions include a focus on policy options and approaches for supporting advanced transportation technologies.

While it is tempting to fix on attractive single solutions, CALSTART strongly believes there is no “silver bullet” able to address our national energy and oil dependence challenges, no one fuel or technology that alone can effectively reduce our petroleum use to the degree needed. Rather, we recommend a “silver buckshot” strategy, advocating a portfolio approach to policy, technology development and market support decisions. Though clean power generation and passenger cars have traditionally received the most attention, the truth is that hybrid, electric, and advanced trucks are a vitally important piece of this clean energy portfolio. Medium- and heavy-duty vehicles use roughly a third of the fuel consumed in U.S. transportation, and on a single vehicle basis are easily the highest fuel use vehicles on our roads. They represent a “big bang for the buck” opportunity for oil reduction that has been insufficiently addressed.²

Currently there are tax credits of up to \$7500 for encouraging consumers to purchase electric cars. These are important incentives and we support this targeted assistance to a new market. At the same time, however, **a hybrid or electric truck may reduce oil use by three to ten times or more the reductions from an advanced passenger car, yet receives no assistance at all** (there are proposed tax credits to address this). From a public policy perspective, therefore, advanced trucks can be extremely cost effective and targeted ways to reduce transportation oil use.

As a final point, a just-published Quadrennial Technology Review of the Department of Energy has concluded that the agency has greatly underinvested in transportation compared to stationary energy, particularly in

¹ The NAC is the Army’s outreach arm to the commercial transportation industry, and is charged with both understanding the capabilities of the commercial vehicle industry and working to increase the capabilities of the industry to build advanced vehicles and technologies that can support emerging Army and military needs.

² The federal government has been very proactive in providing tax policy support for advanced passenger vehicles. Currently, there is a tax credit of up to \$7,500 available for car-buyers who purchase electric and plug-in electric vehicles. However, despite the higher per-vehicle petroleum and emissions reduction benefits of advanced technology medium- and heavy-duty trucks, there is no tax credit available for these vehicles. We believe that tax policies should be performance-based, with support that is commensurate with the benefits provided by a given technology.

deployment of vehicles. And trucks get much less than cars. In other words, transportation in general receives far too little funding related to its energy security benefits, and the biggest areas of benefit receive the least. The tax code is one important avenue for supporting this industry.

There is a strategic opportunity in this sector, as well, for **economic leadership and job growth**. The U.S. is currently the world leader in advanced efficiency technologies for trucks and buses, particularly in hybrid and electric drivelines, presenting a tremendous opportunity for job growth. A recent Duke University – Center on Globalization, Governance and Competitiveness report identifies these technologies as areas in which the United States has a strategic advantage as an early leader. The particular areas it researched were electric hybrid and hydraulic hybrid drive systems and the growing high tech component industry supply chain in the United States to produce them. Additionally, the Union of Concerned Scientists and CALSTART last year completed a report on the economic and job growth opportunities from high efficiency trucks. It documented that 124,000 jobs can be created along with \$24 billion in economic savings over the next two decades through expansion of efficiency throughout medium- and heavy-duty vehicles. Demand for these technologies is growing in China and other countries around the world, and the U.S. stands to gain as the current industry leader. With strategic investments now to maintain our leadership, this industry can become a source of exports.

This is of even greater importance given the emerging regulatory pressure to increase efficiency from the National Highway Transportation Safety Administration (NHTSA) and the Environmental Protection Agency (EPA). The first standards for fuel efficiency in medium- and heavy-duty vehicles go into effect as early as 2014. Policies that can support the industry's work to develop and produce these new technologies will be extremely timely and helpful.

Advanced Truck Industry Status and Needs

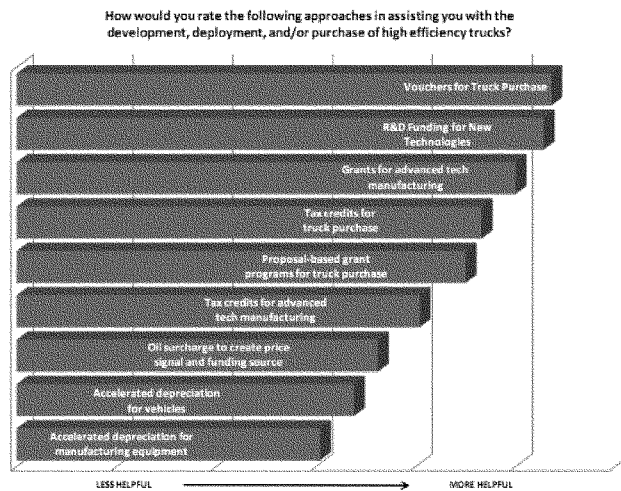
Advanced truck technologies are at a new threshold level in America: they are ready for greatly expanded deployment, support and use. Approaches that ten years ago were still in early or developmental stages are more mature and increasingly cost effective, particularly on an operational basis when capital costs for ownership can be reduced at the time of purchase. The currently high cost of fuel is an important additional inducement to consider these technologies and fuels. However, the great price volatility of fuel confuses manufacturers and users alike in terms of when to make investments in vehicles with these technologies and fuels.

The capital costs – in the form of incremental cost beyond the conventional vehicle – are generally still relatively high because of low volume production and first or second generation designs. Hybrid technology in trucks, for instance, is roughly ten years behind its introduction in cars. Additionally, there are also some barriers in terms of first-time costs for fueling/charging infrastructure in the case of some fuels and technology as the transition to these approaches is made. This is true of the re-emergence of electric drive in passenger cars and its new emergence in all-electric commercial trucks.

Given these observations, CALSTART has identified with its industry and fleet partners the core needs for continuing momentum in technologies and fuels that reduce oil use, and they fall along the general stages of development:

- Consistent, targeted funding of research and development in advanced vehicles systems and partnerships to assist manufacturers transition to new technologies
- Funding partnerships with fleets and manufacturers to speed pilot projects and validate performance and reliability
- Manufacturing assistance in the form of grants to tax credits for retooling and facility expansion
- Fleet-focused purchase assistance in the early market stage to speed introduction and rapidly increase manufacturing volume

Industry stakeholders agree that tax policy has an important role to play in addressing these needs. Recently CALSTART completed a report – “Speeding High Efficiency Truck Adoption: Recommended Policies, Incentives and Investments” – that addressed this topic. It was informed by research and a task force of industry stakeholders, including fleet vehicle users, manufacturers and suppliers. The findings from the report are highly instructive. They identify the top measures the industry feels would speed the development, production and purchase of more-efficient vehicles (see below).



The top measures identified by industry were those measures to assist vehicle purchase, thus encouraging greater production and supporting industry investment, and longer term R&D efforts, to partner with industry to keep the next generation of technology in the product “pipeline” and moving to market. **Consistent, predictable, and long-term tax credits for truck purchase and technology manufacturing were cited as important tools**, though they are not sufficient on their own. Industry stakeholders would also like to see a simplified purchase “voucher” program such as the Hybrid Truck and Bus Voucher Incentive Program currently in

place in California.³ They would also like to see expanded support for research, development, and demonstration (including testing and validation) through grants or other structures. Finally, the industry cites a need for manufacturing support in order to maintain our lead in this space.

What this industry needs is a comprehensive set of policies to provide a **consistent and supportive business environment**. Ideally, this could be accomplished through stable, long-term standards and incentives (including tax incentives) that are performance-based. We recognize that resources are limited and that the federal government must make difficult choices when deciding where to invest public dollars. We therefore suggest a performance-based approach focusing on solutions that achieve multiple benefits, including energy security, job creation, and pollution reduction. The most valuable approaches achieve these multiple benefits. As laid out above, efficient and advanced truck technologies address all three of these goals and offer good “bang for the buck.” There are also creative reform and repurposing measures that could be undertaken to utilize existing programs and appropriations and direct their funding to more directed purposes, such as supporting US technology deployment.

Specific Tax Policy Recommendations

Today, advanced truck technologies cost more to produce and purchase than conventional technologies. However, the widespread adoption of advanced truck technologies promises multiple benefits for our country. Tax policy is a proven and valuable way to help address outstanding barriers and accelerate the development and deployment of advanced truck technologies. **Tax incentives should be stable, long-term, and predictable.** The certainty provided by longer term incentives will help attract private investment and drive purchase decisions. Incentive should be allowed to sunset once they are no longer needed, but incentives that are repeatedly allowed to lapse or only extended in one year increments will do little to change business investment decisions.

Additionally, **purchase incentives should be performance-based and technology-neutral**, providing rewards that are based on the overall benefits achieved, and not tied to the specific technology employed. Performance-based incentives encourage technological innovation and diversification, rather than artificially slanting the market toward one politically popular technology. Tying rewards to performance also helps to maximize the return on investment, as large incentives are reserved for technologies that yield the greatest benefits. The increasing incentive amounts encourage technology developers to aim high, and allow fleets to purchase the most advanced technologies that benefit them, despite their higher price tags, leading to earlier action and accelerated reductions of fuel use. From a tax policy perspective, the goal should be to design a tax incentive that is directly tied to a clear set of performance metrics. We recommend using metrics that take into account our multiple related policy goals, including energy security and pollution reduction. We recognize that this is not

³ The HVIP program run through the California Air Resources Board (CARB) provides simplified purchase voucher funding for hybrid trucks and buses. This voucher approach has several advantages over other incentive structures. First, the voucher directly reduced capital costs at the point of purchase. This is the equivalent of actually reducing the purchase price. This approach is valuable for fleet managers who are working with fixed budgets and may never see the advantages of tax credits. Additionally, tax-exempt entities such as government fleets are able to take advantage of the voucher, whereas they cannot take advantage of tax credits. Finally, the program provides certainty for participating fleets, as it has clear rules, set incentive amounts, and does not require a time-consuming grant-writing process.

always easy to achieve in practice, but we do recommend a flexible and inclusive approach to tax policy that provides incentives for technologies that achieve our national policy goals.

In past years, there was a tax credit for the purchase of hybrid medium- and heavy-duty vehicles. This credit, known as Section 30B, has expired. There are currently two pieces of legislation that would extend and enhance this tax credit so as to provide the longer-term certainty needed to support the hybrid truck industry:

- **S.1285 Hybrid and Electric Trucks and Infrastructure Act (Kohl, Blunt)**
- **S. 298 Charging America Forward (Stabenow)**

Both of these bills would extend the 30B credit for multiple years while updating the incentive amounts to recognize current costs and technologies. CALSTART, HTAG, and HTUF Stakeholders believe that the expanded and extended tax credit would be invaluable in helping make the business case for these technologies. We encourage your support for this legislation.

Additionally, tax policy can be used to encourage research and development and manufacturing of advanced technologies. We encourage the Committee to continue searching for opportunities to advance our energy security and related goals through smart tax policy. **A performance-based, technology-neutral approach to tax policy would support a broad portfolio of solutions.**

* * * * *

Tax Incentives for Clean Trucks: A Near Term Need and Opportunity

The advanced truck technologies industry is a potential bright spot for the U.S. economy. American companies are currently world leaders, but assistance is needed to now maintain the momentum. The industry is at a critical stage and on the threshold of a successful launch. Tax policy has an important role to play in supporting this launch, and the bills outlined above represent a very important first step. ***Investing in this sector now through smart tax policy will pay significant dividends over time in the form of reduced petroleum dependence, increased energy security, cleaner air, reduced operating costs for trucking fleets, and increased jobs and export opportunities for world-leading U.S. companies.*** Well-designed tax incentives will lay the foundation for a growing industry that has the ability to address numerous policy priorities for our nation.

Comments for the Record
House Ways and Means Committee
Subcommittee on Select Revenue Measures
Subcommittee on Oversight
Joint Hearing on Energy Tax Policy and Tax Reform
 September 22, 2011, 9:30 AM

By Michael G. Bindner
 Center for Fiscal Equity

Chairmen Tiberi and Boustany and Ranking Members Neal and Lewis, thank you for the opportunity to submit comments for the record on these issues.

There are three aspects to consider regarding whether energy policy should be conducted through the tax code: energy taxes as transportation user fees; energy taxes as environmental sin taxes and energy tax policies as a subsidy for business. How to design provisions for a sustainable energy policy and tax reform will be discussed for each of these areas and we will address certain oversight questions on whether current tax provisions have been implemented efficiently and effectively, although we will leave most of the latter analysis to the scheduled witnesses, as well as analysis of H.R. 1380, the NAT GAS Act.

Energy Taxes as Transportation User Fees

The most familiar energy tax is the excise tax on gasoline. It essentially functions as an automatic toll, but without the requirement for toll booths. As such, it has the advantage of charging greater tolls on less fuel efficient cars and lower tolls on more efficient cars, all without requiring purchase of a EZ Pass or counting axles.

It is a highly efficient tax in this regard, although its effectiveness is limited because it has not kept pace with inflation. This could be corrected by shifting it from a uniform excise to a uniform percentage tax – however because the price of fuel varies by location, there may be constitutional problems with doing so. The only other option to increase this tax in order to overcome the nation's infrastructure deficit – which is appropriately funded with this tax – is to have the courage to increase it.

In this time of high unemployment, such an increase would be a balm to economic growth, as it would put people back to work. Given the competitive nature of gas prices, there is some question as to whether such an increase would produce a penny for penny increase in gasoline prices. If the tax elasticity is more inelastic than elastic, the tax will be absorbed in the purchase price and be a levy on producers. If it is more elastic, it will be a levy on users and will impact congestion (and thus decrease air pollution and overall conservation). For many citizens, either prospect is a win-win, given concerns over both climate change and energy industry profits. The only real question is one of the political courage to do what is necessary for American jobs and infrastructure –and that seems to be a very open question.

Energy taxes are currently levied through the private sector, rather than through toll booth employees, which from the taxpayer point of view is a savings as it externalizes the pension and benefit requirements associated with hiring such workers.

In the event that gasoline cars were replaced with electric cars, given either improvements in battery charging technology or in providing continuous supply through overhead wires, much in the same way that electric trains and busses receive power, any excise per kilowatt for the maintenance of roads could be collected in the same way – or the road system could be made part of a consortium with energy providers, car makers and road construction and maintenance contractors – effectively taking the government out of the loop except when eminent domain issues arise (assuming you believe such a tool should be used for private development, we at the Center believe that it should not be).

The electric option provides an alternative means to using natural gas, besides creating a gas fuelling infrastructure, with natural gas power plants providing a more efficient conduit than millions of internal combustion engines. The electric option allows for the quick implementation of more futuristic fuels, like hydrogen, wind and even Helium3 fusion. Indeed, if private road companies become dominant under such a model, a very real demand for accelerated fusion research could arise, bypassing the current dependence on governmental funding.

In the event of comprehensive tax reform, the excise for fuel would be either a component of or an addition to any broad based Value Added or VAT-like Net Business Receipts Tax. The excise should not disappear into such a general tax, as doing so would have the effect of forcing all businesses to fund transportation on an equal percentage, regardless of their use of such infrastructure. Of course, like a VAT, any gasoline excise would be accounted for using the credit receipt method, so that cascading taxes would not occur, as they do now with this excise functioning as hidden levy.

Energy Taxes as Environmental Sin Taxes

Carbon Taxes, Cap and Trade and even the Gasoline Excise are effectively taxes on pollution or perceived pollution and as such, carry the flavor of sin taxes. As such, they put the government in the position of discouraging vice while at the same time trying to benefit from it. Our comments above as to whether the tax elasticity of the gasoline excise has an impact on congestion and pollution is applicable to this issue, although tax inelasticity will mute the effect of discouraging “sinful” behavior and instead force producers to internalize what would otherwise be considered externalities – provided of course that the proceeds from these taxes are used to ameliorate problems of both pollution (chest congestion) by paying for health care and traffic congestion in building more roads and making more public transit available – while funding energy research to ease the carbon footprint of modern civilization.

Oddly enough, this approach was once considered the conservative alternative to other more intrusive measures proposed by liberals, like imposing pollution controls on cars and factories or simply closing down source polluters. When those options are taken off the table, however, or are considered impractical, then the concept of environmental sin taxes becomes liberal and no action at all becomes the conservative position.

These use of environmental sin taxes is by nature much more efficient economically than pollution controls and probably also more efficient than allowing producers and consumers to benefit from externalities like pollution, congestion and asthma. As with transportation funding, such taxes are only effective if they actually provide adequate funding for amelioration or otherwise change consumer behavior. If the politics of the day prevent taxes from actually accomplishing these objectives, then their effectiveness is diminished.

The short term political win of keeping taxes too low can only work for so long. Reality has a way of intruding, either because infrastructure crumbles, congestion becomes too high, children become ill with asthma (for full disclosure purposes, I suffered from this after moving downwind as a child from an Ohio Edison coal plant) and sea levels rise – destroying vacation homes and the homes of those who support them – and if Edgar Cayce is to be believed – the states that are the heart of the Republican base.

The role of energy taxes as sin taxes are preserved in comprehensive tax reform only if they are preserved in addition to value added and net business receipts taxes. If there is no separate tax or higher rate for these activities, there is no sin tax effect and the “sin” is effectively forgiven with any amelioration programs funded by the whole of society rather than energy users.

Oddly enough, because the Center does not mention carbon taxes or cap and trade in our standard proposal, liberal commentators on Daily Kos criticize its lack and assume we don’t believe in them at all. This is far from the case, as our proposals say nothing about replacing such taxes with our proposed VAT and NBRT. Our proposal is to replace low and mid rate income taxes, corporate income taxes and non-OASI payroll taxes with these revenues. We simply don’t touch the question of any other excise. This shows how much the fortunes of energy taxes have changed since Vice President Gore suggested their inclusion in President Clinton’s tax proposals.

Energy Tax Policies as a Subsidy for Business

There are quite a few ways in which energy tax policy subsidizes business. The most basic way is the assessment of adequate energy taxes, or taxes generally, to pay for government procurement of infrastructure and research. If tax reform does not include adequate revenue, the businesses which fulfill these contracts will be forced to either reduce staff or go out of business. Government spending stimulates the economy when more money is spent because taxes are raised and dedicated (or even earmarked) for these uses. Eliminating specific energy taxes in tax reform forces this work into competition with other government needs.

Let me be clear that the Center does not propose such a move. Our approach actually favors more, not less, identification of revenues with expenditures, reducing their fungibility, with the expectation that taxes increase when needs are greater and decrease when they are met, either through building in advance of need or finding an alternative private means of providing government services.

The more relevant case to Committee's question is the existence of research and exploration subsidies as they exist inside of more general levies, such as the Corporate Income Tax. To the extent to which tax reform eliminates this tax and replaces it with reforms such as the Net Business Receipts Tax (which taxes both labor and profit), such subsidies are problematic, but not impossible to preserve.

This is one of the virtues of a separate Net Business Receipts Tax, rather than replacing the Corporate Income Tax with a VAT or a Fair Tax – which by their nature have no offsetting tax expenditures. The challenge arises, however, when the existence of such subsidies carry with them the very justified impression that less well connected industries must pay higher taxes in order to preserve these tax subsidies. Worse is the perception, which would arise with their use in a business receipts tax, that such subsidies effectively result in lower wages across the economy. Such a perception, which has some basis in reality, would be certain death for any subsidy.

One must look deeper into the nature of these activities to determine whether a subsidy is justified, or even possible. If subsidized activities are purchased from another firm, the nature of both a VAT and an NBRT alleviate the need for any subsidy at all, because the VAT paid implicit in the fees for research and exploration would simply be passed through to the next level on the supply chain and would be considered outside expenditures for NBRT calculation and therefore not taxable. If research and exploration is conducted in house, then the labor component of these activities would be taxed under both the VAT and the NBRT, as they are currently taxed under personal income and payroll taxes now.

The only real issue is whether the profits or losses from these activities receive special tax treatment. Because profit and loss are not separately calculated under such taxes, which are essentially consumption taxes, the answer must be no. The ability to socialize losses and privatize profits through the NBRT would cease to exist with the tax it is replacing.

If society continues to value such subsidies, they would have to come as an offset to a carbon tax or cap and trade regime, if at all, as the excise tax for energy is essentially a retail sales tax and the industrial model under which the energy industry operates insulates the gasoline excise from the application of any research and exploration credits. If the energy companies were to change their model to end independent sales and distribution networks and treat all such franchisees as employees (with the attendant risk of unionization), then the subject subsidies could be preserved – provided that the related energy tax is increased so that the subsidy could actually operate – favoring those who participate in research and development and penalizing those who do not.

In other words, if big oil wants to keep this subsidy when there are no corporate income tax, it must buy up all its franchisees and allow the government to double the gasoline tax with a deduction at payment for research and exploration.

Without taxes, there can be no subsidy.

The last subsidy issue involves the use of a Value Added Tax as an oil import fee. If the VAT replaces some percentage of current employee and investor income taxes, domestically produced energy products become more competitive on the world market, provided that the VAT is border adjustable, which it would be. For example, if Alaska crude is shipped to Japan for refining and use or western low-sulfur coal is shipped to China, it would be cheaper than the same product shipped under today's tax system.

The NBRT would not be border adjustable because it is designed to pay for entitlement costs which benefit employees and their families directly, so that it is appropriate for the foreign beneficiaries of their labor to fund these costs. Additionally, the ultimate goal of enacting the NBRT is to include tax expenditures to encourage employers to fund activities now provided by the government – from subsidies for children to retiree health care to education to support for adult literacy. Allowing this tax to be zero-rated at the border removes the incentive to use these subsidies, keeping government services in business and requiring higher taxation to support the governmental infrastructure to arrange these services – like the Committee on Ways and Means.

Thank you again for the opportunity to present our comments. We are always available to discuss them further with members, staff and the general public.

Contact Sheet

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Joint Hearing on Energy Policy and Tax Reform
September 22, 2011, 9:30 AM

All submissions must include a list of all clients, persons and/or organizations on whose behalf the witness appears:

This testimony is not submitted on behalf of any client, person or organization other than the Center itself, which is so far unfunded by any donations.



Mr. Chairman and Members:

Thank you for inviting me to speak with you today. My name is Kate Offringa and I am the President and CEO of the Council of the North American Insulation Manufacturers Association (Council of NAIMA).

The cheapest, cleanest, and most reliable energy comes from more efficiently using the energy we already produce. More than 46 million American homes are under insulated, and many commercial buildings also lack adequate insulation. Installing proper levels of insulation would immediately lower energy bills, create jobs and decrease energy usage. If American homes were properly insulated, we could save 30 times the amount of energy lost in the 2010 Gulf oil spill.

Best of all, we don't need to locate new reserves or develop new technologies: High quality insulation is available today and can be installed tomorrow. The challenge is incentivizing people to install and retrofit that insulation into new and existing homes and buildings.

One important way to achieve this goal is to expand and extend a tax credit that rewards homeowners for installing energy efficient products and equipment. First established in the 2005 Energy Policy Act, the provision known as "25(C)" – or technically known as the "nonbusiness energy tax credit" – has helped tens of thousands of homeowners across the country save substantial amounts of money on monthly energy bills. Since January, it provides a tax credit of 10 percent – up to \$500 – for insulation, heating, ventilation, and air conditioning equipment, energy-smart windows and other products designed to save energy.

25C has enjoyed deep bipartisan support on Capitol Hill and has been extended several times. The credit was also expanded to triple its current size in 2009 and 2010. As a result, the number of homeowners taking advantage of 25(C) in these years increased substantially from previous years.

The insulation industry strongly supports extension of 25C at the highest levels the Congress can manage in light of budget constraints. In addition, 25C should be amended to allow homeowners to include the cost of labor necessary for the installation of insulation. Currently, labor costs, which can amount to half of the cost of installing insulation, are excluded without any sound public policy basis. Including labor will help put insulation on more equal footing with other products such as windows and HVAC units, whose labor costs are already included in the credit. More importantly, it will put qualified contractors and installers – hard hit by the current economy – back to work.

In addition to 25C, there are several other important tax incentives aimed at boosting energy efficiency. The Energy Efficient New Homes Tax Credit – known as 45L -- allows homebuilders to receive a \$2,000 credit for every new home they build that is 50 percent more energy efficient than code in regard to heating and cooling. Likewise, the Energy Efficient Commercial Building Tax Deduction, or 179(D), provides an incentive for retrofitting existing commercial buildings through a tax deduction of \$1.80 per square foot. Unfortunately, 179D is

unduly complex and, as a result, little used. We are working with the Administration and several in Congress to make 179D simpler and allow it to achieve its goals.

The construction and contractor sectors of the job market have been hit especially hard by the current economy and the continued slowdown of the housing market. Likewise, our manufacturers are hiring fewer workers and producing fewer products. Energy efficiency incentives such as 25C, 45L, and 179D can help us attain a number of goals including putting Americans back to work, saving money on our utility bills, and making America more energy independent.

We all understand that budgets are tight in the current environment. Competing priorities require that choices be made. Energy efficiency and insulation are not as visually dramatic as a massive wind farm or a new oilfield, but they are cheaper, cleaner and can contribute even more significantly to creating jobs and creating a secure energy future for America.

Thank you again for the opportunity to testify today.





**EVERY
ALTERNATIVE.**

September 11, 2012

Honorable Charles Boustany
Honorable Dave Camp
Honorable Patrick Tiberi

Re: Joint Hearing on Energy Tax Policy and Tax Reform

Dear Congressmen,

I am writing on behalf of Cummins Westport Inc. to express support for the NAT GAS Act (H.R. 1380).

Cummins Westport is a major U.S. manufacturer of natural gas engines for commercial trucks and buses with manufacturing operations in North Carolina and New York. We believe natural gas powered vehicles have the potential to meaningfully lessen national energy security concerns by reducing fleets' dependence on foreign oil.

Expanded use of natural gas in the transportation sector will complement other domestic fuels to combat our nation's growing dependence on petroleum-based fuels sourced from overseas.

We support H.R. 1380 for its ability to provide a limited, five-year program that accelerates wider adoption of domestic and abundant natural gas as a transportation fuel. The NAT GAS Act will enable our fleet customers—ranging from small local and regional service providers to global fleets—to make the switch to natural gas that much faster.

As you are aware, H.R. 1380 will have a meaningful impact on the ability of truck fleets to purchase and operate natural gas powered vehicles. This support will result in new manufacturing jobs and bolster ongoing efforts to rebuild our nation's economy.

We call upon all Members of Congress and the Administration to support passage of the NAT GAS Act.

Sincerely,

A handwritten signature in black ink that reads 'Roe East'. The signature is written in a cursive, flowing style.

Roe East
President, Cummins Westport Inc.

D. FOX CONSULTING, LLC

347 East 76th Street, Suite 3C • New York, NY 10021 • (516) 455-2996 • Dfoxesq@gmail.com

October 6, 2011

The Honorable Pat Tiberi,
Chairman of the Subcommittee on Select Revenue Measures,
The Honorable Charles Boustany,
Chairman of the Subcommittee on Oversight
Committee on Ways and Means
United States House of Representatives
Washington, DC 20515

Mr. Chairmen, Members of the Subcommittees:

I contact you on behalf of **Delta Bulk Transport**, located at 889 North Main Street, Danielson, CT 06239. Delta Bulk is a hauler that owns a large fleet of heavy-duty trucks. The natural gas transportation fuel model proven effective in California and other western states is a model they seek to duplicate.

There is an energy crisis in America and Congress must act now. Decreasing our nation's dependence on foreign oil is a critical national security goal. H.R. 1380, the "New Alternative Transportation to Give Americans Solutions" Act of 2011 (NAT GAS) provides a real solution to this vital problem of immediate concern.

The methods and goals of NAT GAS are practical, proven and will enable the nation-wide momentum that is needed to reduce our consumption of foreign oil. The environmental, energy-security and economic benefits to using natural gas as a transportation fuel - particularly, using LNG in high fuel-use fleet vehicles - are significant and real. Natural gas is an alternative transportation fuel that is domestically-available, cleaner-burning and more affordable and stable in pricing than petroleum-based fuels, particularly diesel. Replacing one diesel-fueled heavy-duty tractor with one fueled by LNG has the environmental equivalent of taking as many as 325 gasoline-fueled personal vehicles off of the road.

On March 30, 2011, President Obama spoke at Georgetown University regarding our nation's energy future. In his address, he encouraged fleets to switch to alternative fuels such as natural gas and praised fleets that have already done so. The benefits offered by natural gas as a transportation fuel are shared by the entire country. Cleaner air, self-sustainability and economic savings are collective goods that this Congress must work toward.

The NAT GAS Act offers a concise five-year plan targeted to the segment of the transportation industry that will display the most beneficial results from the legislation's objectives. This kick-start to the transportation industry will confirm and display that natural gas vehicle technology is here and now and that no major technical breakthroughs are needed. The emissions reductions and balance sheets numbers will show that natural gas is a clean and economically viable alternative transportation fuel that must be embraced and encouraged immediately. The benefits

to this bill continue with its job creation facet. At a time when we critically need jobs in our country, according to a study, over half a million jobs will be created by the passage of NAT GAS. Another reality to be felt on "Main Street" is that this bill would help lower the price of gasoline by reducing the demand.

In conclusion, on behalf of Delta Bulk who realizes the undeniable, real multitude of benefits offered by natural gas as a transportation fuel, I urge Congress to pass the NAT GAS Act and help make American proud of your work on behalf of the future of all Americans.

Please contact me if I can provide any additional information on the above. Thank you in advance for your time.

Sincerely,
Deirdre Fox

HEARING BEFORE THE COMMITTEE ON WAYS AND MEANS
SUBCOMMITTEES ON SELECT REVENUE MEASURES AND OVERSIGHT

United States House of Representatives

“Energy Tax Policy and Tax Reform”

Testimony of the Edison Electric Institute

Introduction

The Edison Electric Institute (EEI) is pleased to submit these comments for the record with respect to the joint hearing held by the Subcommittees on Oversight and Select Revenue Measures of the House Committee on Ways and Means.

EEI is the association of U.S. shareholder-owned electric utilities, international affiliates and industry associates worldwide. Our U.S. members serve 95% of the ultimate customers in the shareholder-owned segment of the industry and represent approximately 70% of the U.S. electric power industry.

The electric power industry is a \$737 billion¹ industry that powers our economy and enhances our everyday lives. The electric power industry’s 2010 revenues of \$372 billion represent 3% of real GDP.² As of December 31, 2010, U.S. shareholder-owned electric utilities employed over 500,000 full-time employees.

EEI commends the Members of the Subcommittees for holding this hearing and examining the intersection of tax policy and energy policy. Income tax is a significant expense for shareholder-owned utilities, and how tax policy affects capital investment and the cost of capital is an important issue for electric utilities. The treatment of income taxes in the establishment of electricity rates is an issue that distinguishes utilities from other U.S. businesses. Finally, energy tax incentives have proven effective in stimulating investment in various types of alternative, renewable, and energy-efficient projects. We look forward to working on these issues in detail with the Members and staff of the Subcommittee and the full Committee as tax reform legislation develops.

Utility ratemaking and income taxes

Generally, electric utilities engage in regulated and unregulated businesses. For this purpose, a regulated business is one where a governmental entity (such as the Federal Energy Regulatory Commission or a state or local public utility commission) regulates and establishes the rates that a utility may charge for the services it provides to its

¹ Edison Electric Institute, 2010 Financial Review, June 2011. Industry size as measured by net property, plant and equipment as of December 31, 2010.

² Edison Electric Institute, 2010 Financial Review, and U.S. Department of Commerce, Bureau of Economic Analysis.

customers. Generally, the transmission and distribution of electricity are regulated businesses, and the generation of electricity can be rate-regulated or unregulated depending on the state.

Electric utilities traditionally have been natural monopolies because they provide a standardized product and have immense start-up capital costs that create barriers to entry for competitors. Governments regulate electric utilities to ensure just and reasonable rates for consumers that allow utilities to attract capital and ensure reliable electric service. Under such regulation, a public utility commission generally determines the amount of revenues a utility needs to collect in order to provide adequate service (its “cost of service”) and earn a reasonable return on its investments (its “rate base”). This amount of revenues, called the utility’s “revenue requirement,” is determined during a rate case investigation in which the commission estimates the utility’s costs for a 12-month test year. The ratemaking process does not guarantee revenues or profits for utilities. Any number of factors—the demand for electricity, the price of fuel, weather, etc.—may affect actual financial results.

In setting electricity rates, public utility commissions generally attempt to set customer rates at a level that allows the utility to: (1) recover its operating expenses (the cost of service element), and (2) provide a fair rate of return to its investors (the rate of return element).

Elements of cost of service include operating expenses, such as employee compensation, fuel costs, depreciation on public utility property and income tax expense.

The rate of return element typically is computed by multiplying: (1) a rate of return (as determined by the public utility commission) times (2) the rate base. Rate base is usually comprised of the working capital of the utility, plus the original cost of utility plant and equipment, less accumulated regulatory depreciation, and less the deferred tax liability (as described below). This rate of return element is intended to provide sufficient revenue for a utility to pay interest to its bondholders and to provide a fair return to its shareholders.

The Internal Revenue Code provides certain specific rules for the determination of taxable income. The use of these rules means that a utility’s income tax expense for financial accounting and ratemaking purposes generally will not be the same as the income tax liability as shown on its income tax return.³ For example, the modified

³ If a public utility commission uses the utility’s Federal income tax liability as shown on the utility’s tax return for income tax expense for ratemaking purposes, the commission is using a “flow-through” method of accounting for taxes. Section 168(f) of the Internal Revenue Code requires that a regulated public utility use a “normalization” method of accounting in order to qualify for MACRS. Under normalization, income tax expense for ratemaking purposes must be determined using the depreciation methods used for ratemaking purposes, and the difference between this income tax expense and actual income tax liability must be accounted for as a deferred tax liability. See Appendix A for

accelerated cost recovery system (MACRS) provides accelerated depreciation that allows the cost of property to be recovered more quickly for income tax purposes than for book and ratemaking purposes. The use of MACRS reduces a utility's income tax liability in the early years after depreciable property is placed in service relative to the liability that would have been determined if the slower regulatory depreciation method were used.⁴ For ratemaking purposes, income tax expense is determined as if the utility used the slower regulatory depreciation method. The cumulative difference between income tax expense for ratemaking purpose (using the slower regulatory depreciation method) and the utility's actual income tax liability (using MACRS) is accounted for in a deferred tax liability. For ratemaking purposes, this liability is treated as an interest-free loan from the Federal government because it allows the deferral of Federal income tax payments relative to the payments that would be made if slower regulatory depreciation were used. As a result, the deferred tax liability reduces the utility's rate base for ratemaking purposes because the liability is considered to be a no-cost (i.e., interest-free) source of capital.

Federal tax reform and ratemaking

Shareholder-owned electric utilities currently have a significant Federal income tax burden. In 2010, electric utility companies had a total of \$16.1 billion in income tax expense and an additional \$15.6 billion expense for taxes other than income taxes. A January 2011 study of over 7,000 publicly traded firms by Professor Aswath Damodaran of New York University found that electric utilities had one of the highest effective tax rates among U.S. industry sectors.⁵ Electric utility customers generally bear the burden of this expense because these tax expenses are included in the cost of service for determining rates.

As described above, income taxes play an important role in electric utility ratemaking. A utility's income tax expense is an element of its cost of service. A utility's deferred tax liability (i.e., the cumulative difference between the utility's income tax expense for ratemaking purposes and its Federal income tax liability) is treated as zero-cost capital and reduces the utility's rate base. Finally, Federal tax policies that affect the cost of capital (such as the deductibility of interest expense and rate of tax on dividends) will affect the rate of return that is applied to the utility's rate base.

Federal legislation that reduces the corporate income tax rate would reduce utilities' income tax expense, which would help mitigate upward cost pressures as utilities make major investments in cleaner generation facilities, environmental compliance, cyber security, grid modernization, and energy efficiency measures. Federal tax legislation that reduces or eliminates the benefits of timing differences, such as

a description and comparison of the flow-through and normalization methods of accounting.

⁴ Federal tax liability per the utility's tax return will be higher than regulatory tax expense in the later years of the property's regulatory life.

⁵ New York Times, "A Large Tax Gap," January 28, 2011.

MACRS depreciation on public utility property, would reduce or eliminate deferred tax liabilities and put upward pressure on customers' electricity rates (because deferred tax liabilities reduce the rate base upon which a utility earns a rate of return).

Electric utilities finance their capital investments through a combination of debt and equity. As of December 31, 2010, the industry's aggregate capitalization structure was 57 percent debt and 43 percent equity.⁶ As discussed in the section above, financing costs are taken into account through the rate of return element of the ratemaking process. Federal tax policies that affect financing costs (such as the rate of tax on dividends or the deductibility of interest expense) would affect utility rates and may make it more expensive to raise capital for investments.

Dividends paid by investor-owned utilities

The payment of dividends is an important and time-tested feature of electric utility stocks that helps attract needed capital to the industry. From 2003 through 2010, total electric utility industry-wide dividends increased 46%, from \$12.3 billion to \$18.0 billion annually. During this same period, the level of electric utility investment in infrastructure also increased significantly.

Lower dividend tax rates are good for investors, consumers, American businesses and the U.S. economy. They make dividend-paying companies—like electric companies—more attractive to investors. This helps to lower a utility's cost of equity capital (the raising of capital through issuing common stock) and maintain a stronger financial condition. A financially strong company is likely to receive more favorable terms when issuing debt, which is critical for electric companies at this time of elevated capital expenditures. By attracting new investment in their shares, electric companies are able to raise the capital they need to modernize and build new, cleaner generating capacity, invest in major transmission and distribution system upgrades, and make additional environmental and energy-efficiency improvements. These capital investment programs offer an important source of much-needed, high-quality job creation in many states.

Federal tax reform and capital investment

Electric utilities are capital intensive. As of December 31, 2010, the value of utility property, plant and equipment, net of accumulated depreciation, was \$737 billion. Capital expenditures for U.S. shareholder-owned electric utilities are projected to remain at historically high levels of \$80 billion to \$85 billion per year for the next several years, or about twice as high as the \$41.1 billion in 2004. These expenditures represent investments in both regulated and non-regulated energy businesses.

Federal tax legislation that provides incentives for capital investment lowers the cost of such investment and results in increased investment in needed infrastructure. The

⁶ Edison Electric Institute, 2010 Financial Review.

significant increase in utility investment over the last decade as described in the prior paragraph coincides with the availability of the bonus depreciation provisions and the lower dividend tax rates since 2003. In the electric utility industry, these and other capital cost incentives have helped facilitate increased investment and mitigate related rate increases for a wide variety of diverse property, including cleaner generation facilities, alternative energy resources, and more efficient transmission and distribution systems (e.g., smart grids and smart meters).

Tax reform and transition

Tax reform will bring significant changes to a multitude of common business operations, transactions and investments. With the U.S. economy still feeling the effects of the recession, care must be taken to not negatively disrupt significant business decisions, particularly with respect to investments that have already been made, and to provide appropriate transition rules. This issue is of tremendous importance to the electric utility industry. Electric utilities have committed a substantial amount of invested capital to property already in service. In addition, because of the long lead times required for such projects, utilities have made significant plans and expenditures with respect to investments to be made in the near future based on an understanding of the current tax rules.

Congress has demonstrated sensitivity to transition issues in past tax reform efforts. For example, the Tax Reform Act of 1986 provided prospective application and extensive transition rules with respect to the repeal of the investment tax credit and the adoption of MACRS.⁷ In addition, section 203(e) of the Act provided appropriate rules for the ratemaking treatment of the excess deferred taxes created by the reduction of the corporate tax rate. Appropriate transition rules should also apply to current tax reform efforts.

Energy tax incentives

The Internal Revenue Code contains a number of provisions that are intended to provide incentives and support for various energy-related investments, including the production tax credits for electricity produced from certain renewable resources and new nuclear facilities, investment tax credits for solar property, investment tax credits for the purchase of plug-in electric vehicles, and various deductions and credits for energy efficient property, among other important provisions.⁸ These benefits generally are intended to address certain market failures that discourage these investments.⁹

A detailed examination of all these provisions is beyond the scope of this testimony. In general, however, these tax policies have spurred research, jobs, and

⁷ See, e.g., secs. 203 and 204 of the Tax Reform Act of 1986.

⁸ See, Joint Committee on Taxation, *Tax Expenditures for Energy Production and Conservation* (JCX-25-09R) April 21, 2009.

⁹ *Ibid.*, at 113.

investment, provided the United States with greater energy diversity, provided consumers with additional energy and transportation choices, and strengthened national security by lessening dependence on foreign energy sources. Many of these investments would not have occurred but for the tax incentives.¹⁰

Some commonly discussed versions of tax reform would lower tax rates and broaden the tax base by eliminating all or certain preferential tax deductions and credits. The Tax Reform Act of 1986 followed this theme. We urge Congress to consider a number of factors as it addresses the current energy tax incentives in the context of tax reform, including:

- (1) Has the tax provision served its nontax purpose relative to its budgetary cost?
- (2) If not, could the provision be improved?
- (3) What are the implications to energy security and economic policy of eliminating or modifying the current energy tax provisions?
- (4) If energy tax provisions are phased out, what transition rules are appropriate?

Tax reform and simplification

One of the goals for tax reform should be to simplify the tax code. Current administrative costs to comply with the Internal Revenue Code and the underlying regulations are high and are a dead weight to the economy. Any new tax reform proposals should be analyzed to determine the extent to which the proposals would add to this burden.

In addition, tax reform should include an attempt to eliminate or rationalize various current law provisions that contribute to tax complexity. The corporate alternative minimum tax is one oft-cited example of an unduly complex facet of the current tax system; one that forces a taxpayer to undergo excessive tax calculations and keep three sets of tax records (regular tax, alternative minimum tax and adjusted current earnings calculations). Another example relates to the treatment of corporate capital gains. Although the corporate tax rate is the same for both capital gains and ordinary income, present law does not allow a corporation to offset net capital losses with ordinary income. This rule complicates corporate business and tax planning, and should be reconsidered in tax reform. Finally, consideration should also be given to streamlining the myriad cost capitalization rules required under the tax code and regulations. For example, the IRS has recently been allowing additional safe harbor rules to simplify certain tax calculations. We strongly support these efforts and believe that Congress should consider codifying or directing the IRS to provide safe harbors when drafting regulations.

¹⁰ See, e.g., http://www.awca.org/issues/federal_policy/upload/PTC_April-2011.pdf, which demonstrates that wind energy project installations generally decline when the placed-in-service date for the production tax credit expires or is about to expire, and increase when Congress provides a long-term extension of the date.

Thank you for the opportunity to provide this testimony. If any of the Members of the Subcommittees or their staffs have any questions or comments, please contact:

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APPENDIX A

Methods of accounting for tax depreciation: flow-through vs. normalization

Flow-through accounting.--The determination of the amount of Federal income taxes reflected in cost of service and rate base depends on the treatment of depreciation of utility property. The use of an accelerated depreciation method for Federal income tax purposes results in an actual Federal income tax liability that differs from the Federal income tax liability that would have been incurred if the typically slower depreciation methods used for regulatory purposes had been used for tax purposes. In general, in the first few years after property has been placed in service, the Federal income tax liability will be lower than if the regulatory depreciation schedule had been used. The Federal income tax liability will be greater in later years when the tax depreciation allowances are less than the regulatory depreciation allowances.

Flow-through accounting treats the actual Federal income tax liability of the regulated utility as reported on its tax return as the utility's tax expense in determining appropriate utility rates. Under flow-through accounting, the tax benefits of accelerated depreciation are taken into account as they are claimed in determining utility rates. Thus, under flow-through accounting, utility rates are lower for those consumers who are charged for service in the earlier years of the useful life of the utility property (relative to those consumers who are charged for service in later years).

Normalization accounting.--In contrast, under normalization accounting, the utility's tax expense for ratemaking purposes is determined by using regulatory depreciation allowances. The normalization method for accelerated depreciation requires adjustments to actual Federal income tax liability to arrive at the regulatory tax expense and adjustments to rate base. The accumulation of the differences between regulatory tax expense and actual Federal tax liability creates a deferred tax liability that represents expected future Federal tax liabilities (see the example below). Normalization accounting is consistent with generally accepted accounting principles used to prepare financial accounting statements for non-regulated companies.

Utility rates are higher in the early years of the useful life of property under normalization accounting (relative to flow-through accounting) but are lower in the later years of the property (as the property becomes fully depreciated for tax purposes). Normalization accounting results in more consistent rates over time because income tax expense does not significantly vary under the method. Cumulative utility rates over the life of regulatory property are lower under normalization accounting because the deferred tax liability (which is not created under flow-through accounting) reduces rate base. Assuming consistent rates of return and discount rates, normalization accounting and flow-through accounting should produce the same results on a present value basis. The difference is which generation(s) of customers receive the benefits of accelerated depreciation. Under flow-through accounting, only customers in the early years of the property's regulatory life realize these benefits. Under normalization accounting, the

benefits are spread to all customers who are paying for the costs of the property over the regulatory life of the property.

Example

Assume a calendar year regulated utility placed property costing \$100 million in service in 2007. For regulatory (book) purposes, the property is depreciated over 10 years on a straight-line basis with a full year's allowance in the first year. For tax purposes, the property is 5-year property and is recovered using the straight-line method, with a full year's deduction allowed in 2007. Assume the rate of return as applied to the utility's rate base is 10%.

Assuming a tax rate of 35 percent for all years, the deferred tax liability (the tax rate times the cumulative difference between tax and book depreciation) would be computed as shown in Table 1 below.

Table 1.—Deferred tax liability assuming constant tax rates (millions of dollars)

	2007	2008	2009	2010	2011	2012	2013-16	2007-16
Tax depreciation	20	20	20	20	20	0	0	100
Book depreciation	10	10	10	10	10	10	40	100
Timing Difference	10	10	10	10	10	(10)	(40)	----
Tax Rate	.35	.35	.35	.35	.35	.35	.35	----
Annual adjustments to deferred tax liability			3.5	3.5	3.5	3.5	3.5	(3.5) (14.0) ⁱ

Deferred tax liability	3.5	7.0	10.5	14.0	17.5	14.0	----	----

ⁱ The deferred tax liability is reduced by \$3.5 million a year for 2013 through 2016 so that no liability exists as of December 31, 2016.

STATEMENT OF ELEMENT PARTNERS

UNITED STATES HOUSE OF REPRESENTATIVES
SUBCOMMITTEE ON SELECT REVENUE MEASURES AND
SUBCOMMITTEE ON OVERSIGHT
WAYS AND MEANS COMMITTEE

Joint Hearing on Energy Tax Policy and Tax Reform

September 22, 2011

The purpose of the hearing is to receive testimony concerning energy tax policy and tax reform. As part of this review, the Subcommittees specifically requested comments on H.R. 1380, the New Alternative Transportation to Give Americans Solutions (NAT GAS) Act of 2011. Element Partners is pleased to offer the following written statement with regard to this hearing.

Executive Summary

Testimony presented in this hearing, as well as public discourse regarding the NAT GAS Act, often mentions the legislation's effect on substituting mostly domestic natural gas for mostly imported petroleum-based fuels. However, we noted that no one had attempted to quantify the increase in U.S. gross domestic product ("GDP") that would result from this reduction in net imports, or the resulting increase in Federal tax revenue. We have attempted to do so, and we believe that the results strongly support passage of the legislation.

In our analysis, which is attached hereto and summarized below, we find that:

- Because of the replacement of largely imported oil with largely domestic natural gas, the NAT GAS Act would have a substantial positive impact on U.S. GDP and could put downward pressure on oil prices.
- Because the NAT GAS Act enables natural gas fueling infrastructure to grow to critical mass and enables U.S. producers of natural gas vehicle ("NGV") equipment to scale up manufacturing, these positive impacts are sustained and will continue to grow after the tax credits expire.
- Increases in GDP will increase U.S. Federal tax receipts.
- As a result, ***the NAT GAS Act will more than pay for itself over a ten-year period, with no additional "pay-fors" needed***, and will generate a fiscal surplus over the longer term.
- Because the net tax revenue increase is greater than direct program costs on a per-vehicle basis, the NAT GAS Act would result in a fiscal surplus across a wide range of scenarios.

Budget Impact Under Various NGV Adoption Scenarios													
(US\$ in billions)													
		Through 2020				Through 2030							
		Low case	Base case	High case		Low case	Base case	High case					
Tax Revenue Increase	\$	6.56	\$	10.94	\$	27.22	\$	68.46	\$	116.25	\$	187.09	Billion
Direct Legislation Cost	\$	(4.79)	\$	(6.08)	\$	(12.52)	\$	(4.79)	\$	(6.08)	\$	(12.52)	Billion
Net Surplus / (Deficit)	\$	1.77	\$	4.86	\$	14.69	\$	63.67	\$	110.17	\$	174.56	Billion

About the Authors

Element Partners is a private equity firm that invests exclusively in entrepreneurial high growth companies in the energy and clean technology markets. We specifically focus on companies with innovative solutions to energy, industrial, and environmental challenges. Since 1995, Element's team has successfully managed over \$1.2 billion in capital commitments spanning six investment partnerships. All of these partnerships have been focused on investing in and profitably growing energy, industrial, and environmental related businesses.

In December 2010, we invested in a transaction that resulted in the creation of Agility Fuel Systems, the leading North American provider of engineered on-board fuel systems for heavy-duty natural gas trucks and buses.

We have followed the discussion of the NAT GAS Act with interest, and hope that our analysis will make a positive contribution to the Subcommittees' consideration of this legislation.

Assumptions

In our analysis, we make assumptions regarding the number of NGVs purchased in each year from 2012-2030 as a percentage of the total U.S. light-, medium- and heavy-duty vehicles projected to be sold in that year in the Energy Information Administration's 2011 Annual Energy Review (the "EIA Forecast"). We also calculate the total number of NGVs added to the road, net of vehicle retirements. We provide three cases for consideration: a "base case," which we consider a reasonably likely scenario; a "low case," to show the costs and benefits of the legislation with lower rates of NGV adoption, and a "high case" to show the potential costs of large-scale adoption of NGVs on a more accelerated timetable than in our base case.

We also assume that a "baseline" number of NGVs would be purchased each year in the absence of any incentives: we take as our baseline the estimated number of NGVs being sold in 2011, since in 2011 the Federal natural gas vehicle tax credits that were part of the Energy Policy Act of 2005 have expired and have not yet been reinstated.

Please note that we calculate the direct costs of the legislation for all vehicles added to the road during the life of the tax credits, but we calculate the benefits of the legislation only for incremental vehicles above the baseline.

Fuel displacement and fuel prices

We use figures from the EIA Forecast to project fuel economy and average annual miles traveled per vehicle for both diesel/gasoline vehicles and NGVs in each vehicle class. This allows us to project the amount of natural gas fuel used by NGVs added to the road, as well as the amount of gasoline and diesel *not* used by the vehicles that those NGVs will replace. We then calculate the resulting percentage changes in oil and gas demand relative to the EIA Forecast for global oil demand and for U.S. natural gas demand.

We use previously published estimates of the long-term elasticities of both supply and demand for oil and for natural gas to estimate the decrease in oil prices and increase in natural gas prices that could be expected based on our forecast changes in total demand for these fuels.

The result is a significant decrease in the quantity of oil used, and a significant potential decrease in oil prices relative to the price level that might be expected without this legislation. In addition, natural gas prices could be expected to increase modestly because of the relatively price-elastic supply of domestic natural gas.

Fuel Use and Price Impact Under Various NGV Adoption Scenarios						
	In 2020			In 2030		
	Low case	Base case	High case	Low case	Base case	High case
Displaced gasoline/diesel	2,791	4,755	11,077	15,669	27,527	37,586
% of U.S. oil use displaced	0.88%	1.50%	3.49%	4.79%	8.41%	11.48%
% change in oil prices	-2.70%	-4.61%	-10.73%	-13.67%	-24.01%	-32.78%
Increased natural gas use	334	572	1,323	1,984	3,506	4,795
% increase in NG use	1.28%	2.20%	5.09%	7.47%	13.19%	18.04%
% change in NG prices	0.66%	1.13%	2.61%	3.83%	6.77%	9.26%

Effect on U.S. GDP

Given the changes in fuel use presented above, we also estimated the net effect these changes would have on U.S. GDP. Recall that:

$$\text{GDP} = \text{private consumption} + \text{gross investment} + \text{government spending} + (\text{exports} - \text{imports})$$

Reducing net imports will thus increase GDP, provided this is done in such a way that other terms in the above equation are not reduced in the process. That is exactly the opportunity that the NAT GAS Act presents.

Imports are reduced in two ways: first, by the reduced quantity of oil imported; and second, from the reduction in price on the remaining oil imported. Imports are likewise increased, albeit by a much smaller amount, by the approximately 16% of increased natural gas use that is supplied from abroad.

The resulting net reduction in imports gives the potential increase in GDP. However, we assume that some percentage of that potential increase (approximately 16%, based on 2010 actual imports as a percentage of GDP) is redirected to importing other goods and services.

The net result is a sizable increase in GDP: in our base case, the present value of increased GDP through 2030 is \$682 billion.

Direct costs of the NAT GAS Act

In calculating the direct costs of the bill, we apply the vehicle, fuel, and fuel station tax credits to the vehicles to our forecast of NGV purchases and fuel use while the tax credits are in force, making the assumption that the number of fueling stations built per new vehicle added to the road remains consistent with historical levels.

In our low case and base case, we estimate the net present value of the direct costs of the legislation to be \$4.8 billion and \$6.1 billion, respectively. We understand these estimates to be similar to estimates others have made of the direct costs of the NAT GAS Act. In our high case,

which has much aggressive assumptions regarding the near-term NGV adoption driven by the legislation, we estimate direct costs of \$12.5 billion.

However, in all three of our cases, the increase in tax revenue resulting from increased GDP more than makes up for the direct costs of the bill over a ten-year horizon. Furthermore, while the direct costs of the bill stop after 2016, the increased tax revenues continue indefinitely, and increase as more NGVs are put in service in the future.

Increased tax revenue

We make a simple estimate of the potential increase in tax receipts resulting from the NAT GAS Act by taking our forecast GDP increase and applying to that number the Office of Management and Budget's forecast of total federal taxes as a percentage of GDP for each year.

The one specific tax effect we address is a *reduction* in federal taxes on retail sales of diesel and gasoline, which we subtract from the overall tax increase.

Conclusion

To restate the summary table presented in the executive summary above, the potential increase in federal tax revenue outweighs the direct costs of the NAT GAS Act over a ten-year horizon, even if (in fact, especially if) the direct costs of the bill turn out to be higher than expected. The potential net fiscal benefit of the NAT GAS Act over a 20-year horizon may be very large.

Budget Impact Under Various NGV Adoption Scenarios									
<i>(US\$ in billions)</i>									
	Through 2020						Through 2030		
	Low case	Base case	High case	Low case	Base case	High case	Low case	Base case	High case
Tax Revenue Increase	\$ 6.56	\$ 10.94	\$ 27.22	\$ 68.46	\$ 116.25	\$ 187.09	Billion		
Direct Legislation Cost	\$ (4.79)	\$ (6.08)	\$ (12.52)	\$ (4.79)	\$ (6.08)	\$ (12.52)	Billion		
Net Surplus / (Deficit)	\$ 1.77	\$ 4.86	\$ 14.69	\$ 63.67	\$ 110.17	\$ 174.56	Billion		

Note that our analysis is based on *average* fuel economy figures and *average* miles driven by vehicle class, as presented in the EIA Forecast. In reality, the heavier-than-average fuel users in each class (those who drive more or who use less fuel-efficient vehicles) are more likely to try to save money by switching to natural gas. As a result, we are likely to be understating the potential fuel displacement, GDP increase, and tax benefit on a per-vehicle basis, while assuming the full direct cost of the legislation on a per-vehicle basis. In other words, the actual benefits of the bill could be substantially greater than those shown. For the sake of providing the Subcommittees with analysis that is conservative in its assumptions and easy to replicate using publicly-available and unbiased forecasts, we have chosen to present our analysis using these average figures.

We believe that there are numerous other unquantified benefits of the NAT GAS Act which go beyond the scope of this study, including:

- Decreased dependence on foreign oil, which benefits national security and reduces the sensitivity of the U.S. economy to oil price fluctuations
- Domestic job creation from fueling infrastructure investments that will help stimulate the US economy
- Domestic manufacturing job creation in the NGV supply chain
- Improved international competitiveness for the U.S. in an emerging technology field
- Second-order economic benefits from lower oil prices
- Environmental benefits: NGVs produce 20-30% less greenhouse gases and substantially lower SO₂ and NO_x emissions than petroleum-powered vehicles

Again, however, we have chosen to focus this testimony on the quantifiable, and highly positive, potential fiscal impacts of the legislation. We hope that this analysis is of use to the Subcommittees' members in your deliberations. We are available at any time to answer questions or provide more detail regarding the study.

Postscript: A Note Regarding Network Effects

As a final note, we would encourage the Subcommittees in your discussions to consider the positive *network effects* involved in the process of adoption of natural gas as a vehicle fuel.

If more fleet operators use natural gas trucks, more natural gas fueling infrastructure will be built to support them. If more fueling infrastructure is built, fleet owners will be more likely to buy natural gas trucks. This renders policies supporting NGV adoption similar in many ways to policies supporting early infrastructure development of other technologies with positive network effects, including the Internet and the Interstate highway system.

Once a critical mass of over-the-road vehicles and fueling infrastructure is reached, momentum toward further adoption of NGVs will become self-sustaining, like a snowball rolling down a hill. The purpose of the NAT GAS Act is to influence fleet buyers to buy more vehicles sooner than they otherwise might, helping NGVs to more quickly achieve critical mass in the marketplace, in effect giving that snowball a push off of the top of the hill.

This is an especially important point in light of our study, since we believe that once a critical mass is reached, NGV adoption will not only continue but will accelerate, even after the incentives of the NAT GAS Act are removed.

Attachments:

1. Summary of analysis
2. Detail of assumptions and calculations

For additional information concerning this statement, please contact:

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October 6, 2011

The Honorable Pat Tiberi,
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The Honorable Charles Boustany,
Chairman of the Subcommittee on Oversight
Committee on Ways and Means
United States House of Representatives
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Mr. Chairmen, Members of the Subcommittees:

I contact you on behalf of **Enviro Express, Inc.**, located at 555 Wordin Avenue, Bridgeport, CT 06605. Enviro is a hauler of trash, ash and recyclables. The natural gas transportation fuel model proven effective in California and other western states is a model they seek to duplicate.

There is an energy crisis in America and Congress must act now. Decreasing our nation's dependence on foreign oil is a critical national security goal. H.R. 1380, the "New Alternative Transportation to Give Americans Solutions" Act of 2011 (NAT GAS) provides a real solution to this vital problem of immediate concern.

The methods and goals of NAT GAS are practical, proven and will enable the nation-wide momentum that is needed to reduce our consumption of foreign oil. The environmental, energy-security and economic benefits to using natural gas as a transportation fuel - particularly, using LNG in high fuel-use fleet vehicles - are significant and real. Natural gas is an alternative transportation fuel that is domestically-available, cleaner-burning and more affordable and stable in pricing than petroleum-based fuels, particularly diesel. Replacing one diesel-fueled heavy-duty tractor with one fueled by LNG has the environmental equivalent of taking as many as 325 gasoline-fueled personal vehicles off of the road.

On March 30, 2011, President Obama spoke at Georgetown University regarding our nation's energy future. In his address, he encouraged fleets to switch to alternative fuels such as natural gas and praised fleets that have already done so. The benefits offered by natural gas as a transportation fuel are shared by the entire country. Cleaner air, self-sustainability and economic savings are collective goods that this Congress must work toward.

The NAT GAS Act offers a concise five-year plan targeted to the segment of the transportation industry that will display the most beneficial results from the legislation's objectives. This kick-start to the transportation industry will confirm and display that natural gas vehicle technology is here and now and that no major technical breakthroughs are needed. The emissions reductions and balance sheets numbers will show that natural gas is a clean and economically viable alternative transportation fuel that must be embraced and encouraged immediately.

The benefits to this bill continue with its job creation facet. At a time when we critically need jobs in our country, according to a study, over half a million jobs will be created by the passage of NAT GAS. Another reality to be felt on "Main Street" is that this bill would help lower the price of gasoline by reducing the demand.

In conclusion, on behalf of Enviro Express, Inc, who realizes the undeniable, real multitude of benefits offered by natural gas as a transportation fuel, I urge Congress to pass the NAT GAS Act and help make American proud of your work on behalf of the future of all Americans.

Please contact me if I can provide any additional information on the above. Thank you in advance for your time.

Sincerely,

Deirdre Fox



Written Testimony of Sheila Karpf
Analyst
Environmental Working Group

to the

United States House of Representatives
Committee on Ways and Means
“Joint Hearing on Energy Tax Policy and Tax Reform”

Thursday, Sept. 22, 2011

Chairman Tiberi, Chairman Boustany, Ranking Member Neal, Ranking Member Lewis and distinguished members of the Committee:

My name is Sheila Karpf. I am a research analyst at the Environmental Working Group, a nonprofit research and advocacy organization based in Washington, DC, with offices in Ames, Iowa, and Oakland, California. I thank the members of the committee for holding this important hearing and for the opportunity to submit written testimony.

For almost two decades, our organization has advocated policies that protect vulnerable people from toxic contaminants, end subsidies that encourage environmental harm and invest in conservation and sustainable development.

Unfortunately, our current ethanol policy is agricultural policy masquerading as energy policy. Efforts to support ethanol-blended fuel have been driven by agricultural interests that wanted to create a market for the historic oversupply of corn, which was often encouraged by U.S. Department of Agriculture crop subsidies and price and income support programs. The ethanol industry is under serious pressure to expand constantly through government intervention. The industry is now, and has been from its inception, a creature of government. Corn producers and ethanol companies press in tandem for any government action – and especially intervention from Washington – that will expand the market for ethanol and thereby the market for corn.

The Volumetric Ethanol Excise Tax Credit (VEETC) should be one of the first targets of this committee. We urge you to allow this wasteful tax expenditure to expire at the end of this year as scheduled. The credit costs taxpayers \$6 billion a year. The money goes straight into the pockets of oil and gas companies that blend ethanol with gasoline. This spending is wasteful. Moreover, it creates incentives for practices that damage the environment. Earlier this year, the Senate voted 73 to 27 to accept the amendment to S. 782 offered by Sen. Dianne Feinstein, D-Calif., to end the tax credit and ethanol tariff. We urge the committee to act favorably on H.R. 2307, the companion legislation offered by Reps. Wally Herger, R-Calif., and Joseph Crowley, D-NY.

We urge you to end the myriad of wasteful subsidies and tax breaks granted to the mining and fossil fuel industries. These cost taxpayers between \$4 billion and \$10 billion annually. The “Ending Big Oil Tax

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Subsidies Act,” H.R. 601, proposed by Rep. Earl Blumenauer, D-Ore., would help lower the deficit without harming jobs or the economy.

Eliminating these environmentally destructive subsidies must be one of our top priorities as we seek to shrink the national debt. Just this year, taxpayers would have saved between \$10 billion and \$16 billion if oil, gas and corn ethanol tax breaks and subsidies had been repealed. These ill-advised incentives do nothing to remedy these industries’ environmental impacts, such as air pollution. They distort markets and encourage overproduction of fuels that threaten public health and the environment. Taxpayers are paying a high price for incentives that don’t clearly benefit the American economy.

Crowning corn ethanol, oil and hard rock mining as the nation’s energy winners is unfair to clean energy technologies. Instead of supporting well-established, polluting fuels, we need to use incentives to promote clean energy that will actually reduce dependence on foreign oil and protect air, water and wildlife habitat. These include tax incentives for wind, solar and geothermal. Because of the tax breaks and subsidies showered on the oil, ethanol and mining industries, new clean-energy technologies have little chance to compete on a level playing field.

EWG’s research has demonstrated that corn-based ethanol has a stranglehold on federal renewable energy tax credits and subsidies.¹ Solar, wind and other truly clean, renewable energy sources have struggled to gain significant market share, while corn-based ethanol has claimed fully three-quarters of the tax benefits and two-thirds of all federal subsidies allotted for renewable energy. So-called advanced biofuels targets have been waived in recent years because they cannot compete with overproduction of corn ethanol. It is becoming less and less likely that advanced biofuels made from switchgrass, algae and wood residues will become commercially viable in the near term, especially with corn ethanol dominating the renewable fuels market.

Specifically, we urge the committee to consider ending the following destructive tax breaks to the ethanol, oil, gas and mining industries:

Ethanol Incentives

1. Volumetric Ethanol Excise Tax Credit (VEETC): This tax credit costs taxpayers about \$6 billion per year – more than is spent on all USDA conservation programs to protect soil, water and wildlife habitat combined. Since the 2007 energy bill already mandates ethanol production through the Renewable Fuel Standard, this 45-cents-per-gallon tax credit is entirely unnecessary and duplicative, as the Congressional Budget Office and the Government Accountability Office have shown.^{2,3} The ethanol tax credit directly benefits highly profitable oil and gas companies that receive it for each gallon of ethanol they blend with gasoline.

¹ <http://www.ewg.org/reports/Ethanol-Federal-Subsidy-Grab-Leaves-Little-For-Solar-Wind-And-Geothermal-Energy%20>

² <http://www.cbo.gov/ftpdocs/100xx/doc10057/04-08-Ethanol.pdf>

³ <http://www.gao.gov/products/GAO-09-446>

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Ethanol from corn is highly unlikely to reduce the country's dependence on imported oil. Perversely, it is causing food and feed prices to skyrocket. Moreover, current ethanol production systems increase greenhouse gas emissions.

2. **Alternative Fuel Infrastructure Tax Credit:** This tax credit has some potential to promote development of clean energy technologies such as hybrid and electric vehicles, but the benefits will be realized only if the primary energy source does not increase pollution.⁴ Since the credit can also be used to install new blender pumps that dispense higher blends of corn ethanol, it serves as yet another form of support for an environmentally unsustainable biofuel. Expanding this credit to lock in corn ethanol will only lock out alternatives, including drop-in fuels, which behave like petroleum and do not require us to reengineer our transportation system.⁵

Oil and Gas Incentives

Gas prices hover between \$3.50 and \$4 a gallon. While Americans empty their wallets at the pump, oil and gas companies have reaped record profits. Yet some members of Congress demand that taxpayers continue to subsidize Big Oil through the following provisions, which should be repealed:

1. Enhanced oil recovery tax credit⁶
2. Marginal well production credit⁷
3. Tax deduction for domestic production⁸
4. Foreign tax credit⁹
5. Accounting method known as last-in, first out (LIFO) that artificially reduces taxable income and tax liabilities¹⁰
6. Accelerated depreciation that allows equipment and structures to be written off quickly, artificially reducing taxable income¹¹
7. Percentage depletion allowance¹²
8. Expensing of intangible drilling costs differently from normal business expenses¹³

⁴ <http://www.afdc.energy.gov/afdc/laws/law/US/351>

⁵ <http://www.ewg.org/agmag/wp-content/uploads/2011/04/Final-ethanol-infrastructure-report2.pdf>

⁶ http://thf_media.s3.amazonaws.com/2011/pdf/wm3251.pdf

⁷ http://thf_media.s3.amazonaws.com/2011/pdf/wm3251.pdf

⁸ http://thf_media.s3.amazonaws.com/2011/pdf/wm3251.pdf

⁹ <http://ncseonline.org/NLE/CRSreports/07March/RL33763.pdf>

¹⁰ <http://ncseonline.org/NLE/CRSreports/07March/RL33763.pdf>

¹¹ <http://ncseonline.org/NLE/CRSreports/07March/RL33763.pdf>

¹² http://thf_media.s3.amazonaws.com/2011/pdf/wm3251.pdf

¹³ <http://ncseonline.org/NLE/CRSreports/07March/RL33763.pdf>

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9. Deduction for tertiary injectants, meaning liquids and gasses injected into land near an oil well¹⁴

10. Exemption for oil and gas producers from ordinary passive loss limitations imposed on other taxpayers¹⁵

Mining Incentives

The 1872 Mining Law, intended to encourage rapid development of the West, does not require the hard rock mining industry to pay royalties to compensate taxpayers for use of the nation's resources. Now is the time to reform this law. By doing so, the Congress can generate hundreds of millions of dollars in income for taxpayers over the next five years. Moreover, some of these funds can be used to remediate the thousands of environmental and safety hazards that are the sorry legacy of the hardrock mining industry. At present, the expense of cleaning up old mining sites is being borne fully by the taxpayers.

As things now stand, Americans receive none of the revenue generated by hardrock mining on our public land. Yet we are being asked to pay millions of dollars to clean up the pollution industry has left behind.

As EWG's and Earthworks' recent "Conflict at the Canyon" report showed, uranium mining poses particularly serious water contamination dangers to major sources of drinking water.¹⁶ Foreign-owned mining companies have staked many uranium mining claims on public lands. Unless the law is changed, when they begin mining these claims, they can exploit this valuable resource at the expense of the public.

Hard rock mining operations also enjoy special tax breaks. The Congress should repeal the percentage depletion allowance, established in 1932 to compensate mining companies for the reduced value of their mines after minerals have been extracted. Companies that have paid virtually nothing to mine public land can reap tax deductions ranging from 5 to 22 percent of the gross income from the mining operation.

The percentage depletion allowance for minerals extracted from public lands that the mining industry obtained for next to nothing have cost American taxpayers about \$500 million in lost tax revenues over five years, according to a 2011 Earthworks report.¹⁷ These tax breaks are unfair and unacceptable at a time when vital programs are being slashed as the Congress strives to reduce the federal deficit.

Recommendations

We can have sustainable energy but we must rebalance the renewable energy and energy conservation portfolio to favor options that:

- Reduce fossil fuel use
- Safeguard the environment
- Spur economic development that benefits large numbers of Americans
- Increase energy security

¹⁴ http://www.atr.org/files/files/2011_ATR_Energy_Tax_Series-Tertiary%20Injectants.pdf

¹⁵ http://thf_media.s3.amazonaws.com/2011/pdf/wm3251.pdf

¹⁶ http://static.ewg.org.s3.amazonaws.com/pdf/conflict_at_the_canyon.pdf

¹⁷ http://www.earthworkSACTION.org/pubs/FS_112thPercentageDepletion.pdf

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- Use scarce taxpayer resources wisely

We should begin by taking these steps:

- Eliminate tax credits and special breaks for oil, gas and mining companies
- End tax credits for corn ethanol
- Subsidize advanced biofuels only if they show clear potential to meet strict climate and environmental protection standards

Conclusion

If Congress is serious about reducing spending, eliminating oil, gas, mining and ethanol subsidies should be one of its first priorities. Such action will help reduce the national debt, streamline the tax code and move the country toward a more economically and environmentally sustainable future. These subsidies have saddled the nation with a lopsided incentive structure that picks winners and losers and rewards politically powerful industries at the expense of a diversified and sustainable energy future. America can do better.

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October 6, 2011

The Honorable Pat Tiberi,
 Chairman of the Subcommittee on Select Revenue Measures,
 The Honorable Charles Boustany,
 Chairman of the Subcommittee on Oversight
 Committee on Ways and Means
 United States House of Representatives
 Washington, DC 20515

Mr. Chairmen, Members of the Subcommittees:

I contact you on behalf of a group that has been in the oil business for decades and now wants to convert their fleet and infrastructure to liquid natural gas fuel. They own and operate a large fleet of heavy-duty Class 8 tractors that haul goods within the northeast United States. The natural gas transportation fuel model proven effective in California and other western states is a model they seek to duplicate.

There is an energy crisis in America and Congress must act now. Decreasing our nation's dependence on foreign oil is a critical national security goal. H.R. 1380, the "New Alternative Transportation to Give Americans Solutions" Act of 2011 (NAT GAS) provides a real solution to this vital problem of immediate concern.

The methods and goals of NAT GAS are practical, proven and will enable the nation-wide momentum that is needed to reduce our consumption of foreign oil. The environmental, energy-security and economic benefits to using natural gas as a transportation fuel - particularly, using LNG in high fuel-use fleet vehicles - are significant and real. Natural gas is an alternative transportation fuel that is domestically-available, cleaner-burning and more affordable and stable in pricing than petroleum-based fuels, particularly diesel. Replacing one diesel-fueled heavy-duty tractor with one fueled by LNG has the environmental equivalent of taking as many as 325 gasoline-fueled personal vehicles off of the road.

On March 30, 2011, President Obama spoke at Georgetown University regarding our nation's energy future. In his address, he encouraged fleets to switch to alternative fuels such as natural gas and praised fleets that have already done so. The benefits offered by natural gas as a transportation fuel are shared by the entire country. Cleaner air, self-sustainability and economic savings are collective goods that this Congress must work toward.

The NAT GAS Act offers a concise five-year plan targeted to the segment of the transportation industry that will display the most beneficial results from the legislation's objectives. This kick-start to the transportation industry will confirm and display that natural gas vehicle technology is here and now and that no major technical breakthroughs are needed. The emissions reductions and balance sheets numbers will show that natural gas is a clean and economically viable alternative transportation fuel that must be embraced and encouraged immediately.

The benefits to this bill continue with its job creation facet. At a time when we critically need jobs in our country, according to a study, over half a million jobs will be created by the passage of NAT GAS. Another reality to be felt on "Main Street" is that this bill would help lower the price of gasoline by reducing the demand.

In conclusion, on behalf of the company who has been in the oil business for decades and realizes the undeniable, real multitude of benefits offered by natural gas as a transportation fuel, I urge Congress to pass the NAT GAS Act and help make American proud of your work on behalf of the future of all Americans.

Please contact me if I can provide any additional information on the above. Thank you in advance for your time.

Sincerely,
Deirdre Fox

Statement Submitted for the Record of the Joint Hearing on Energy Tax Policy and Tax Reform, held September 22, 2011 by the Subcommittee on Select Revenue Measures and Subcommittee on Oversight, both of the Committee on Ways and Means

Statement submitted by and on behalf of Karl Gawell, Executive Director, Geothermal Energy Association, 209 Pennsylvania Ave SE, Washington, D.C. 20003, 202-454-5261, karl@geo-energy.org

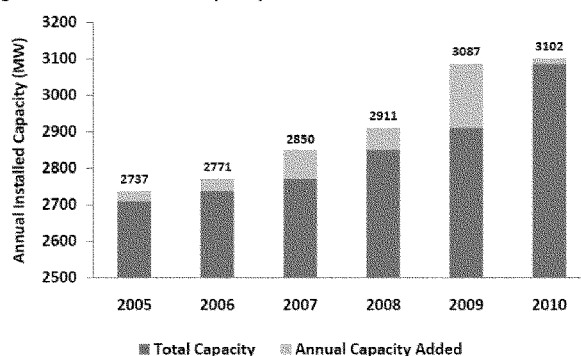
Statement of the Geothermal Energy Association

Mr. Chairmen, Members of the Subcommittees, on behalf of the Geothermal Energy Association, which has over 100 US company members across the United States, I submit this statement for the record of your hearing. We thank the Subcommittee for considering our statement as part of its deliberations on Energy Tax Policy and Reform.

The extension of the renewable energy production tax credit (PTC) to geothermal energy in the Energy Policy Act of 2005 has been a principal factor in the recent growth of geothermal energy. Prior to this change the PTC was available only to wind and closed-loop biomass power projects and geothermal energy was disadvantaged in renewable power bidding opportunities. Since 2005, geothermal power has seen steady growth in the United States, as the figure below shows.

Growth in US Geothermal Capacity On-Lineⁱ

Figure 8: Total Installed Capacity 2005-2010



Today, new geothermal power projects continue to be placed in service, and we expect that a significant number of new projects will be completed before the December 31, 2013 PTC deadline.

However this deadline presents a serious obstacle to geothermal energy growth. According to our analysis, geothermal power projects in the US typically require between four and eight years to complete. The time period from initial discovery and exploration to bringing power on-line therefore takes longer than the current tax window allows. Once projects now in later stages of development are completed, there are indications that we will see only limited if any new development as a result of the uncertainty surrounding geothermal tax incentives.ⁱⁱ

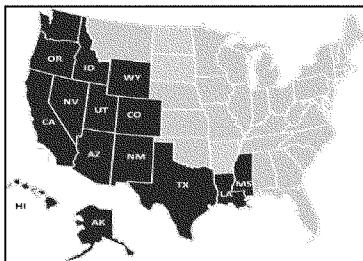
We respectfully urge that geothermal tax credits be extended to provide continued support for new project development and the deployment of new geothermal energy technology. Our nation has among the world's most promising geothermal energy resources, but without the support of long-term tax incentives, we will not see the investment necessary to develop this invaluable domestic source of baseload renewable energy.

It is worth noting that the US Department of Energy has recently approved important research projects in geothermal energy, which are the first significant investments in new geothermal technology by DOE in decades.ⁱⁱⁱ A growing market for geothermal energy is important to realizing the full benefits of this investment and extension of the geothermal PTC is essential to growing the U.S. demand for geothermal energy.

The health of the US geothermal industry and its domestic market is also important to the role of US geothermal firms internationally. There is a strong and growing world market for geothermal energy, and US firms are among the leaders in these markets. According to the Department of Commerce, geothermal is one of only two renewable technology areas where US firms are exporting more than the US market is importing, and the benefits of sustaining that leadership are obvious.

Extending the deadlines under the current law would help provide the incentive needed by investors looking at new geothermal power projects. Today, there are projects under development in some 15 states, as shown below, and we hope that advances in technology will support expansion to many more states in the future.

States with Geothermal Projects Under Development in 2011^{iv}



In this Congress, legislation has been introduced to address the disparity geothermal faces in the existing tax code. H.R. 2408, sponsored by Reps. Dave Reichert (R-WA) and Earl Blumenauer (D-OR), would extend the IRC Section 48 investment tax credit for geothermal power through December 31, 2016, thus putting geothermal on a par with solar energy. Identical legislation has been introduced in the Senate, S. 1413, by Sens. Ron Wyden (D-OR), Mike Crapo (R-ID) and Dean Heller (R-NV). We understand that a principal reason for providing solar projects the 2016 deadline was the long lead-times expected for concentrated solar power projects. We believe that geothermal projects, with considerably longer lead times than currently faced by solar projects, warrant a comparable time frame.

In addition to extending the underlying tax credits, the production tax credit or investment tax credit, we believe it is important to also provide more flexibility to investors. One approach being discussed would extend access to use of master limited partnerships to geothermal and other renewable projects, or provide greater latitude through transferability or refundability of tax credits. GEA would urge the Subcommittee to include such measures as MLP eligibility along with provisions to extend the current PTC and ITC deadlines. This will ensure a broader investment base for the billions of dollars of new investment which will be needed.

The investment of billions of dollars in new geothermal power projects will help the economy and create jobs. To give some perspective, let's look at one new project under development in California. CalEnergy, a subsidiary of Mid-American Energy, has three 65 megawatt geothermal projects permitted and under development in Southern California.^v These three projects will represent about \$900 million in new investment in a county with one of the highest unemployment rates in the state -- over 30%. During the roughly four years of construction, CalEnergy will employ a monthly average of 323 workers. When completed, the project will employ 57 full-time employees (operations, engineering, maintenance, administration). For comparison, MidAmerican notes that a 300MW natural gas plant in operation will employ about 18 people.

Tax incentives for new geothermal investment will not only mean economic stimulus and job creation, but will produce highly reliable baseload power. Geothermal power plants operate 24 hours a day, 7 days a week, 365 days a year, regardless of whether the wind blows or the sun shines. They provide much needed reliability to the power grid, an attribute which utilities value and an important reason why they find geothermal power attractive when it is available.

With continued progress in exploration, technology development, and market growth there are substantial new geothermal resources which could be made available. Geothermal resources in the US remain largely untapped, because of the high risk of finding and proving geothermal resources. Recently a meeting of leading researchers and exploration experts called for a national exploration initiative by identifying specific prospects for an additional 50,000 MW of

geothermal power, which could be tapped to establish a Strategic Geothermal Reserve.^{vi} With continued incentives for investment in new power projects we will capitalize on new technologies which could make significant new geothermal energy production a reality in the US and sustain US leadership in the world geothermal market.

Thank you for considering our views on energy tax policy.

ⁱ Annual U.S. Geothermal Power Production and Development Report

April 2011, Dan Jennejohn, Geothermal Energy Association, available at: <http://geo-energy.org/reports.aspx>

ⁱⁱ GEA has underway research examining obstacles to power plant development, and an assessment of the current project lead-time. That project examined the time-frame for new projects coming on-line since 2005 and found that the range of lead times was four to eight years. Dan Jennejohn, Geothermal Energy Association research analyst.

ⁱⁱⁱ While Congress has recognized the need for research support in a range of geothermal technologies areas by passing the 2007 Enhanced Geothermal Energy Research and Development Act on a strong bi-partisan basis, until recently the Department of Energy has provided scant funding for geothermal technology. Starting with ARRA 2009, DOE has announced just over \$360 million in competitively awarded research contracts for geothermal technology, which have also attracted an additional \$300 million in recipient cost-share, bringing the total investment to over \$660 million. This represents a more balanced investment in DOE's research priorities.

^{iv} Annual U.S. Geothermal Power Production and Development Report

April 2011, Dan Jennejohn, Geothermal Energy Association, available at: <http://geo-energy.org/reports.aspx>

^v From presentation of Jonathan Weisgall, Vice President, MidAmerican Energy, to Session C-4, RETECH 2011, September 22, 2011. To be available from <http://www.retech2011.com/>

^{vi} See Report of Workshop on Exploration and Assessment of Geothermal Resources, prepared by the University of Nevada Reno Great Basin Center for Geothermal Energy, available at: <http://geo-energy.org/reports.aspx>

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October 6, 2011

The Honorable Pat Tiberi,
Chairman of the Subcommittee on Select Revenue Measures,
The Honorable Charles Boustany,
Chairman of the Subcommittee on Oversight
Committee on Ways and Means
United States House of Representatives
Washington, DC 20515

Mr. Chairmen, Members of the Subcommittees:

I contact you on behalf of **Hoopes Turf Farming, Inc.**, located at 1002 Empson Road, Ulysses, PA 16948. Hoopes Turf Farming is a trucking company that, among other things, hauls water for various gas companies in the region. The natural gas transportation fuel model proven effective in California and other western states is a model they seek to duplicate.

There is an energy crisis in America and Congress must act now. Decreasing our nation's dependence on foreign oil is a critical national security goal. H.R. 1380, the "New Alternative Transportation to Give Americans Solutions" Act of 2011 (NAT GAS) provides a real solution to this vital problem of immediate concern.

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In conclusion, on behalf of Hoopes Turf Farming, who realizes the undeniable, real multitude of benefits offered by natural gas as a transportation fuel, I urge Congress to pass the NAT GAS Act and help make American proud of your work on behalf of the future of all Americans.

Please contact me if I can provide any additional information on the above. Thank you in advance for your time.

Sincerely,

Deirdre Fox

Statement for the Record
by Infinia Corporation
Committee on Ways and Means
Subcommittee on Select Revenue Measures and Subcommittee on Oversight
Joint Hearing on Energy Tax Policy and Energy Tax Reform
September 22, 2011

Thank you for the opportunity to submit a statement for the record on whether energy policy should be advanced through the tax code, and if so, how best to design provisions that most efficiently promote the country's energy policies. Infinia believes that energy tax policy plays a critical role in advancing the country's broader energy objectives. Historically, Congress has used the tax code as an effective way to encourage domestic energy production, but these tax incentives have not always been well-coordinated with one another and the country's broader energy policies. Comprehensive tax reform presents Congress with an opportunity to improve the structure of energy tax provisions so that they consistently and efficiently further the country's energy priorities, whether that be reducing the country's dependence on foreign oil, diversifying the country's energy portfolio, increasing domestic energy production, reducing greenhouse gas emissions, increasing energy security or encouraging investment in emerging energy technologies.

In order to achieve these priorities in a cost-effective and efficient manner, Congress should use tax reform as an opportunity to restructure energy tax provisions from a technology-specific regime to a technology-neutral regime. The current tax code treats comparable technologies differently, creating market inefficiencies and resulting in the misallocation of private capital. Additionally, since most energy projects are long-term endeavors, energy tax provisions should be reformed to provide investors with the certainty they need to make long-term investments.

Before we discuss the principals we believe should underlie comprehensive energy tax reform, Infinia would like to provide the Committee with greater details about its own experiences with the current tax code.

Infinia

Infinia is an energy technology company specializing in free-piston Stirling cycle devices which can be used in myriad applications, including combined heat and power systems and a solar power generation product that converts concentrated solar power into electricity. Infinia employs 60 people, with offices in Utah and Washington. Additionally, since Stirling cycle devices are built from the same parts and components used to make cars, Infinia uses the same suppliers as the domestic automobile industry, providing a unique opportunity to repurpose some of the nation's traditional automobile manufacturing infrastructure for the production of renewable energy.

Free Piston Stirling Cycle Devices

Originally developed by Robert Stirling in 1816, free-piston Stirling cycle devices use a working fluid (typically Helium, Nitrogen or Hydrogen gas) in a closed cylinder containing a piston. Heated on one end and cooled on the other, the expansion and cooling of the gas drives the piston back and forth in the cylinder. The work performed by this piston-motion is used to drive a generator or to create pressure waves to drive a compression process. Although Stirling cycle devices can be driven by most any fuel source, because there is an existing infrastructure for the delivery of natural gas, it is a likely candidate to be used as a fuel source, just as it is with fuel cells. Currently, both free-piston Stirling cycle devices and fuel cell applications are being developed in which renewable resources would power the respective processes.

In fact, often times free-piston Stirling cycle devices can be used in applications similar to fuel cells. For instance, a military application has been developed for free-piston Stirling cycles to provide electricity for a mobile field kitchen to operate the lights and burners in the field while simultaneously boiling water to heat tray-pack hot rations. Some Stirling cycle-based applications are so efficient that they use up to 85%-90% of the energy in the natural gas input to produce heat and electricity, far exceeding comparable technologies.

A Proven Technology

Since 1985, Infinia has been delivering highly reliable, zero-maintenance, free-piston Stirling cycle devices and power systems to commercial companies and government agencies. In 2010 alone, the Department of Energy and Department of Defense awarded Infinia almost \$10 million in grants for the further development of Stirling cycle device technology. Notably, Infinia has been awarded a prestigious \$3 million ARPA-E (Advanced Research Projects Agency – Energy) grant to develop a revolutionary Stirling cycle air conditioner. Additionally, Infinia's Stirling cycle devices are being developed by the DOD for such applications as tactical power generation for forward deployed forces, micro-Combined Heating and Power systems for field kitchens, micro-Combined Cooling, Heating and Power systems for potable water chilling, power systems for UUV's (Unmanned Underwater Vehicles) and a number of confidential and classified applications. Thus, over the past decade the basic Stirling cycle device technology has proved to be a reliable, innovative technology, allowing Infinia to continually experiment and improve upon existing applications to develop its next, cutting-edge application.

Current Treatment under the Technology-Specific Tax Code

Despite the Federal government's recognition of Stirling cycle device technology in the broader areas of Defense and Energy, the technology-specific energy provisions in the tax code only apply to Stirling cycle devices when they are used in the solar configuration. Consequently, other applications of free-piston Stirling cycle devices are not eligible for tax incentives for which comparable technologies, such as fuel cells and microturbines.

More specifically, when free-piston Stirling cycle devices are used for solar energy production, they qualify for the section 48 investment tax credit; yet, when the same device is used in other

configurations, like its remote power applications, it no longer qualifies for the thirty percent section 48 investment tax credit. However, other renewable energy technologies with comparable energy efficiencies qualify for the section 48 investment tax credit regardless of their configurations because the credit specifically includes them as a category of qualified energy property. The same disparate treatment occurs under the section 25D residential energy efficient property credit. Since free-piston Stirling cycle devices are not explicitly included as a type of qualified expenditure, they are not eligible for the credit despite the fact they are as energy efficient, if not more so, than the technologies included under the section 25D credit.

Ultimately, the technology-specific energy tax provisions hinder free-piston Stirling cycle devices' ability to compete in the market place. Investors in energy technologies look to the federal tax code, among other indicia, as a basis upon which to make their investments. Inclusion in the tax code signals to the market place that the federal government has confidence in a technology and also increases the rate of return on the investment. Consequently, private capital is more likely to invest in technologies covered by the tax code, placing free-piston Stirling cycle devices at a disadvantage when it comes to raising private capital. In turn, less private capital makes it more difficult for a company to reach the point of commercialization, when costs begin to rapidly decrease as the company move down along the cost curve.

Energy Tax Reform

Comprehensive tax reform provides Congress with the opportunity to transition from a technology-specific tax regime to a technology-neutral one. Instead of identifying and rewarding specific technologies under multiple code provisions, Congress should identify broad energy objectives based on generally applicable, rigorous performance criteria and then establish tax incentives that equally support all technologies meeting or surpassing that criteria. A technology-agnostic energy tax regime ensures that both emerging and established technologies receive the same treatment under the tax code. Such a technology-neutral regime would allow free-piston Stirling cycle technology to appropriately receive the same tax benefits as comparable technologies that are currently advantaged by the technology-specific tax code.

Additionally, as Congress reforms the energy tax regime it should also consider lengthening the duration of energy tax credits. Most energy investments are capital-intensive, long-term projects; however, most energy tax credits are short-term provisions. Consequently, in order to efficiently incentivize the type of behavior covered by the tax credit, the credit's duration must be sufficiently long enough to provide companies and investors with certainty that upon the project's completion they will be able to qualify for the tax credit.

Conclusion

Infinia would like to thank the Ways and Means Committee for its consideration of tax reform and the future of energy tax policy, issues of great importance to the nation and our company. Thank you for the opportunity to discuss Infinia's experiences with the tax code and the immense potential of free-piston Stirling cycle device technology. We look forward to working with the Committee in the future as it undertakes comprehensive tax reform.

D. FOX CONSULTING, LLC347 East 76th Street, Suite 3C • New York, NY 10021 • (516) 455-2996 • Dfoxesq@gmail.com

October 6, 2011

The Honorable Pat Tiberi,
 Chairman of the Subcommittee on Select Revenue Measures,
 The Honorable Charles Boustany,
 Chairman of the Subcommittee on Oversight
 Committee on Ways and Means
 United States House of Representatives
 Washington, DC 20515

Mr. Chairmen, Members of the Subcommittees:

I contact you on behalf of **J.P. Noonan Transportation, Inc.**, located at 415 West Street, West Bridgewater, MA 02379. J.P. Noonan is a hauler that owns a very large fleet of heavy-duty trucks. The natural gas transportation fuel model proven effective in California and other western states is a model they seek to duplicate.

There is an energy crisis in America and Congress must act now. Decreasing our nation's dependence on foreign oil is a critical national security goal. H.R. 1380, the "New Alternative Transportation to Give Americans Solutions" Act of 2011 (NAT GAS) provides a real solution to this vital problem of immediate concern.

The methods and goals of NAT GAS are practical, proven and will enable the nation-wide momentum that is needed to reduce our consumption of foreign oil. The environmental, energy-security and economic benefits to using natural gas as a transportation fuel - particularly, using LNG in high fuel-use fleet vehicles - are significant and real. Natural gas is an alternative transportation fuel that is domestically-available, cleaner-burning and more affordable and stable in pricing than petroleum-based fuels, particularly diesel. Replacing one diesel-fueled heavy-duty tractor with one fueled by LNG has the environmental equivalent of taking as many as 325 gasoline-fueled personal vehicles off of the road.

On March 30, 2011, President Obama spoke at Georgetown University regarding our nation's energy future. In his address, he encouraged fleets to switch to alternative fuels such as natural gas and praised fleets that have already done so. The benefits offered by natural gas as a transportation fuel are shared by the entire country. Cleaner air, self-sustainability and economic savings are collective goods that this Congress must work toward.

The NAT GAS Act offers a concise five-year plan targeted to the segment of the transportation industry that will display the most beneficial results from the legislation's objectives. This kick-start to the transportation industry will confirm and display that natural gas vehicle technology is here and now and that no major technical breakthroughs are needed. The emissions reductions and balance sheets numbers will show that natural gas is a clean and economically viable alternative transportation fuel that must be embraced and encouraged immediately. The benefits to this bill continue with its job creation facet. At a time when we critically need jobs in our

country, according to a study, over half a million jobs will be created by the passage of NAT GAS. Another reality to be felt on "Main Street" is that this bill would help lower the price of gasoline by reducing the demand.

In conclusion, on behalf of J.P. Noonan Transportation Inc. who realizes the undeniable, real multitude of benefits offered by natural gas as a transportation fuel, I urge Congress to pass the NAT GAS Act and help make American proud of your work on behalf of the future of all Americans.

Please contact me if I can provide any additional information on the above. Thank you in advance for your time.

Sincerely,
Deirdre Fox

Statement on behalf of the National Association of Home Builders***Joint Hearing on Energy Tax Policy and Tax Reform*****Committee on Ways and Means
Subcommittee on Select Revenue Measures****September 22, 2011**

On behalf of the 160,000 members of the National Association of Home Builders (NAHB), we respectfully submit this statement discussing the significance and impact of existing energy tax policies on housing and related industries. The energy efficiency of the built environment is a critical resource issue. Due to the enormous potential for American families to save thousands of dollars in energy costs each year, promoting an effective efficiency policy at the federal level is essential. Nearly three-quarters of the homes and buildings that consume over 20% of our nation's energy each year were built before the introduction of modern energy codes in 1991. The families that live in the 95 million oldest, least-efficient homes often cannot afford the upfront costs of energy retrofits and upgrades without meaningful incentives. Additionally, the most-efficient new homes far outpace the older stock, but at a premium that is quickly pricing out families from longer-term energy savings in new housing. A federal policy that combines effective building efficiency incentives to address these cost impacts on consumers, as well as fosters job creation in the hard-hit construction sector, is responsible and necessary for addressing two of the biggest household expenses facing today's families: housing and energy.

In 2005, Congress passed the Energy Policy Act (P.L. 109-58) and established a number of important tax incentives to promote greater energy efficiency in the built environment – single family, multifamily and commercial homes and buildings. These incentives acted as the only federal-level programs to address energy efficiency in new and existing homes and buildings with the intent of moving the market towards greater efficiency and the delivery of

innovation and technology transfer in building design and practice. From the outset, the incentives enjoyed bipartisan support and were initially proposed at much higher dollar levels before being scaled down during final negotiations. Clearly, Congress' intent was to provide incentives to push the market towards greater efficiencies rather than enact rigid mandates that distort the market.

Section 45L – New Energy Efficient Home Tax Credit

The Section 45L tax credit provides a \$2,000 credit to builders of new homes that exceed a minimum energy code specification (2003 International Energy Conservation Code plus the 2004 supplement) by at least 50% in both heating and cooling efficiency. The efficiency performance must be independently verified by an authorized energy rater, and the credit is subject to both a basis adjustment and may not be claimed against alternative minimum tax (AMT) liability. Eligible homes include residences, single-family and multifamily, that are sold to owner-occupants or leased for rental purposes.

Although this credit has suffered from start-and-stop issues of short-term and retroactive extensions over the last five years, and will again expire at the end of 2011, the 45L program has managed to deliver the market transformation results that Congress intended to encourage. The chart below shows that from enactment in 2005 through the end of 2009 (most recent year with available data), the Section 45L credit went from 0.6% of the market to 10% of the market for new homes.

Year	New Homes Sold	45L-Certified Homes	% of Homes Sold
2006	1,052,000	7,110	0.6%
2007	776,000	23,702	3.1%
2008	485,000	21,939	4.5%
2009	374,000	37,506	10%

Data provided by Residential Energy Services Network (www.natresnet.org), 2009.

In 2009, 10% of all the new homes sold met the energy thresholds of the Section 45L credit and were 50% or more energy efficient, with a more than 5-fold increase in total certified homes.

Section 45L is Hampered by AMT Rules and the Basis Adjustment

While claims of the Section 45L credit has grown exponentially, further adoption may be limited by two restrictions imposed under current law. NAHB recommends that Congress enact technical changes to deal with these barriers.

First, the credit cannot be claimed against alternative minimum tax (AMT) liability.¹ As the home building industry is largely comprised of small builders operating as pass-thrus (80% of NAHB builder members are organized as pass-thru entities), many home builders are trapped in AMT status year after year. Because this credit is claimed by the builder, the AMT limitation effectively deters small builders from participating in the program. NAHB believes that homebuyers and renters will be better served if Congress allows all home builders to take advantage of the Section 45L tax credit by allowing it to be claimed against the AMT.

It is also critical that any AMT fix include a retroactive element that allows “credits determined” to the beginning of the program to be claimed against AMT. For those builders who constructed 45L-eligible homes in good faith but have been unable to claim the credit, a retroactive fix is the fairest approach.

In addition to the AMT, Section 45L(e) requires a basis adjustment by the builder when claiming the tax credit. The basis adjustment poses unique challenges to a builder due to the nature of the home building businesses. Generally, builders may construct homes on a speculative or non-speculative basis. Custom built homes are generally constructed on a non-speculative basis and typically with the eventual homeowner acting as the “builder”

¹ The *Creating Small Business Jobs Act of 2010* (P.L. 111-240) allowed eligible small businesses to claim general business tax credits, including Section 45L, against the AMT. This applied only to tax credits determined in 2010, so credits earned from 2005 to 2009 that are carried-forward are not eligible for this AMT exemption.

(owning the lot and the building materials) and the home builder acting as a general contractor providing the service of construction.

The IRS has taken the position that homes built on a non-speculative basis may not qualify for the program *because the builder does not own the property and therefore cannot reduce basis*. Moreover, IRS Notice 2008-35 makes it clear that the eventual homeowner cannot claim the credit as the “builder” because the 45L credit cannot be claimed for a home in which the taxpayer will reside.

NAHB does not believe that Congress intended to exclude non-speculative homes from the tax credit. The ideal solution would be to eliminate the basis adjustment. Realizing this change would result in a revenue impact, NAHB recommends Congress look to a solution that preserves the basis adjustment while allowing all eligible homes to qualify for the credit.

The commercial energy efficient building deduction, Section 179D also requires a basis adjustment but allows the deduction to be claimed by someone other than the building owner in certain cases. Specifically, Section 179D(d)(4) authorizes the Secretary to issue regulations to allow the deduction to be claimed by “the person primarily responsible for designing the property in lieu of the owner,” for certain government-owned buildings.

45L could and should be modified to allow the tax credit to be claimed by the general contractor in custom home building, non-speculative building situations (ones in which the owner of the home and lot will be the eventual homeowners, thereby ensuring the tax credit is consistent with its operation as a general business credit under Section 38). This could be accomplished by granting the Secretary authority similar to that under 179D(d)(4). The ultimate fix could then be done via regulation and would not require modifying the existing basis rules. Custom home builders are the leaders in Green Building, and excluding them from the 45L program reduces the scope and policy effectiveness of the tax credit.

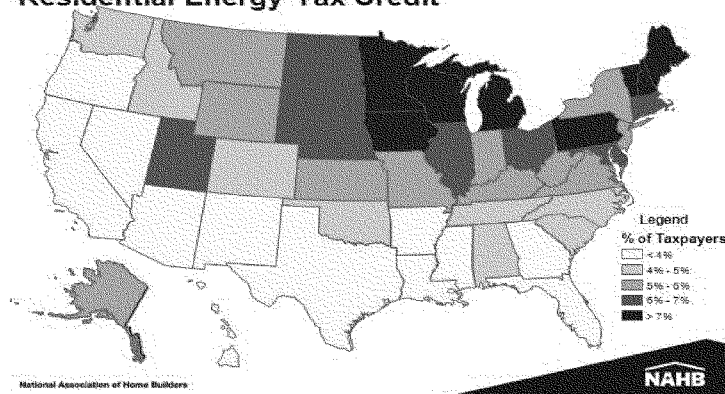
Section 25C – Qualified Energy Efficiency Improvements Tax Credit

The 25C tax credit began as a modest incentive for the purchase of qualified energy efficiency improvements for existing homes, such as windows, doors, roofs, and HVAC

equipment. Originally, the 25C credit provided 10% of the cost of the product (not including installation and labor costs) not to exceed \$500 but imposed various lower caps on specific energy efficient property, such as a maximum of \$200 for window purchases. At the outset, the credit offered little appeal to existing homeowners because the specifications for the qualified improvements had price tags that far exceeded the tax credit. Further, the various caps caused confusion and added complexity. In 2009, the American Reinvestment and Recovery Act (ARRA) expanded the original 25C program and increased the credit to 30% with a \$1,500 cap and included some labor and installation costs. All qualifying products now had the same cap, providing much needed simplicity. As a result, the appeal and popularity of this incentive soared and many retailers, manufacturers, and contractors advertised the newly-enhanced credit which encouraged business and fostered job growth in remodeling activity at the end of 2009 and 2010.

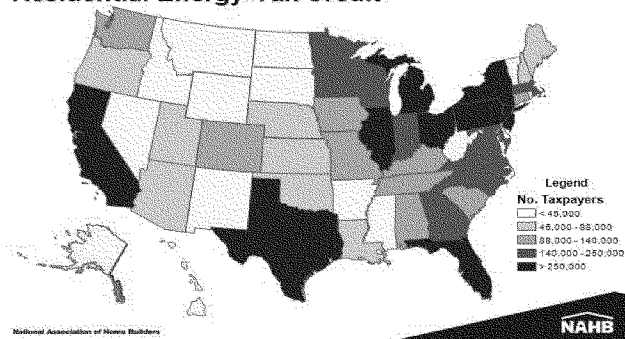
The success of the credit in those two years is unquestionable. Of note, the credit was used heavily in states with an older, less efficient housing stock, and states with more extreme weather conditions. NAHB analyzed Statistics of Income data from the Internal Revenue Service (IRS) about claims for the 25C and 25D (IRS data does not separate out these two credits) and found that in 2009, over 7% of all taxpayers in Minnesota, Iowa, Wisconsin, Michigan, Pennsylvania, Vermont, New Hampshire, and Maine claimed a residential energy tax credit.

Percent of Taxpayers Claiming a Residential Energy Tax Credit



And more than 250,000 taxpayers claimed this credit in California, Texas, Florida, Illinois, Ohio, Michigan, New York, Pennsylvania, and New Jersey.

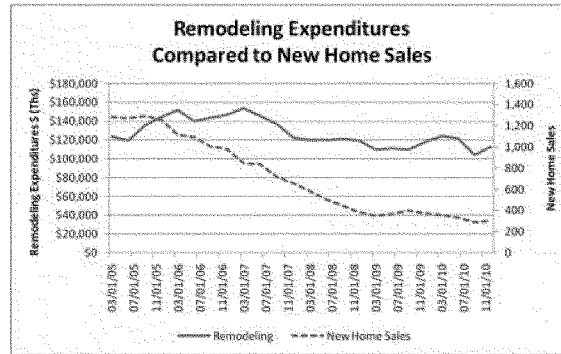
Number of Taxpayers Claiming a Residential Energy Tax Credit



In total, for tax year 2009, nearly \$6 billion of 25C tax credits were claimed. NAHB estimates that these tax credits were claimed in connection with \$20 billion in remodeling expenditures. These tax credits helped support the remodeling industry (see graph below) during a period in which new home sales experienced dramatic declines. NAHB estimates that every \$100,000 creates enough work for 1.11 full-time equivalent jobs.² This suggests the 25C and 25D programs were used in connection with 195,000 jobs.

² THE DIRECT IMPACT OF HOME BUILDING AND REMODELING ON THE U.S. ECONOMY

(<http://www.nahb.org/Generic.aspx?SectionID=734&GenericContentID=103543&ChannelID=311>), NAHB ECONOMICS PAPER.



Unfortunately, this highly successful tax credit reverted back to its 2008 levels for the 2011 tax year. Section 25C now only provides a 10% credit with a \$500 cap, plus assorted lower caps on certain energy efficient property like windows and furnaces. Reverting back to the lower credit, in addition to the complexity of the various caps, will likely discourage consumers from installing more energy efficient property when conducting home renovations. On windows alone, most homes have an average of twelve windows. For a homeowner undergoing window replacement in 2011, the \$200 cap is unlikely to be an effective incentive, and homeowners are more likely to install cheaper, less efficient windows as a result.

Section 25D – Residential Energy Efficient Property

Section 25D provides a nonrefundable 30% tax credit to consumers for the purchase and installation of certain power production property for a home. Typical uses include solar, geothermal, fuel cells, and small wind energy. The credit is uncapped, meaning that all qualified expenses may be claimed. Labor costs are eligible, and unlike Section 25C and Section 45L tax credits, Section 25D credits can be claimed against the AMT.³

³ Although the tax code does not allow taxpayers to claim Section 25C credits against the AMT, the annual AMT “patch” typically allows taxpayers to claim Section 25C and other personal, nonrefundable tax credits against AMT.

NAHB believes that the simple, straight-forward approach used in Section 25D should be a model for reforming the Section 25C tax credit. A 30% tax credit that includes labor costs and is automatically AMT-preferred is simple, straightforward and effective. Consumers know exactly what benefit they are receiving, which makes it simpler for them to understand both the tax and energy benefits from switching to an advanced system for heating, cooling, and energy production.

Section 179D – Energy Efficient Commercial Buildings Deduction

Section 179D provides a deduction equal to energy-efficient commercial building property expenditures made by the taxpayer. This includes multifamily dwellings built under the commercial building codes (four stories or higher). If a building meets the overall building requirement of a 50% energy savings, the taxpayer may deduct \$1.80 per square foot of the property on which qualifying improvements were made. For buildings that do not reach the targeted energy savings, a partial deduction of \$0.60 a square foot is allowed with respect to each separate building system that meets or exceeds applicable system-specific targets. The taxpayer must obtain an independent certification before the deduction can be claimed.

The only data available about the success, or lack thereof, of this incentive is anecdotal. It is largely unused by the commercial real estate industry at the higher level because of the significant costs associated with a 50% reduction in both heating and cooling costs. Consequently, efforts to redesign this incentive to make it more effective and easier to utilize for existing building retrofits are already underway with a large coalition of support from a diverse set of real estate and environmental interests.

Roll of the Tax Code in Energy Policy

Although some of these incentives would benefit from updates, nearly all of these tax incentives are performing exactly as Congress intended when establishing them back in 2005. Despite the unprecedented downturn in housing and the resultant recession, the increased amount of economic activity associated with retrofit incentives under 25C, coupled with the stellar market penetration of new energy-efficient homes under 45L

confirm that federal policies promoting building efficiency are effective, necessary, and accomplish broad conservation goals.

Some have argued for elimination of all energy and efficiency tax incentives in an effort to let the market determine the direction of costs and savings for consumers. Unfortunately, families that do not have the economic resources to undertake a meaningful energy upgrade will be sidelined in this process. And with or without these incentives, the Department of Energy is on a mission to federalize and mandate aggressive energy code requirements for new homes and buildings that will further deteriorate housing affordability. . Some of these new and proposed requirements will prove to be very expensive to the consumer and will take decades to recover the investment, a payoff few homeowners will see as the average homeowner remains in their home for about ten years while the average home remains in the housing stock for 60 years or more.

Those who suggest that Congress should eliminate incentives to offset these costs on the new construction side, plus remove incentives to upgrade older, less-efficient housing, cannot rely on the market to correct federal agency actions that are not based on a reasonable payback period and cost-benefit analysis. Further exacerbating the situation, appraisals often inappropriately or inaccurately value energy efficiency and energy-efficient features in homes, creating a regulatory disincentive for optional energy efficiency upgrades.

With an aging infrastructure and building stock, more American families are going to be relegated to living and working in less-efficient homes and buildings. New construction is at historic lows, and even when the housing market begins to return to normal levels, consumers will be facing dramatically different mortgage qualification requirements and financing issues than before the downturn. The reality is that the oldest, least-efficient homes are the most affordable to families with lower and moderate incomes. Unfortunately, these families also bear the largest burden in energy costs, as a percentage of income.

Utilization of the tax code to promote energy efficiency and consumer savings is the most effective opportunity to truly shape an efficiency policy that is not punitive to the housing

market as a whole, and create jobs as a result. The use of the tax code to incentivize energy efficiency in buildings has a long history of bipartisan support. Much like other environmental rules and regulations, efficiency requirements are expensive, and ultimately the consumer bears the brunt of those costs. New home builders cannot absorb costly new mandates, and these costs will be passed onto new homebuyers. But to really improve home energy efficiency, we must look at the over 95 million homes that were built before modern energy codes in 1991. Without effective tax incentives, those homes will continue to waste energy and cost the consumer money.





September 22, 2011

The Honorable Pat Tiberi, Chairman
Subcommittee on Select Revenue Measures
Committee on Ways and Means
U.S. House of Representatives
Washington, DC 20515

The Honorable Charles Boustany, Chairman
Subcommittee on Oversight
Committee on Ways and Means
U.S. House of Representatives
Washington, DC 20515

Chairman Tiberi and Chairman Boustany,

On behalf of the 7,000 companies that belong to the National Association of the Remodeling Industry (NARI), we are writing to thank you for having this hearing on the intersection of energy policy and tax policy.

NARI is a non-profit trade association based in Des Plaines, Illinois. We have 60 Chapters in major metro areas nationwide and our membership is comprised of remodeling contractors, local suppliers, and national suppliers. Eighty percent of NARI member companies have 20 employees or less. NARI's core purpose is to advance and promote the remodeling industry's professionalism, product and vital public purpose.

The Energy Policy Act of 2005 established a federal tax credit for energy-efficient home improvements (found in section 25C of the tax code). The 30 percent credit applies to energy efficiency improvements for existing homes and the purchase of high-efficiency heating, cooling, and water-heating equipment. Homeowners were able to take a combined credit up to \$1,500 for equipment purchased during a two-year period, until 2010 when the lifetime credit cap was lowered to \$500.

NARI believes that 25C tax credits deserve recognition for their success which is largely undocumented when only measuring tax return data. If the true measure of success was considered, reinstatement of the program is more likely, rather than exploration of alternative energy programs with unknown success rates. In a November 2010 survey, 81 percent of NARI members supported the extension of the 25C tax credit.



Every energy efficiency improvement offers an opportunity for trained remodeling professionals to enhance the quality of homeowners' lives. Those projects provide valuable work in the construction sector which is struggling to recover from our economic downturn. The home energy efficiency improvements also save homeowners substantial amounts of money on their monthly energy bills.

The 25C tax credit had significant impact on job creation in the construction and manufacturing sectors as well as in energy reduction, and it's believed that reinstatement of the program will have continued positive impact

Sincerely,

Mary Busey Harris, CAE
Executive Vice President



**Testimony of the Honorable Glenn English
Chief Executive Officer (CEO)
National Rural Electric Cooperative Association**

**Submitted for the Record to the Select Revenue Measures and
Oversight Subcommittees of the Committee on Ways and Means
Hearing on Energy Tax Policy and Tax Reform
Thursday, September 22, 2011**

Thank you for the opportunity to offer testimony about how electric cooperatives have utilized renewable electricity tax incentives, both directly and indirectly, to develop projects that help to keep electricity reliable and affordable for their consumers.

Electric cooperatives and their consumers have, since 2005, utilized the Clean Renewable Energy Bond program (CREBs) to finance renewable projects. Recently, some cooperatives that could not use CREBs have indirectly benefited from the 1603 Treasury Grant Program (TGP). In addition, electric cooperatives have purchased renewable power on contract from private developers claiming the Production Tax Credit (PTC), since the mid-1990s. Co-op experiences with all three of these programs can guide this Committee as it decides the future of renewable incentive policy.

A key principle that should be considered in the context of energy tax reform is this: if Congress uses the tax code to direct energy policy, not-for-profit electric cooperatives should be included in any available incentives. Otherwise, the tax code will create a disparity. Co-op consumers in rural America will be unable to enjoy the diverse mix of generation resources available in areas co-ops serve, while consumers of investor-owned utilities will benefit from incentives. Moreover, without incentives, meeting state and federal renewable and environmental mandates will be more costly for members of tax exempt rural electric cooperatives than for consumers of investor-owned utilities (IOUs).

Background on Electric Cooperatives

The National Rural Electric Cooperative Association (NRECA) is the national service organization representing the interests of cooperative electric utilities and their consumers. Electric cooperatives are not-for-profit, private businesses governed by their consumers. These consumers are unique in the electric industry in that they are members of their cooperative and therefore own their utility ("member-consumers"). Today, over 900 electric cooperatives serve 42 million consumers in 47 states. Cooperatives are a unique sector of the electric utility industry, serving an average of only 7 consumers per mile compared with the 35 customers per mile served by investor-owned utilities (IOUs) and 47 customers per mile served by municipal utilities.

To put this in perspective, electric cooperatives serve 12% of the nation's electricity customers -- but maintain 42% of the nation's electricity distribution lines. Cooperative revenue per mile averages only \$10,565, while it is more than six times higher for

investor-owned utilities, at \$62,665 and higher still for municipal utilities, at \$86,302 per mile. In summary, cooperatives have far less revenue than the other electricity sectors to support a greater share of the distribution infrastructure.

These numbers illustrate why bringing power to rural areas is a challenging and costly endeavor. The not-for-profit, cooperative business model has been the key to delivering reliable and affordable power to these low density areas. Consistent with Internal Revenue Service requirements, electric cooperatives are democratically governed by locally elected boards of directors, and operate at cost. Any revenue collected above what is needed for the cooperative is returned to all member-consumers on an equitable basis. Benefits received from the federal government, therefore, also flow to the cooperative's members. Given this, electric cooperatives are generally exempt from federal income tax. All electric cooperatives, however, pay state and local property taxes, sales tax and payroll and excise taxes.

Does Renewable Electricity Require Incentives?

Electric cooperatives have a mission to provide reliable, affordable electricity to their member-consumers. Co-ops must balance that mission with compliance with state renewable portfolio mandates and state and federal clean air law. As such, co-ops must consider all available electricity sources to meet new electricity demand. Cooperatives are planning to build 12,800 MW of new electric generation over the next decade, and will have to buy additional generation in the market to meet an annual population growth rate exceeding 1 percent per year in their service territories. These figures do not take into account additional power needed to replace older coal plants that will soon be retired given recent and prospective Environmental Protection Agency (EPA) regulations.

According to the Energy Information Agency (EIA), renewable electricity (excluding renewable hydropower) accounts for 4% of the nation's fuel mix – about double the percentage of renewable energy in the mix prior to the expansion of tax incentives under the Energy Policy Act of 2005. Renewable electricity is generally thought of as distributed generation and is much smaller in scale than a new coal or gas plant. In the case of solar and wind, it is only intermittently available. For these reasons, it cannot supplant new gas, clean coal or nuclear power plants that could replace retired coal plants. Nonetheless, renewable resources are an important part of the "mix" for building the generation necessary to meet future electricity demand while mitigating global greenhouse gas emissions and traditional pollutants that result from fossil fuel generation. This is increasingly important as the Environmental Protection Agency develops more strict standards for power plants.

Given its importance to balancing environmental goals within our nation's fuel mix, some ask why renewable electricity should require a tax incentive or incentive of any kind. For cooperatives, the answer is that renewable electricity will only be developed if it can be done so affordably for consumers. Today, without incentives, renewable electricity is unaffordable compared to natural gas-fired generation. November 2010 U.S. Energy Information Administration estimates that the overnight capital cost of an

advanced natural gas combined cycle plant is \$1,003 per kW of capacity. Not counting current tax subsidies, by way of comparison, an onshore wind project is the most affordable renewable resources at \$2438 per kW; a large solar photovoltaic is \$4755 per kW; and a combined cycle biomass plant is \$7894 per kW. Although existing tax credits have driven improvements in renewable resources, the mission of driving the costs of renewable technology closer to the cost of conventional resources has not yet been completed.

Despite its value in providing a balanced generation profile for utilities, absent incentives, the pace of placing renewable energy in service is likely to slow to a trickle. Yet putting future generation into one basket – likely, natural gas – is risky due to volatile prices. For example, in May of 2008, natural gas prices were \$12.41 per thousand cubic feet (TCF), while today, prices are hovering around \$5 TCF. The new, lower prices are partly a result of the recession and newly discovered domestic gas reserves. However, past experience teaches us that gas is a volatile price input for fuel as home heating, transportation and electricity sectors all may rely on gas. Moreover, utilizing natural gas does not avoid greenhouse gas emissions.

Some argue that mandates are sufficient to drive renewable energy. Thirty-seven states currently have renewable mandates or goals, and 20 of those include cooperatives in these programs. Without tax or other incentives, there will be no tools available to meet those goals affordably. The cost of renewable resources will exceed the cost of paying a penalty to the State for failing to build them. Exacerbating this result, many state mandates ultimately require resource development that simply is not achievable given transmission constraints and the quality or availability of renewable resources. These mandates quickly convert to a pure tax on consumers when penalty payments are paid in lieu of actual resource development. For those reasons, NRECA has opposed one-size-fits-all federal renewable portfolio standard and has consistently advocated that the best way to push the envelope on technology remains incentives – whether those incentives are in the tax code, in the form of grants, or through low-cost loan programs.

Experience with the CREB Program

The Clean Renewable Energy Bond (CREB) program was enacted in the 2005 Energy Policy Act with strongly bipartisan support. It helped cooperatives and other not-for-profits to finance renewable generation projects that would have been eligible for the Production Tax Credit if developed by a for-profit. The bond started as, essentially, a zero interest, term-limited loan. A cooperative would issue a bond; the bondholder would receive principal repayment from the cooperative; and the Federal Treasury would provide a tax credit to the bondholder in lieu of interest the cooperative would otherwise have paid.

A volume cap of \$800 million in bonding authority was initially provided with \$300 million set aside for electric cooperatives. The volume cap posed a problem for the program. \$800 million was provided, yet Treasury received \$2.5 billion in applications overall in the first year. While an additional \$400 million (with \$150 million set aside for

electric cooperatives) was provided under the Tax Relief and Health Care Act of 2006, applications still exceeded available funding authorizations.

By contrast, there is no volume cap for the Production Tax Credit, the Investment Tax Credit or tax grant provided under the American Recovery and Reinvestment Act of 2009 ("stimulus bill"). Attempting to address this disparity through meaningful program funding, the stimulus bill, combined with the Emergency Economic Stabilization Act of 2008 ("economic rescue bill"), added \$2.4 billion in bonding authority to the CREBs program, divided equally between electric cooperatives, municipal utilities and non-utility government bodies. These bills also made a series of improvements to the program to make the bonds more marketable, such as the ability to strip the bond from the tax credit and sell them separately, and provided for a 70%/30% shared interest cost between the issuer and the Treasury.

In 2009 and 2010, electric cooperatives received over \$600 million in CREBs awards through bond authorizations that were set asides in the two bills. Despite the promise of significant new funding, the program hit a major snag -- the economic downturn. The market for tax credits nearly collapsed. Potential CREBs buyers were demanding significant additional interest from issuers on top of the face value of the bond -- an effective interest rate of 8.5%! So, CREBs had already been allocated to projects that were ready to move forward. But the bonds could not be issued, and the projects -- and related jobs -- were at a standstill.

To rescue these projects, the Committee made a critical improvement to the program in H.R. 2847, the "Hiring Incentives to Restore Employment Act." This new law established a "direct payment" option that allows CREB issuers, such as cooperatives, to receive a direct payment from Treasury designed to reimburse the co-op for 70% of the projected interest cost on these bonds. This option rescued the program from the negative impact of the recession on the market for tax credits, and assured that renewable projects could move forward. Under the conditions that continue to suppress tax appetite in the bond markets, the "direct pay" feature remains an important aspect of the program.

To sum up cooperatives' success with the program, 210 MW of cooperative renewable power is currently in service financed through CREBs, with another 250 MW poised to come on line under the program. The projects are distributed across 18 states and include solar, wind, geothermal, hydropower, biomass and landfill gas technologies. The map labeled "Attachment A" provides more detail on the projects. Each CREB project merits mention as a success story. The projects are the result of balancing clean energy objectives with the conservative approach imposed by local cooperative Boards of Directors. The Boards emphasize long-term planning, continued affordable rates and prudent use of utility resources. Electric cooperative projects are not built to impress stockholders or follow a trend, but instead, provide affordable, clean, renewable power benefits to local consumers.

Experience with the Production Tax Credit and 1603 Treasury Grant Program

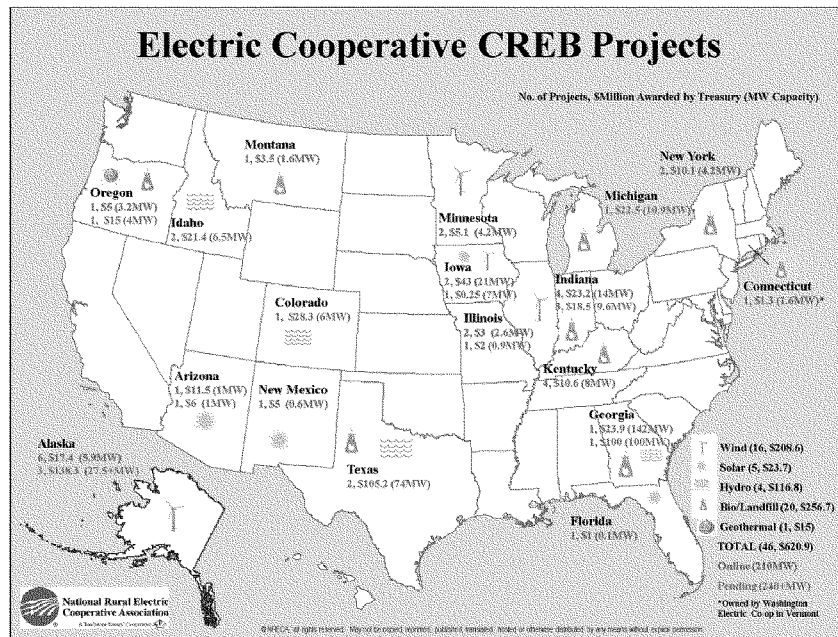
The CREB program is a story of coop ownership of renewable projects. Direct project ownership is the best way for cooperatives to reserve environmental and compliance benefits for their own consumers. But cooperatives also buy a substantial quantity of renewable energy from the market. Overall, cooperatives access over 3900 MW of renewable capacity (not counting renewable hydropower). Twenty percent of this is owned by the cooperative, while eighty percent of this capacity is generated by taxpaying entities and then contractually purchased by cooperatives. These sellers are themselves the recipients of the Production Tax Credit (PTC) or, in the case of solar, the Investment Tax Credit (ITC). Cooperatives do not have federal tax liability and therefore cannot use the PTC – but nonetheless, their consumers can benefit indirectly from entities that do. The PTC has never been a complete solution for cooperatives, as the entire value of the PTC is only partially flowed through to the cooperative on contract. So, the PTC does not provide cooperatives with cost-certainty and more importantly, does not enable electric cooperatives to own and develop their own resources. It has been a valuable underpinning in the marketplace for renewable energy for the past decade, although it has suffered some of the same impacts from the recession that hit the CREBs program – a lack of tax appetite for tax credits.

The expansion under the “stimulus bill” of the PTC to an option to take an Investment Tax Credit -- and then convert the ITC to a tax grant under the “1603 Treasury Grant Program” -- was designed to address the tax appetite barrier affecting the PTC. Under the 1603 Treasury Grant Program (TGP), a renewable developer can receive a grant from Treasury covering 30% of the project’s capital costs once it is placed in service. Cooperatives were not included in this program directly, but it has brought cooperatives an opportunity that is proving to be more useful than the PTC. Some cooperatives have formed structures that enable them to indirectly utilize the TGP and own and develop renewable projects. It has been the driver for several significant cooperative renewable projects currently underway.

Conclusion

Whether indirectly through the PTC and 1603 Treasury Grant Program - or directly through CREBs - nearly 100% of the renewable projects that benefit electric cooperative consumers are attributable to tax code incentive programs. Without incentives, development of such renewable projects will grind to a halt. The Committee has important considerations to weigh as they carefully review reform of the tax code. Renewable energy development will not “make or break” electric cooperatives as entities, but they will shape the extent to which cooperatives rely upon natural gas or other resources in their generation mix, their ability to optimize local resources, and the extent to which cooperative consumers are exposed to environmental compliance costs. Should Congress choose to extend tax incentives like the PTC to drive down the cost of renewable technologies, we urge Congress to also extend programs -- such as Clean Renewable Energy Bonds or the Treasury Grant Program -- that benefit not-for-profit cooperative consumers.

Attachment A



Contact Information for Testimony by the Honorable Glenn English
Chief Executive Office, National Rural Electric Cooperative Association

Joint Hearing on Energy Tax Policy and Tax Reform
September 22, 2011

Submitted by:

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Written Testimony of Anne Steckel
National Biodiesel Board Vice President of Federal Affairs
Submitted to the U.S. House of Representatives Ways and Means Subcommittee on Select Revenue Measures and Subcommittee on Oversight

"Hearing on Energy Tax Policy and Tax Reform"
September 22, 2011

Executive Summary: Biodiesel is a renewable, low-carbon diesel replacement fuel. It is the only domestically produced, commercial-scale Advanced Biofuel – as defined by the Environmental Protection Agency (EPA) – that meets a strict ASTM fuel specification and is readily available and accepted in the U.S. marketplace. (Note: Biomass-based Diesel is an Advanced Biofuel under the EPA's Renewable Fuels Standard (RFS2) program, and in general, U.S. biodiesel produced from animal fats, recycled cooking oil, soybean oil, inedible corn oil derived from the ethanol production process, canola and algae qualifies as Biomass-based Diesel).

In its short history, the U.S. biodiesel tax incentive has achieved its desired goal of increasing the domestic production of a clean-burning, renewable fuel while generating jobs, reducing America's reliance on foreign oil and improving the environment.

When the incentive was enacted in 2004, the U.S. produced 25 million gallons of biodiesel. This year, the industry is on pace for record production of at least 800 million gallons and will support more than 31,000 jobs across the country while generating some \$628 million in federal, state and local tax revenues, according to a recent economic study¹.

This growth is to be applauded, but it should not cloud the fact that biodiesel remains a young and vulnerable industry. In fact, we know from recent history what could happen if Congress allows the tax incentive to lapse. When that occurred in 2010, the result was predictable: Plants closed and thousands of people across the country lost work. Specifically, U.S. biodiesel production plummeted by 42 percent, resulting in the loss of nearly 8,900 jobs and a drop in household income of \$485 million.

Only a few months ago, after Congress ultimately reinstated the tax incentive, did the industry regain its footing and begin ramping up production again.

With the ongoing economic downturn, now is not the time to allow that to happen again. Under projected expansion by 2015, biodiesel is expected to support more than 74,000 jobs, \$4 billion in income, and some \$7.3 billion in GDP, according to the economic study.

That growth will be severely jeopardized by the expiration of the tax incentive, and we strongly encourage the Ways and Means Committee to provide a seamless extension of the biodiesel, renewable diesel and bio-jet tax credit.

Chairmen Tiberi and Boustany and Ranking Members Neal and Lewis, I appreciate the opportunity to submit written testimony on behalf of the National Biodiesel Board (NBB) regarding energy tax policy and tax reform. As producers of America's only commercial-scale Advanced Biofuel that's sold and produced nationwide, the U.S. biodiesel industry looks forward to working constructively with this committee to ensure that our nation's Advanced Biofuel goals are met.

NBB applauds your efforts to review energy tax incentives as the Ways and Means Committee considers fundamental tax reform. History has shown that well-crafted and efficient tax incentives can be powerful policy mechanisms to achieve the nation's energy objectives and leverage private sector investment to promote the deployment and utilization of new energy resources. This is certainly the case with the tax credit for biodiesel, renewable diesel and bio-jet fuel. As with every other major U.S. energy resource, effective tax policy has helped create domestic manufacturing jobs as well as significant economic and energy policy benefits.

The U.S. biodiesel industry is having a record year of production and is creating good-paying jobs in nearly every state in the country. This success is in part attributed to the strong federal policies in place encouraging domestic energy production. While we understand the pressures facing Congress, we believe economic conditions are simply too weak today to pull support from a growing American industry that is a rare bright spot in this struggling economy.

Now, as much as ever, the biodiesel industry needs stability and support to continue its remarkable success story, and we encourage the Ways and Means Committee to provide a seamless extension of the biodiesel, renewable diesel, and bio-jet tax credit. A seamless extension, before the end of this year, would provide needed certainty and protect against future disruptions and the loss of thousands of much-needed jobs.

Background and Industry Overview: Biodiesel is a renewable, low-carbon diesel replacement fuel. The EPA has determined, based on the performance requirements established by the *Energy Independence and Security Act* (EISA) (P.L. 110-140), that domestically produced biodiesel is an Advanced Biofuel under the RFS2 program. In fact, it is the only commercial-scale fuel sold and produced across the United States to achieve this designation.

Biodiesel is made from waste greases like recycled cooking oil, animal fats and secondary-use agricultural oils, and is refined to meet a specific commercial fuel definition and specification. The fuel meets the D6751 fuel specification set forth by ASTM International, the official U.S. fuel-certification organization. Biodiesel is one of the most- and best-tested alternative fuels in the country and the only alternative fuel to meet all of the testing requirements of the 1990 amendments to the Clean Air Act. There are approximately 195 domestic and foreign biodiesel plants registered with the EPA, representing a combined production capacity in excess of 2.7 billion gallons.

Biodiesel is primarily marketed as a five percent (B5) blending component with conventional diesel fuel, but can be used in concentrations up to twenty percent (B20). It is distributed utilizing the existing fuel distribution infrastructure with blending occurring both at fuel terminals and "below the rack" by fuel jobbers.

Status and Background on the Biodiesel Tax Incentive: The biodiesel tax incentive was enacted in 2004 as part of the American Jobs Creation Act (P.L. 108-357). The incentive was subsequently extended through December 31, 2008 as part of the Energy Policy Act of 2005 (P.L. 109-190). H.R. 1424, the Emergency Economic Stabilization Act of 2008 (P.L. 110-343), again extended the incentive for one year through December 31, 2009, at which time the credit expired. After a year of being expired for all of 2010, Congress extended the tax credit through Dec 31, 2011 (P.L. 111-312).

The 2010 expiration of the tax credit had a severely detrimental impact on the domestic biodiesel industry. In fact, the industry's decline resulted in the loss of nearly 8,900 jobs and a drop in household income of \$485 million.

The biodiesel tax incentive is designed to encourage the production and use of biodiesel by making the fuel price-competitive with conventional diesel fuel. In general, current law allows taxpayers to claim the biodiesel tax incentive as either a \$1.00 per gallon general business income tax credit or as a \$1.00 per gallon blenders excise tax credit. To qualify for the biodiesel tax incentive, the fuel must by statute meet both the ASTM D6751 fuel specification and the Environmental Protection Agency's (EPA) registration requirements under Section 211 of the Clean Air Act.

The Internal Revenue Code provides a general business income tax credit to encourage the production and use of biodiesel, renewable diesel and bio-jet fuel. The credit is the sum of three credits – the biodiesel mixture credit; the biodiesel credit; and the small agri-biodiesel producer credit. The biodiesel mixture credit provides a \$1.00 per gallon credit for each gallon of biodiesel that is blended with conventional diesel fuel. The biodiesel credit provides \$1.00 per gallon for each gallon of pure B100 biodiesel that is used as a fuel. The small agri-biodiesel producer credit is a 10 cents per gallon credit for plants with a production capacity of less than 60 million gallons per year. The credit can be claimed on the first 15 million gallons of production.

Biodiesel Public Policy Benefits: The biodiesel tax incentive has helped achieve the worthwhile policy goal of creating jobs while increasing the production and use of biodiesel in the U.S. In 2004, when the incentive was initially enacted, the U.S. produced 25 million gallons. This year, with the tax credit reinstated we anticipate the industry will produce at least 800 million gallons. There are compelling public policy benefits associated with the enhanced production and use of biodiesel in the U.S.

Biodiesel Reduces our Dependence on Foreign Oil: Biodiesel can play a major role in expanding domestic refining capacity and reducing our reliance on foreign oil. The 2.8 billion gallons of biodiesel produced in the U.S. since 2005 have displaced an equivalent amount of diesel fuel with a clean-burning, efficient fuel that according to the EPA reduces lifecycle greenhouse gas emissions by as much as 86 percent compared to petroleum diesel fuel and creates 5.5 units of energy for every unit of energy that is required to produce the fuel.

Biodiesel is Good for the Environment: Biodiesel is an environmentally safe fuel, and is the most viable transportation fuel when measuring its carbon footprint, life cycle and energy balance. Since 2005, biodiesel has reduced lifecycle greenhouse gas emissions by 37.6 billion pounds, the equivalent of removing 3.31 million passenger vehicles from America's roadways.

Biodiesel Reduces Diesel Emissions: Tailpipe emissions from traditional diesel – primarily from trucking fleets, school buses and other vehicles – are a significant health and air quality concern. In an update to its National-Scale Air Toxics Assessment earlier this year, EPA cited diesel exhaust as one of the nation's

most dangerous pollutants, saying it is "among the substances that may pose the greatest risk to the U.S. population." Thousands of trucks and buses hit the road every day burning traditional diesel fuel. Substituting higher amounts of biodiesel for traditional diesel fuel is the simplest, most effective way to immediately improve emissions.

The Biodiesel Industry is Creating Green Jobs and Making a Positive Contribution to the Economy: In 2011, the NBB estimates that the U.S. biodiesel industry will support 31,000 jobs in all sectors of the economy. This will add more than \$3 billion to the nation's Gross Domestic Product (GDP).

Biodiesel is America's first advanced biofuel and when compared to gasoline, diesel and ethanol, it is at a fundamentally different stage of development and should be treated as a new fuel in the marketplace. The petroleum industry has received a number of tax incentives for many years; and the ethanol industry has been around for decades and has had its tax break since 1980. In contrast, the biodiesel industry has had commercial-scale production for only about six years, and has had its tax credit only since 2005. The gasoline marketplace is approximately 140 billion gallons, the diesel pool is approximately 60 billion gallons and the ethanol marketplace is producing some 14 billion gallons. By comparison, biodiesel is on pace to produce about 800 million gallons this year, up from approximately 300 million gallons last year, when the tax credit had expired. Biodiesel is an up-and-coming industry and is in a far more fragile stage of development.

Conclusion: The biodiesel tax incentive has helped achieve the desired goal of increasing the domestic production and use of biodiesel, and in turn has helped the U.S. realize the energy security, economic and environmental benefits associated with displacing petroleum with domestically produced renewable fuels. These benefits, however, will be jeopardized if Congress does not act in a timely manner to address the immediate issue facing the industry and extend the biodiesel tax incentive.

About NBB: NBB is the national trade association representing the biodiesel industry as the coordinating body for research and development in the U.S. It was founded in 1992, and since that time, NBB has developed into a comprehensive industry association which coordinates and interacts with a broad range of cooperators including industry, government and academia. NBB's membership is made up of biodiesel producers; state, national and international feedstock organizations and feedstock processor organizations; fuel marketers and distributors; and technology providers.

Chairmen Tiberi and Boustany and Ranking Members Neal and Lewis, I again appreciate having the opportunity to submit written testimony on this issue of significant importance to the U.S. biodiesel industry. We look forward to serving as a resource for the Committee on issues related to biofuels tax policy as the committee proceeds.

ⁱ Cardno ENTRIX June 8, 2011, Economic Impact of Removing the Biodiesel Tax Credit for 2010 and Implementation of RFS2 Targets Through 2015.



Statement of the National Propane Gas Association (NPGA)
Joint Subcommittee Hearing on “Energy Tax Policy and Tax Reform” (September 22, 2011)
U.S. House of Representatives
Ways and Means Committee,
Subcommittees on Select Revenue Measures and Oversight

Submitted by: Brian Caudill
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October 6, 2011

Propane autogas is a clean, domestic, and abundant transportation fuel that is already displacing imported gasoline and diesel fuel across America. The National Propane Gas Association's (NPGA) core belief is that there is no credible policy reason to provide tax incentives for select alternative fuels and not apply the same incentives to propane autogas. This is particularly the case between propane autogas and compressed natural gas (CNG), our primary competitor in the alternative fuel vehicle marketplace. Any alternative fuel tax incentive legislation should abide by the principle of fuel neutrality, an equitable “all of the above” approach to fuel tax incentives that allows the market, rather than the government, to decide which applications are best.

This said, NPGA understands that politics can possibly override the value of fuel neutrality in energy tax policy. The *New Alternative Transportation to Give Americans Solutions (NATGAS) Act of 2011* (H.R. 1380) is emblematic of this political reality. Legislation such as the *NATGAS Act*, (or any other “single-fuel solution” legislation), is ultimately inadequate because it provides incentives solely to CNG vehicles and leaves out other viable, clean domestic fuels and vehicles, most notably propane autogas.

For certain, the NATGAS Act's ultimate goal of lessening U.S. reliance on foreign sources of petroleum is laudable and correct. But passing legislation that incentivizes only one fuel places Congress in the position of “picking a winner” among alternative transportation fuels. The NATGAS Act would effectively eliminate an entire class of alternative fuel vehicles from consideration by customers interested in moving beyond gasoline and diesel vehicles. NPGA strongly believes that alternative fuel choices

NPGA Statement for the Hearing Record
 Joint Subcommittee Hearing on "Energy Tax Policy and Tax Reform" (September 22, 2011)
 House Ways and Means Committee, Subcommittees on Select Revenue Measures and Oversight

should be made by consumers in the marketplace, by the companies and fleet managers across the country who are tasked with making individual decisions about which alternative fuels and vehicles suit their needs best. The government should not influence this process in one particular direction.

The propane industry is seeking parity in government treatment of alternative fuels, and particularly between propane autogas and CNG. In fact, we believe that, given a level playing field, propane autogas and autogas vehicles can win the alternative fuel marketplace, play a lead role in enhancing national energy security, help clean up our environment, and positively impact our economy. However, as an industry we also recognize that the value of parity in alternative fuel tax policy is not necessarily shared by every interest. For this reason, NPGA applauds the work of Representative John Carter (R-TX) and Representative Dan Boren (D-OK) in introducing the *Propane Green Autogas Solutions* (Propane GAS Act) *Act of 2011*, legislation that would extend for five years federal alternative fuel tax credits for propane used as a motor fuel ("autogas"), propane autogas vehicles, and propane autogas refueling equipment.

There are many reasons to support the *Propane GAS Act*. First and foremost, supporting H.R. 2014 is a vote for clean energy and American energy security. 90% of our nation's autogas is domestically produced and propane supply is expected to increase over the next several decades, guaranteeing consumer availability and price stability. In fact, in 2010 the North American market (U.S and Canada) was a net exporter of propane into the global marketplace. This is likely to continue as production of propane from shale gas formations increases. Propane autogas vehicles also provide substantial environmental benefits as they produce 20% less greenhouse gas (CO₂) emissions, and less particulate matter, carbon monoxide, and nitrogen oxide than gasoline engines.

The *Propane GAS Act* is also good fiscal policy. H.R. 2014 offers the kind of multi-year policy commitment necessary to encourage private investment, build fueling infrastructure, and bolster a burgeoning autogas industry that will provide an immediate return on taxpayer investment. This legislation puts incentives directly into the pockets of U.S. business vehicle fleets, making the switch to an American-made alternative fuel practical and with transparent policy benefits. Furthermore, the economic costs in the gasoline and diesel market that result from volatile oil prices are much higher than the relatively small investment necessary to jumpstart large-scale autogas vehicle deployment.

The *Propane GAS Act* also makes good common sense. Propane autogas provides one of the fastest returns on investment of any domestic alternative vehicle fuel and fleets that are early adopters of autogas vehicles are seeing significant long-term

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cost savings due to lower fuel costs. In addition, autogas vehicles are the only economically feasible light- and medium-duty alternative fuel vehicles that can be deployed on a large scale and achieve comparable performance to gasoline vehicles. Finally, propane autogas vehicles and related refueling infrastructure are affordable and available right now. In addition to a robust vehicle conversion market, both Ford and GM now produce propane vehicle platforms, and for \$25,000 - \$60,000 propane autogas refueling facilities can be quickly and easily installed.

Existing alternative fuel tax credits enacted in 2005 (which apply to all alternative fuels) toward the purchase of alternative transportation fuel, alternative fuel vehicles, and related refueling infrastructure have helped expand the entire alternative fuel vehicle market. Today more and more business and state/local government fleets are switching to clean burning domestically produced fuels like propane autogas and CNG. Given our country's continued reliance on foreign oil, it would be a mistake for the government to limit consumer choice in domestic alternative transportation fuels by passing the NATGAS Act into law and thereby anointing CNG as the alternative vehicle fuel of choice.

In sum, the propane industry supports parity in alternative transportation fuel tax policy. However, we are not blind to political reality. In our view, parity can be achieved via the sort of inclusive "fuel-blind" alternative fuel tax policy that has been place since 2005; it can be achieved by supporting both the NATGAS Act and the Propane GAS Act; or it can be achieved by including equal incentives for propane autogas and CNG into a single legislative vehicle. As an industry, we look forward to working with Congress as well as our partners in the broader alternative fuel industry to craft smart equitable solutions for the American public.

NPGA is the national trade association of the propane gas industry with a membership of approximately 3,200 companies, including 39 affiliated state and regional associations representing members in all 50 states. Although the single largest group of NPGA members are retail marketers of propane gas, the membership includes propane producers, transporters and wholesalers, as well as manufacturers and distributors of associated equipment, containers and appliances. More than 55 million households use propane gas for space heating, water heating, cooking, outdoor recreation, and other uses. Propane gas is also used in millions of installations nationwide for commercial heating and cooking, in agriculture, in industrial processing, and as a clean alternative engine fuel for over-the-road vehicles and industrial lift trucks.



STATEMENT OF NGVAMERICA

UNITED STATES HOUSE OF REPRESENTATIVES

SUBCOMMITTEE ON SELECT REVENUE MEASURES AND
SUBCOMMITTEE ON OVERSIGHT

WAYS AND MEANS COMMITTEE

Joint Hearing on Energy Tax Policy and Tax Reform

September 22, 2011

Introduction

NGVAmerica is pleased to offer the following written statement with regard to this hearing. NGVAmerica is a national organization dedicated to the development of a growing and sustainable market for vehicles powered by natural gas and biomethane. NGVAmerica represents more than 130 member companies, including: vehicle manufacturers; natural gas vehicle (NGV) component manufacturers; natural gas distribution, transmission, and production companies; natural gas development organizations; environmental and non-profit advocacy organizations; state and local government agencies; and fleet operators.

The purpose of the hearing is to receive testimony concerning energy tax policy and tax reform. As part of this review, the subcommittees specifically requested comments on H.R. 1380, the New Alternative Transportation to Give Americans Solutions (NAT GAS) Act of 2011.

Framing the Debate

Among the national goals on which there appears to be widespread and bipartisan support is using less imported petroleum in our vehicles and, instead, using more domestically produced fuels that are abundant, lower in cost, and less polluting. However, there is far less agreement on how to achieve these goals. The more contentious questions are: Does the federal government have a role in encouraging these outcomes? And, if it does have a role, what is that role? Some have argued that the federal government should have no role. They argue that the federal government should not pick “winners and losers.” Rather, they argue, the decision as to energy use in transportation should be left to the “free market”. NGVAmerica strongly believes that this position is wrong.

First, when it comes to petroleum transportation fuel, there is no “free market.” A free market is one that is not controlled or regulated by government. The simple fact is that the global petroleum supply *is* controlled by governments. OPEC, with its 12 member states, manipulates the price of the world’s petroleum all the time. That is its purpose. In addition, 28 non-OPEC countries, including the United States, also exercise some control over petroleum prices via the mechanisms of the International Energy Agency. Most recently, in response to the Libyan political crisis and concerns about higher oil prices, IEA member states agreed to a coordinated release of emergency stocks of 60 million barrels to reduce the price of petroleum on the world market. To say that the alternatives to petroleum must evolve in the “free market” while the overwhelmingly dominant competitor continues to have its price

manipulated by governments is to turn over control of America's transportation future to OPEC. This is not wise policy.

The second argument – that Congress should not pick winners and losers – also is wrong. *Of course* Congress should pick a loser. That loser is foreign oil. And Congress should also pick a winner. That winner is domestic energy. It has been America's explicit national policy since the Nixon Administration to reduce our dependence on foreign oil. And, to help achieve that goal, for decades Congress has encouraged the production of domestic fuels – including the domestic production of oil and gas -- through a host of policies. That has been wholly appropriate. However, an important complement to this national *production* policy is a national *use* policy, namely, to also temporarily improve the relative economics of domestic fueled vehicles vis-à-vis gasoline and diesel fueled vehicles – especially fuels and vehicle technologies that have the real prospect of displacing substantial quantities of foreign oil in the near-, mid- and long-term. Of all the available options, natural gas vehicles can deliver the most immediate and largest impact.

Today, natural gas vehicles are economic in certain niche market applications and they have the real prospects of being economic to a much larger segment in the near future. With the right incentives and policies in place – such as those included in the NAT GAS Act – we can accelerate this growth and maximize their impact.

Benefits of Natural Gas Vehicles

Today, natural gas vehicles are uniquely positioned to help the U.S. achieve a number of critical policy objectives. Natural gas is domestically abundant, and the increased use of natural gas vehicles can reduce our dependence on foreign oil while reducing greenhouse gas emissions and urban pollution. Equally important, increased use of natural gas vehicles will benefit the economy by creating jobs and by lowering fuel cost to businesses, fleets and consumers that operate natural gas vehicles.¹

Providing Energy Security Benefits

Reliance on foreign oil exacts a high toll on the U.S. in terms of direct economic costs and indirect energy security costs. It is estimated that the U.S. currently spends over \$1 billion per day on imported petroleum. In the coming decade, the U.S. Energy

¹ Almost all goods (and many services) move by truck. As the cost of gasoline and diesel rise, so does the cost of all those goods and services. Rising petroleum prices are a hidden tax on everyone, and contribute to increased inflation. Conversely, lowering the cost of operating trucks through the use of natural gas would have ameliorating effect on prices and inflation. A tax reduction, if you will.

Information Administration (EIA) forecasts that total expenditures for petroleum imports could top \$3.3 trillion dollars.² Our reliance on foreign oil not only affects our trade balance but makes the U.S. vulnerable to price spikes and supply disruptions and contorts our foreign and military priorities. Further, high oil prices result in an economic windfall for many regimes that are not friendly to the U.S.

Fortunately, the U.S. has an unprecedented opportunity to displace petroleum with domestic natural gas – primarily in the transportation sector. In the past several years, a wealth of new data has demonstrated that the U.S. has (and will continue to have) an abundant supply of readily available, economically priced natural gas. EIA, the Potential Gas Committee and other expert bodies now estimate that the U.S. has more than 100 years supply of natural gas – and that number keeps growing even as we produce more each year. The Potential Gas Committee’s 2011 bi-annual report indicates that the U.S. now has a total future supply of 2,170 trillion cubic feet of natural gas.³ This is 89 Tcf more than what was estimated in the 2009 report. As was the case with the 2009 report, the 2011 report’s resource estimate was the highest in the Committee’s history. This increase in the estimated resource base has been matched by increases in production. In 2009, the U.S. became the number one natural gas producer in the world.

Providing Economic Benefits

Increased demand for natural gas helps to keep our economy growing by supporting new jobs and economic development. In 2008, U.S. production of 20 Tcf of natural gas supported nearly 3 million jobs.⁴ Even a modest increase in demand for natural gas as a transportation fuel could create tens of thousands of jobs associated with producing natural gas. Encouraging more natural gas vehicles also will stimulate economic activity associated with manufacturing natural gas cars, trucks, and buses and also installing new natural gas fueling stations. Natural gas also benefits our economy because it is a low cost energy that helps businesses grow while at the same time controlling costs. Natural gas is priced much lower than petroleum. The two fuel’s prices no longer track one another and have not for a number of years. The future prices for natural gas have traded at less \$4.50 a million Btu for nearly all of

² See EIA, *2011 Annual Energy Outlook*, Table 11 (April 2011)

³ PGC has been estimating natural gas supplies for 46 years.

⁴ “The Contributions of the Natural Gas Industry to the U.S. National And State Economics”, IHS Global Insight 2009, p.1

2011. A natural gas price of \$4.50 per MMBtu equates to a per-barrel oil price of roughly \$26.10 at a time when oil is trading at \$90 - \$100 a barrel. At the time this statement was prepared, the future contract price for natural gas was trading at less than \$4.00 MMBtu or roughly \$23.20 per barrel of oil equivalent. Because of the abundant supply of natural gas that exists here in the U.S., natural gas prices relative to oil prices are expected to remain much lower in the coming years. This means that natural gas when used as a transportation fuel will continue to be competitive with gasoline and diesel for the foreseeable future. In fact, the EIA estimates that the differential between diesel fuel and natural gas for transportation could be as much as \$2 per diesel gallon equivalent in the future.

One of the concerns raised by some large users of natural gas is that a growing natural gas vehicle market will cause natural gas prices to spike. This concern is unfounded. In 2010, it is estimated that natural gas vehicles displaced 320 million gallons of gasoline. With the incentives from the NAT GAS Act, the natural gas vehicle industry forecasts that natural gas vehicles could displace 10 *billion* gallon of gasoline per year. This would consume about 1.25 trillion cubic feet of natural gas, or an increase in natural gas use from 2010 levels of 5.2 percent. It should be noted that since 2006, natural gas consumption in the U.S. has increased by 9.6 percent while the price at the wellhead has dropped by one-third (an average of \$6.39 in 2006 to \$4.24 July 2011). Because of the huge additions to America's natural gas resource base experienced and expected in the future, the concerns about natural gas vehicles causing natural gas prices to spike are groundless.

Providing Environmental Benefits

The same clean burning properties that make natural gas an excellent fuel for traditional applications like electricity generation, heating, and industrial applications, also make it an excellent fuel for transportation. Natural gas burns cleaner than gasoline and diesel fuel, and most other transportation fuels as well. Not surprisingly, the first vehicles certified to the U.S. Environmental Protection Agency's (EPA) ultra-low emission, super-ultra low-emission and Tier 2/Bin 2 standards were natural gas vehicles. The natural gas-powered Honda Civic GX has won numerous awards for its outstanding environmental performance. In 2011, the Civic GX was rated the "Greenest Car in America" by the American Council for an Energy-Efficient Economy – for an amazing eight year in a row. Compared to the gasoline Civic, the natural gas-powered Civic produces 95 percent fewer emissions of volatile organic compounds and 75 percent less emissions of nitrogen oxides – pollutants that contribute to ozone formation. In fact, the vast majority of light duty natural gas vehicle models currently available (including aftermarket systems) are certified to the

Federal Tier 2/Bin 2 standard; only Bin 1, which requires zero emissions, is more demanding. In the medium- and heavy-duty truck and bus markets, Cummins Westport's and Emission Solutions' natural gas powered engines were the first engines to be certified to the full-2010 federal emission standards, achieving extremely low NO_x emissions levels well ahead of their diesel competition, and with less emission controls required.

The environmental benefits of natural gas vehicles are expected to continue to improve as new automotive technologies become available. As long as the internal combustion engine is with us and as long as refinements to it are made, natural gas will be the cleanest transportation fuel to use in it. A recent National Academy of Science (NAS) report⁵ includes some very positive findings concerning natural gas vehicles. The report, which analyzes vehicle technologies as of 2005 and expected by 2030, projects that, with further expected improvements in vehicle technology and fuel efficiency, natural gas powered vehicles will provide superior benefits in terms of criteria pollutant reductions compared to nearly all other types of vehicles, *even electric and plug-in hybrid electric vehicles*.

Natural gas vehicles also can play a role in reducing greenhouse gas emissions. Per unit of energy, natural gas contains less carbon than any other fossil fuel, and, therefore, produces lower carbon dioxide (CO₂) emissions per vehicle mile traveled. While natural gas vehicles do emit methane, another principal greenhouse gas, the increase in methane emissions is more than offset by a substantial reduction in CO₂ emissions compared to other fuels. The California Air Resources Board (CARB) has conducted extensive analyses on this issue, and concludes that burning compressed natural gas produces about 22 percent less GHGs than burning diesel, and 29 percent less than burning gasoline.⁶ The comparisons are based on well-to-wheels analyses, and include methane emissions. These reductions are equal to -- or better than -- some renewable liquid fuels.

Translating Opportunity into Advantage

How should America use its natural gas abundance? Market price signals tell us that transportation fuel and vehicles are the highest valued application of all natural gas

⁵ *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use*,

⁶ See California Low Carbon Fuel Standard; http://www.arb.ca.gov/fuels/lcfs/121409lcfs_lutables.pdf.

uses. Outside the U.S., demand for natural gas vehicles is growing at a rapid pace. In the last seven years, the market for natural gas vehicles has more than tripled with a compound growth rate of over 17 percent per year. In fact, natural gas vehicles are the fastest growing alternative to petroleum vehicles in the world. In 2003, there were only about 2.8 million natural gas vehicles globally. Today, there are over 13.2 million natural gas vehicles in operation worldwide. The International NGV Association forecasts that, by 2020, there will be 65 million natural gas vehicles on the world's roads. This significant growth points to the fact that rapid scaling up of natural gas vehicles is possible. Unfortunately, the U.S. currently ranks fourteenth in the world in total number of natural gas vehicles. It's unfortunate but true that the number one natural gas producer in the world ranks fourteenth in terms of natural gas vehicle use.

Most of the new natural gas vehicles sold outside the U.S. are either conversions of light-duty gasoline vehicles or are produced by light duty OEMs, including: Ford, GM, Toyota, Honda, Nissan, Hyundai, Fiat, Volkswagen and Mercedes. Fiat alone makes 14 separate natural gas vehicle models, and more than 100,000 natural gas vehicles were sold in Italy in 2009, comprising some 7 percent of the new vehicle market. Most U.S. manufacturers currently offer natural gas vehicles in Europe, South America or Asia, but only Honda currently offers a light duty OEM natural gas vehicle product in the U.S. -- the Honda Civic GX. GM also offers a medium-duty, CNG powered panel van for fleets.

For a number of reasons, including the sheer geographic size of America, the strategy of the U.S. natural gas vehicle industry has been to initially focus on high fuel-use fleets: trash trucks, transit buses, short-haul 18-wheelers, school buses, urban delivery vehicles, shuttles of all kinds, taxis, etc. Today, the U.S. only has about 120,000 natural gas vehicles. More recently, the natural gas industry has begun to focus on the significant potential of converting a portion of the nation's over-the-road tractor trailer fleet to liquefied natural gas use. Market penetration into this market segment would provide a significant increase in petroleum reductions. Natural gas vehicle demand has been growing, but slowly. However, because of the large fuel-use per vehicle, the amount of natural gas used (and petroleum displaced) has been increasing at a robust pace. NGVAmerica estimates that, last year, natural gas vehicles used about 43 billion cubic feet of natural gas. That is the equivalent of about 320 million gallons of gasoline that was not imported. At today's fuel prices, this represents about a billion dollars not spent on foreign oil.

Fortunately, the U.S. currently leads the world in offerings of new medium- and heavy-duty natural gas vehicles. In the past several years, virtually all the major truck and bus manufacturers in the U.S. have begun offering factory-built natural gas

vehicles. The impressive list of manufacturers includes: Kenworth, International/ESI, Peterbilt, Mack, American LaFrance/Condor, Crane Carrier, AutoCAD Truck, Capacity, Thomas Built Bus, Blue Bird Bus, Optima, NABI, El Dorado, New Flyer, Daimler/Orion, Freightliner, Gillis, Workhorse Chassis, Elgin, Allianz/Johnston, Schwarz, and Tyco. Manufacturers are betting that the U.S. is serious about its desire to displace petroleum demand and increase the use of alternative fuels like natural gas. With proper government policies, like those proposed in HR 1380, sales of these trucks and use of natural gas could grow substantially in the coming years.

NGV America believes that there could be a significant market for natural gas vehicles in all applications. However, the most immediate opportunity for displacing petroleum and increasing the use of natural gas as transportation fuel lies with light-, medium- and heavy-duty *fleets* – especially trucks, buses and other heavier vehicles. As noted above, U.S. manufacturers currently offer a large selection of medium and heavy duty vehicles. This is significant since trucks are the economic lifeblood of America. Virtually everything we buy moves by truck. Reducing the cost of trucking reduces the cost of everything, benefiting businesses and consumers alike. That is why our industry has begun to focus on heavy-duty over-the-road trucks. In order to achieve success in this market, our industry must expand the current limited offering of liquefied natural gas trucks.

Another key consideration is that natural gas vehicles are a here-and-now technology. There are no major technological hurdles to overcome. This fact is highlighted by the investments and commitments by fleets already taking place in the market place in the U.S. Examples of how natural gas is helping meet the needs of fleets include:

- AT&T now operates nearly 3,000 vehicles powered by natural gas, and has a goal of expanding the fleet to 8,000 by 2013;
- UPS has more than 1,100 natural gas powered vehicles, and is expanding its fleet of vehicles powered by liquefied natural gas. The company has said it would convert a much larger share of its trucking fleet to liquefied natural gas if the fueling infrastructure and vehicles were more economical;
- The Los Angeles County Metropolitan Transportation Authority, which earlier this year held a retirement ceremony for its last diesel bus, has 2,221 of its buses now running on compressed natural gas. A number of the other smaller transit agencies around the country have successfully switched their entire fleet over to using natural gas. In Washington, DC, the local transit authority

operates nearly 500 natural gas transit buses, and several feeder systems (outlying counties) also operate natural gas buses.

- Ryder System Inc. is purchasing 202 heavy-duty natural gas vehicles that will be used in its Southern California network;
- Waste Management, the largest refuse company in the country, has more than 1,000 vehicles running on either compressed natural gas or liquefied natural gas;
- The Dallas Area Rapid Transit system recently announced it will purchase 452 natural gas powered transit buses – the largest single order of natural gas transit buses currently in place.

Accelerating the Growth of the Natural Gas Vehicle Market

As these fleet examples highlight, natural gas vehicles do not need technical breakthroughs to capitalize on the potential of natural gas as a transportation fuel. What is needed, however, is reduction in the vehicles first cost. Natural gas vehicles currently cost more to buy than gasoline or diesel vehicles, but they cost less to operate. So, the more fuel a vehicle uses, the faster that the first cost premium can be paid back. A payback period of three years is a must for most commercial fleets. For certain fuel intensive fleets, natural gas vehicles are clearly economic today. In other words, they meet that three-year payback threshold. But, for natural gas vehicles to make a much larger contribution to reducing foreign oil use, vehicles that use less fuel per year must also meet that three-year payback threshold. As demand for natural gas vehicles grows, economies of scale and competition are starting to bring down (and will continue to bring down) that first cost. This is happening – but it is happening slowly, and it is mainly happening in niche markets. In order to seize the full potential of natural gas as a transportation fuel, natural gas vehicles must expand into the broader market including the over-the-road truck market where high first-costs and limited offerings of liquefied natural gas trucks are still a significant issue. The intent of the H.R. 1380 is to accelerate demand for natural gas vehicles in order to bring about increased economies of scale and ultimately to displace more foreign oil faster with American natural gas.

Why Passage of the NAT GAS Act is Critical

NAT GAS Act would provide the means to accelerate demand for natural gas vehicles and to help manufacturers achieve economies of scale and build much needed fueling infrastructure. H.R. 1380 would provide federal incentives for the production, purchase and use of natural gas vehicles and the expansion of the natural

gas fueling infrastructure. As proposed, these incentives would be available for only a five-year period. But during that time and thereafter, it would make natural gas vehicles the economic choice for many more fleets and consumers. The NAT GAS Act would accelerate natural gas vehicle use, which, in turn, would bring more natural gas vehicle manufacturers into the market, increase competition and permanently drive down the first-cost premium of natural gas vehicles.

Conclusion

The U.S. has an unprecedented opportunity to displace petroleum with domestic natural gas. Now is the time to act to encourage the increased use of natural gas vehicles. We have an abundant supply of readily available, low-cost domestic natural gas. The fact that this fuel is domestic, low-cost, and clean means that America can achieve multiple national goals (energy security, clean air, economic security) all the while helping fleets and businesses to lower their costs, thus improving economic prosperity. Today, nearly every major truck or bus manufacturer in the U.S. is now offering factory-built natural gas vehicle models. Federal policies and incentives, however, are needed to aid in the more rapid market penetration of these vehicles and to help accelerate their use so that the benefits of increased natural gas use can be realized.

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September 22, 2011

The Honorable Patrick Tiberi
Chairman
Subcommittee on Select Revenue Measures
Committee on Ways and Means
1136 Longworth House Office Building
Washington, DC 20515

The Honorable Charles Boustany
Chairman
Subcommittee on Oversight
Committee on Ways and Means
1136 Longworth House Office Building
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The Honorable Richard Neal
Ranking Member
Subcommittee on Select Revenue Measures
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1136 Longworth House Office Building
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The Honorable John Lewis
Ranking Member
Subcommittee on Oversight
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Washington, DC 20515

Re: Statement for the Record of the National Hydropower Association on the Joint Hearing on Energy Tax Policy and Tax Reform

Dear Chairmen Tiberi and Boustany and Ranking Members Neal and Lewis:

The National Hydropower Association¹ (NHA) appreciates this opportunity to comment on the need for continued federal tax policy support of renewable energy technologies, particularly hydropower and marine and hydrokinetic (MHK) projects.

NHA strongly supports federal policy that provides a predictable market signal in support of renewable energy project development, which in turn leverages significant private investment and stimulates job creation and local economic benefits across the country.

We urge the Congress to continue its bipartisan support for renewable energy incentives, such as the production tax credit (PTC) and clean renewable energy bonds (CREBs) program, and provide the hydropower industry the certainty needed to compete for investment, complete project construction and begin operation over the next several years.

The inclusion of hydropower resources under the various federal tax incentive programs has kicked off a resurgence in growth of responsible, sustainable projects – growth the industry has not seen in nearly two decades, with tens of thousands of megawatts under consideration before the Federal Energy Regulatory Commission (FERC) today. Long-term extension of these growth policies, along with additional improvements to the provisions, will ensure that these projects move from proposals to actual deployment.

¹ NHA is the non-profit national association dedicated exclusively to advancing the interests of the U.S. hydropower industry, including conventional, pumped storage and marine and hydrokinetic technologies. NHA's 180 members includes public utilities, investor owned utilities, independent power producers, project developers, equipment manufacturers, environmental and engineering consultants and attorneys.

Hydropower's Contribution and Impact of Tax Incentives

Increased renewable electricity generation supports a variety of important short and long-term national energy goals including: energy independence; diversity of the nation's generation mix; and the environmental benefits associated with the greater use of clean energy resources. However, to meet these goals and reap the benefits, federal policy support, particularly in the form of extended and expanded tax incentives, is needed.

Today, hydropower is the country's largest renewable electricity provider, generating approximately 7 percent of total electricity in the United States in 2009.² This represents about two-thirds of U.S. renewable electricity generation.

The U.S. hydropower industry currently employs up to 300,000 workers from project development to equipment manufacturing to facilities' operations and maintenance. With the right tax policies in place, hydropower can expand its American workforce.

NHA estimates that 1.4 million cumulative direct, indirect and induced jobs could be created by the hydropower industry by 2025 through capacity additions and efficiency improvements at existing hydropower facilities, the deployment of projects to convert non-powered dams to electricity generating assets³, pumped storage projects, and marine and hydrokinetic technologies.⁴

However, throughout the 1990s and 2000s, the hydropower industry experienced a period of minimal growth. This has changed dramatically with the inclusion of hydropower technologies under the production tax credit (PTC) and clean renewable energy bonds program (CREBs) in 2005, and other incentives, such as the investment tax credit (ITC) and Section 1603 program, in 2009.

From the enactment of the Energy Policy Act of 2005 through July 2011, FERC has certified approximately 73 hydropower projects in 22 states for the PTC.⁵ These projects, involving capacity additions and technology or efficiency improvements at existing hydropower facilities, have resulted in an average increase in generation of close to 12 percent for a total generation increase of 915,878 megawatt hours. This is enough energy to power 84,056 homes.⁶

Looking to the public power sector, hydropower developers received 24 percent of the \$2.2 billion in bonds allocated under the Clean Renewable Energy Bonds program in 2009. This amounted to approximately \$531 million in funding for hydropower projects, several of which have already begun construction and will be brought online in the next couple of years.

² http://www.eia.gov/cneaf/electricity/epa/epa_sum.html

³ Approximately three percent of the nation's 80,000 dams currently produce power.

⁴ See <http://hydro.org/why-hydro/job-creation/navigant-study/> where a cumulative job is a job-year, defined as one person working full-time for 12 months.

⁵ The 22 states in which hydropower projects have received PTC certification are: Arkansas, California, Georgia, Idaho, Indiana, Kansas, Maine, Maryland, Massachusetts, Michigan, Montana, New Hampshire, New York, North Carolina, Oregon, Pennsylvania, South Carolina, Vermont, Virginia, Washington, West Virginia and Wisconsin.

⁶ See <http://www.eia.gov/tools/faqs/faq.cfm?id=97&t=3> for EIA data on average residential annual electricity consumption.

In fact, there is over 85,000 MW of proposed conventional hydropower, pumped storage and marine and hydrokinetic projects under consideration before FERC today.⁷ And a recent study by Navigant Consulting determined that up to 60,000 MW of capacity by 2025 is possible.⁸

With the proper support, including continued economic incentives, NHA believes the U.S. hydropower industry is primed for responsible growth and can play a significant role in the effort to increase renewable electricity generation. Numerous opportunities are available to expand this country's hydropower base while at the same time provide responsible environmental stewardship of the nation's waters.

Need for Certainty

To realize the substantial new capacity highlighted above, the hydropower industry requires stable and predictable support policies. Extension of existing tax policies is needed, as well as several substantive improvements, along with new policies for technologies, such as hydropower pumped storage, that are not currently covered under the existing programs.

Of all renewable technologies, hydropower has the longest development time frames due, in part, to the extensive multi-year federal and state licensing process.⁹ In addition, these projects are capital-intensive, with significant up-front costs. Without the long-term certainty and predictability provided by consistent federal support policies, developers will be unable to attract the financing needed to support this considerable investment and utilities will be driven by default to other resources with shorter development timelines, such as wind and natural gas, resulting in a less diverse generation mix.

Specific NHA Tax Agenda Items

- ***Extension of the PTC and ITC.*** Congress has extended the renewable energy PTC and ITC through 2013 for hydropower and MHK technologies. As stated above, this multi-year extension has been critical for the hydropower industry to utilize the credits as the deployment timeline of larger, more capital-intensive hydropower projects is longer than that of other renewables.

NHA strongly supports further extension of the PTC and ITC through 2018. The conventional hydropower industry faces significant challenges to development, challenges at least on par with those experienced by other renewable industries that have been the focus of legislative efforts to extend these programs.

- ***Additional Funding of CREBs.*** For the public power community, which represents a substantial portion of hydropower facility ownership in the United States, the CREBs program is an

⁷ See <http://ferc.gov/industries/hydropower/gen-info/licensing.asp>

⁸ See <http://hydro.org/why-hydro/job-creation/navigant-study/>

⁹ The integrated licensing process (ILP), the default federal process for hydropower development takes 5-5.5 years. While FERC is the lead agency, the process can also involve federal hydropower project owners, such as the Bureau of Reclamation and the Army Corps of Engineers, federal resource agencies, state resource agencies, tribes, and interested stakeholders and the public. This complex, comprehensive process is intensive, multi-layered and can take up to 26 steps as outlined at: <http://ferc.gov/industries/hydropower/gen-info/licensing/ilp/flowchart.pdf>.

important corollary to the PTC for this industry sector. Even with the allocations already made, the CREBs program is oversubscribed. Demand continues to outpace the size of the allocations awarded and is again in need of significant additional funding.

- ***New Pumped Storage Investment Tax Credit and CREBs Eligibility.*** Pumped storage of electricity is a proven, viable, large-scale method of storing energy and is an ideal option for firming the variability of other renewable energy resources, such as wind and solar. Pumped storage also provides several grid reliability benefits, including energy storage, load balancing, frequency control, and others.

There are a number of new pumped storage projects under consideration across the country. Of these, several may be brought online in the next 5-8 years, totaling about 3400 MW of capacity. These proposed facilities are situated in key areas where new development of variable resources is occurring at a rate that will challenge the capabilities of the transmission system and existing flexible generation resources to manage. Without the stability and reliability services new pumped storage can provide, the grid system will be more vulnerable to increased disruptions in the future and the negative economic impacts and losses that result.

Currently, there is no federal incentive that supports the development of energy storage resources, including pumped storage. Pumped storage projects are large capacity projects ranging in size from several hundred MW to 1500 MW, which can cost billions of dollars to build and take much longer to construct. NHA supports enactment of a new energy storage ITC and CREBs eligibility for pumped storage, as proposed in several pieces of recent legislation.

- ***Additional Funding of the Section 48C Advanced Manufacturing Credit.*** The manufacturers' ITC has been a valuable program that supported investment for the U.S. hydropower manufacturing sector. In fact, three hydropower equipment manufacturers received awards to support new facilities or facility upgrades located in Pennsylvania, Tennessee, Ohio, and Washington.

Funding for the 48C program was completely allocated in the first round of awards announced in January 2010. Additional funding is needed to meet the pent-up demand from renewable energy equipment and component manufacturers as evidenced by the fact that the program was significantly oversubscribed.¹⁰

- ***Extension of Direct Payment in lieu of Tax Credits.*** NHA supports extension of the direct payment in lieu of tax credit program that was created by Section 1603 of the *American Recovery and Reinvestment Act of 2009* (ARRA) for renewable energy facilities, including hydropower. NHA has seen the Section 1603 grant program provide access to financing for qualified energy facilities during the nation's economic downturn, extension of the grant

¹⁰ The Department of Energy confirmed the need for additional funding in testimony before the Senate Finance Committee on May 20, 2010 stating that the Section 48C program was "oversubscribed 3:1 with qualifying projects" and that "extending and expanding the 48C program would allow the U.S. to accelerate this manufacturing expansion."

program would ensure the creation of additional facilities to expand production of renewable energy and create thousands of new jobs in the renewable energy sector.

As an example, one NHA member company has moved forward with a 125 MW expansion of their existing hydropower facility because of the availability of the Section 1603/ITC programs. This \$450 million project, with its 200 construction jobs, was temporarily shelved at the end of 2008 and only moved forward after the passage of the ARRA. In addition to the extension, NHA also recommends adoption of a mechanism that allows public power to utilize this program.

- **Parity for Hydropower and MHK Resources under the PTC.** Internal Revenue Code Section 45 provides for a PTC for electricity produced from renewable resources. Under current law, the PTC prescribes different tax credit rates, discriminating between technologies and picking winners and losers. Certain renewable facilities, such as wind and geothermal power, are eligible to receive the full PTC, while other qualified facilities, including qualified hydropower, small irrigation power and marine and hydrokinetic power receive only 50 percent of the full PTC rate. Congress has never articulated a rationale for this disparate treatment.

All of the technologies that qualify possess unique energy attributes and generation benefits that play an important role in expanding the nation's use of renewable electricity and addressing climate change. In an environment where utilities require competitive bids for renewables, a higher PTC for some technologies results in unequal playing field and affects competition. The disparity distorts market dynamics and makes it difficult for facilities that receive only a 50 percent credit to compete with those that receive the full amount of the credit. Congress should provide technology-neutral tax incentives to promote the growth of all clean electricity resources.

In ARRA, Congress unambiguously endorsed the doctrine of tax parity for renewables by allowing all qualifying facilities to receive the 30 percent ITC. NHA applauds this recognition and encourages Congress extend the same treatment to the PTC, which would harmonize the policies and ensure there is no slanting of investment in favor of any one technology over another.

As the largest trade association that exclusively represents all sectors of the waterpower industry, NHA appreciates the opportunity to submit these comments on the importance of renewable energy tax incentives to support project development.

We believe tremendous opportunities exist to accelerate deployment of hydropower resources to realize our national clean energy, jobs, and environmental goals by utilizing the benefits hydropower provides. NHA would be pleased to meet with Committee staff to discuss the comments and recommendations contained in this statement in more detail.

Sincerely,



Linda Church Ciocci
Executive Director



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Honorable Pat Tiberi, Chairman
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Honorable Charles Boustany Chairman
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House Ways and Means Committee
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Oct. 4, 2011

Dear Subcommittee Chairman Tiberi and Subcommittee Chairman Boustany,

I wished to express my appreciation to the Subcommittee on Select Revenue Measures and the Subcommittee on Oversight of the House Ways and Means Committee for holding a hearing to discuss Energy Tax Policy and Tax Reform. The purpose of this correspondence is to offer comments for your consideration and for the record in regard to the importance of supporting all alternative transportation fuels, including E85.

Propel Fuels is a California-based retailer of high-blend ethanol (E85) and biodiesel with 26 fueling sites currently in operation in California and Washington and an additional 90 under contract. In partnership with the California Department of General Services, Propel is building 85 stations in Sacramento, San Francisco, Los Angeles, and San Diego. Propel is concurrently laying the groundwork for a regional expansion that would increase the number of stations in Washington and open markets across the West Coast. With this rapid expansion and an innovative marketing approach, Propel has built one of the nation's leading clean fuel brands in a short period of time. However, our continued growth and operation, along with that of every other E85 and biodiesel retailer across the nation will be impacted by Congress' decisions regarding the future of incentives for alternative fuels.

E85 IS AN ALTERNATIVE FUEL, NOT A GASOLINE ADDITIVE:

As the Committee considers the utility of federal incentives for the purpose of reducing our dependence on imported petroleum by increasing the use of alternative transportation fuels, we would encourage the Committee to consider that a fuel comprised of 85% ethanol and 15% gasoline, i.e. E85, is an Alternative Fuel as defined by 10 CFR 490.2 and Title III §301 of the Energy Policy Act of 1992. Thus, E85 should be treated as an alternative fuel and not as a gasoline additive in the nature of 10% ethanol.

According to the Energy Information Administration, 98% of the total alternative fuel vehicles operating in the U.S. are E85-compatible Flexible Fuel Vehicles. General Motors, Ford, Chrysler have pledged to produce 50% of their total vehicle production as FFVs by 2012. In addition to the Detroit 3, Toyota, Mazda, Isuzu, Nissan, Hyundai, Mercedes-Benz, and other automakers produce flexible fuel vehicles capable of operating on E85.

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 Honorable Charles Boustany, Subcommittee Chairman
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The auto manufacturers have incurred significant costs to produce these vehicles and the private sector has contributed millions in the establishment of the more than 2,500 public E85 fueling sites across the nation. It is incumbent on the federal government to continue to participate in these efforts by providing fuel incentives until that time which cellulosic-based advanced ethanol becomes available at a lower cost.

EXISTING ALTERNATIVE FUEL INCENTIVES:

Ethanol blends are currently provided a credit commonly referred to as VEETC and defined in 26 CFR § 6426.(b) Alcohol Fuel Mixture Credit.

- There is wide consensus, even among ethanol trade associations, that the incentive is no longer needed to support the sale of 10% ethanol, which is found in most gasoline. The credit for E10 is \$0.045 per gallon.
- The Alcohol Fuel Mixture Credit is also used to support the sale of 85% ethanol used in Flexible Fuel Vehicles. Unlike E10 blends, E85 depends on the value of the tax credit to be price competitive with gasoline. The credit for E85 is \$0.3825 per gallon.

Annual Cost:

14 billion gallons of ethanol for E10 = ~\$6.3 Billion annually

120 million gallons of ethanol for E85 = ~\$54 Million annually

Rather than being subject to the provisions of the Volumetric Ethanol Excise Tax Credit (VEETC) as is E10, E85 should be characterized and treated pursuant to 26 USC § 6426.(d) Alternative Fuel Credit which provides a credit to Compressed Natural Gas, Liquid Petroleum Gas, (Propane), and Hydrogen when these products are used as alternative transportation fuels. We would ask that as Energy Tax policy is being crafted by the Committee, E85 should be included definitions section of 26 USC § 6426.(d), Alternative Fuel Credit. This change would allow the Federal Government to pursue a technology-neutral policy of support for alternative fuels.

H.R. 1380 NAT GAS ACT:

Propel supports the Alternative Fuel Incentives as described in H.R. 1380, the NAT GAS Act, but also strongly encourages the inclusion of E85 as an eligible recipient of such incentives.

COMMITTEE RECOMMENDATIONS:

Given the uncertainty regarding the potential of passage of new energy tax related legislation, we would encourage the committee to consider the following actions:

1. Include E85 as an eligible fuel for purposes of 26 USC § 6426.(d) Alternative Fuel Credit.

Honorable Pat Tiberi, Subcommittee Chairman
Honorable Charles Boustany, Subcommittee Chairman
Page 3

2. Extend 26 USC § 6426.(d) Alternative Fuel Credit which is scheduled to expire on 12/31/2011.

In closing, I would again reiterate the significant financial contributions that both public and private sector investors have made in the nation's efforts to advance the use of alternative fuels. Congressional support for both alternative fuel incentives and tax credits for infrastructure would allow our company and others to continue to expand, create jobs, use domestically produced alternative fuels, and promote energy independence.

We appreciate the opportunity to provide these comments and are available to provide additional information or respond to any questions that you or the Committee may have.

Sincerely,



Matt Horton, CEO
Propel Fuels

Copies: Dave Camp, Chairman
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Statement of

R. Scott Corwin
Executive Director of the
Public Power Council

Before the

House Committee on Ways and Means

Subcommittee on Select Revenue Measures

and

Subcommittee on Oversight

Hearing on Energy Tax Policy and Tax Reform

September 22, 2011

Energy tax policy can encourage development of new technologies, promote fuel diversity, and lower consumer costs. But when energy tax policy conflicts with other statutory responsibilities and operational requirements, the result can be perverse.

The Public Power Council (PPC), a regional trade organization representing the consumer-owned utility customers of the Bonneville Power Administration (BPA), would like to bring such a conflict to the attention of the subcommittees.

In just five years, the Pacific Northwest has witnessed an explosion in wind development in the region. A significant factor has been the presence of the Bonneville Power Administration – the federal agency that markets hydroelectric energy generated at the multipurpose dams on the Snake and Columbia Rivers. BPA’s transmission policies and the ability of hydropower to integrate intermittent wind generation created a hospitable environment that resulted in more wind generation in the Northwest than any other region of the country.

Yet this rapid expansion has also resulted in certain growing pains as the region – and the BPA system – struggle to integrate resources that generate during periods of low demand (at night) and require back up generating capacity.

This problem became most pronounced this past Spring when high water run-off left BPA with a series of unappealing options:

- Let the spring runoff go through the turbines and create “excess” electricity that would cause an overload the system and disrupt reliability (in violation of federal law);
- Spill the excess water over the dams and exceed Clean Water Act restrictions on nitrogen levels in the river (in violation of federal law); or
- Take steps to reduce other generation in the region.

Not surprisingly, BPA chose the last option. Under its interim “environmental redispatch” policy, BPA took a number of corrective steps – the last of which is to curtail wind generation when absolutely necessary. Under this policy, BPA provides wind generators facing curtailment with replacement energy from BPA’s hydro system.

Unfortunately, wind generators are asking for BPA to compensate them for the lost value of Production Tax Credits (PTC) available under Section 45 of the Code (in addition, they are seeking compensation for the value of lost Renewable Energy Credits).


PPC objects to the notion that our member utilities are somehow obligated to guarantee the subsidies and credits of wind generators. However, we do believe that an option exists to help remedy this situation: create a limited provision in Section 45 to allow wind generators to continue to collect PTCs for those rare instances when wind

generation is temporarily displaced by another non-emitting renewable energy source (in this case hydropower).

PPC believes this modest change could help resolve the conflict in the Northwest without imposing a significant burden on either ratepayers or taxpayers.

As the Subcommittees work on energy tax policy and possible reforms, we urge you to consider this limited addition to the PTC.

Thank you for your consideration of this matter.



September 22, 2011

**Statement for the Record of Congressman Sullivan
Committee on Ways and Means
Joint Hearing on Energy Tax Policy and Tax Reform
Room 1100 of the Longworth House Office Building at 9:30 A.M.**

Chairman Tiberi and Chairman Boustany:

Thank you for holding this critical joint hearing on our energy tax policy and tax reform and for dedicating a panel to my legislation, H.R. 1380, the New Alternative Transportation to Give Americans Solutions (NAT. GAS.) Act of 2011.

Our nation is experiencing an energy crisis. In August 2011 alone we spent \$37.9 billion on imported oil, which is more than \$1 billion a day. Annualized that amounts to almost a half trillion dollars shipped to countries like Saudi Arabia, Venezuela, Nigeria, Angola and Iraq every year. This is the largest wealth transfer in the history of mankind. Every day we fail to act to secure our energy future is a victory for OPEC and a loss for American taxpayers. High gas prices limit economic freedoms that Americans enjoy, and given the fact that OPEC is a cartel, not a free market system, we are subject to their parochial whims for 5 million barrels per day of our nation's oil needs. This is unacceptable.

The fact is about 70% of the oil we import is used for transportation fuel, such as gasoline for 250 million cars and light trucks, and diesel fuel for our eight million heavy duty, and fleet trucks. By contrast, 98% of the natural gas we consume is produced right here in North America. In the near-term, natural gas is the best present-day alternative to imported oil. Foreign oil imports also accounts for up to two-thirds of our trade deficit. As we look at ways to close that gap, the amount of money we are removing from our economy by our addiction to foreign oil imports has a huge impact on our ability to create jobs and grow our economy. This bill not only helps get us off OPEC oil, but will create hundreds of thousands of jobs right here in America. With our nation suffering under the crushing weight of a 9% unemployment rate and the fact that the United States failed to create a single job in the month of August, the stakes could not be higher.

This is why I, along with Representatives Dan Boren (D-OK), John Larson (D-CT) and Kevin Brady (R-TX) introduced the NAT. GAS. Act. It provides short-term target tax credits to anyone who chooses to build or buy a car that runs on cheaper American made natural gas instead of foreign oil. Tax credits are also provided for infrastructure improvements such as natural gas fueling stations. There are zero mandates in the bill and all provisions sunset after just five years.

Under the NAT. GAS. ACT, the incremental cost for purchasing a natural gas vehicle (NGV) is reduced by 80 percent, but it is not eliminated. You will continue to pay a premium for a natural gas vehicle versus a similar vehicle that is conventionally fueled. The goal with this legislation

is to reduce the market barriers to entry that NGV manufacturers and fueling stations are currently experiencing to achieve economies of scale and build much needed fueling infrastructure. NGV technology is readily available, and widely used throughout the in Europe, South America and Asia. In fact, there are over 12.5 million NGV's on the world's roads. Unfortunately, there are only 110,000 NGV's on America's roads today. We can and should do better.

Getting Congress to agree on anything these days is a big deal. It's an even bigger deal when Members from across the political spectrum come together with American businesses from across the country on a plan to end our addiction to oil from OPEC and to create hundreds of thousands of American jobs.

That is exactly what is happening with H.R. 1380, the NAT. GAS. Act. Behind a bipartisan call from millions of Americans, we have forged a broad coalition of 183 Members of Congress and more than 240 American businesses, large and small, to reclaim our energy, economic and national security future by unleashing the vast potential of American-made natural gas as a transportation fuel.

In addition to powering light- and medium-duty vehicles, natural gas is the only domestic alternative to foreign oil today that can power heavy-duty vehicles, which use 2.6 million barrels of oil every day. Moreover, natural gas can play an important role in bridging today's needs with tomorrow's new technologies. In fact, unlike most of the alternative fuels being developed that are years from deployment, natural gas is one alternative that is here, now and available.

For decades, Washington has talked in circles about ending our addiction to foreign oil, but we have little to show for it. President after President and Congress after Congress have tried to solve the problem, yet today we import more OPEC oil than at any time in our nation's history. Our energy status quo places America's national security in jeopardy and steers billions of taxpayer dollars overseas instead of into our own economy.

Unfortunately, the emergence of natural gas as a transportation fuel has critics searching for arguments against its merits. Most recent is the claim that expanding the market for natural gas will drain the supply, thereby increasing the cost of energy used in manufacturing. This argument might have made sense 20 years ago, but it completely discounts the recent shale gas revolution that has made our country the Saudi Arabia of natural gas.

Some of these industrial end users of natural gas willfully ignore analysis from the nonpartisan Energy Information Agency, MIT, the Colorado School of Mines Potential Gas Committee and others indicating we have enough natural gas supply at current levels to last for generations. In fact, domestic reserves of natural gas are estimated to be twice that of petroleum and continue to grow every year. Opponents also disregard the fact that the EIA's energy outlook forecasts natural gas prices to stay below \$6 dollars per million British thermal unit through 2025.

Claiming that the NAT. GAS. Act could raise manufacturing costs again ignores the most aggressive estimates from the EIA predicting the demand for natural gas could increase by 1.25 trillion cubic feet in total usage because of natural gas vehicles — an amount that is less than 5 percent of the 24.45 trillion cubic feet of natural gas the United States consumes each year.

In closing, the NAT. GAS. Act represents a real opportunity to reduce our reliance on foreign oil and improve both our energy and national security. Our energy future is not going to secure itself which is why we need to act now. I thank my colleagues for their consideration of this legislation and I yield back the balance of my time.



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September 16, 2011

The Honorable Pat Tiberi
Chairman of the Subcommittee
on Select Revenue Measures of the Committee
on Ways and Means
Capital Building,
Washington, DC

RE: Extension of Geothermal Production Tax Credits (PTCs) to 2016

Dear Congressman Tiberi:

My colleagues and I respectfully request that your committee give consideration to and enact an extension of the Production Tax Credits for geothermal energy. These are now scheduled to expire at year end 2013 and we request they be extended to year end 2016.

We note that tax credits for several of the other technologies also are scheduled to expire in 2016. We would also request a three-year phase out of all credits after year end 2016 at the rate of 20% at year end 2017, 20% at year end 2018 and 60% in year 2019. These phase outs are important in that they will allow more projects to be scheduled for start-up which if not completed on time will not face economic disaster from missing their start date. A close deadline can also result in overtime leading to inflated costs and hurried work which could push safety limits.


Our firm has 128 MWs of capacity amongst 4 sites we can bring on-line with these credits. Without the credits I doubt we can get any of these projects financed. The price of natural gas is so cheap that the tax credits serve as a major incentive in the context of soft and declining power prices, ie. they supplement low prices from the utility and hence benefit the ultimate purchaser of retail electricity. At \$4500/KW installed for both the plant and a 20 year fuel supply 128 MWs represent expenditures of \$576 million. Each site will involve 200 people mostly full time or approximately 800 new jobs.

We note that your committee will be considering HR 1380 by Congressman John Sullivan of district 2 here in Oklahoma. We fully support replacing oil based fuel for transportation with natural gas based CNG.

Sincerely yours,

Ronald C. Barr Class of '66 Denison University, Granville, Ohio past resident Oberlin, Ohio

cc. The Honorable John Sullivan, 2nd District Tulsa, OK



STATEMENT OF
RHONE RESCH, PRESIDENT & CEO
SOLAR ENERGY INDUSTRIES ASSOCIATION

SUBMITTED TO THE
HOUSE COMMITTEE ON WAYS AND MEANS
SUBCOMMITTEE ON SELECT REVENUE MEASURES AND
SUBCOMMITTEE ON OVERSIGHT

JOINT HEARING ON
ENERGY TAX POLICY AND TAX REFORM

SEPTEMBER 22, 2011



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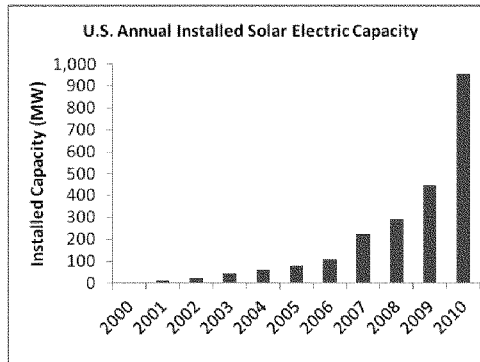
The Solar Energy Industries Association (SEIA) is the national trade association for the U.S. solar energy industry. On behalf of our 1,000 member companies and the 100,000 American taxpayers employed by the solar industry, I appreciate having the opportunity to submit a written statement for the record on this hearing regarding energy tax policy and tax reform.

SEIA agrees that a review of energy tax incentives is appropriate as the Ways and Means Committee considers fundamental tax reform. History has shown that well crafted and efficient tax incentives can be powerful policy mechanisms to promote the nation's energy objectives and leverage private sector investment to promote the deployment and utilization of new energy resources. As with every other major U.S energy resource, effective tax policy has helped yield significant economic and energy policy benefits in the solar industry.

When evaluating the efficacy of specific energy tax incentives, there are several fundamental considerations for policymakers. For example, an incentive's rate of return for taxpayers and whether or not a tax preference is effective in meeting the nation's short, medium and long term energy policy objectives should be carefully considered by Congress. By any objective measure, in the case of the U.S. solar industry, tax policy has proven to be an efficient and cost-effective way of promoting an activity that is fully consistent with the nation's energy policy goals. Retention of stable, reliable tax policy that maintains tax incentives provided under current law and improves the liquidity and efficiency of existing incentives will allow the U.S. to reap the significant economic and energy security benefits associated with a vibrant U.S. solar industry.

Background on Solar Tax Incentives

The *Energy Policy Act of 2005* (P.L. 109-58) created tax incentives for solar energy – a new 30% investment tax credit (ITC) for commercial and residential solar energy systems that applied from January 1, 2006 through December 31, 2007. These credits were extended for one additional year in December 2006 by the *Tax Relief and Health Care Act of 2006* (P.L. 109-432). In 2007, global investment in clean energy topped \$100 billion, with solar energy as the leading clean energy technology for venture capital and private equity investment. The solar tax credits helped to create unprecedented growth in the U.S. solar industry from 2006-2007. The amount of solar electric capacity installed in 2007 was double that installed in 2006.



Source: SEIA, GTM Research Solar Market

In response to the dramatic downturn in the economy in 2008, Congress enacted the *Emergency Economic Stabilization Act of 2008* (P.L. 110-343). Among other things, this legislation included an eight-year extension of the commercial and residential solar ITC, elimination of the monetary cap for residential solar electric installations, and permitted utilities and alternative minimum tax (AMT) filers to utilize the credits.

Solar ITC a Resounding Policy Success

The market certainty provided by a multiple year extension of the residential and commercial solar ITC has helped the rate of solar power installations grow by 800% since the ITCs were implemented in 2006 - a compound annual growth rate of 74%. Cumulative solar capacity in the U.S. now exceeds 3,100 megawatts (MW), enough to power more than 630,000 homes. In Q2 2011, the U.S. installed an additional 314 MW, a 69% year-over-year increase from Q2 2010.

Growing U.S. Solar Manufacturing Capacity

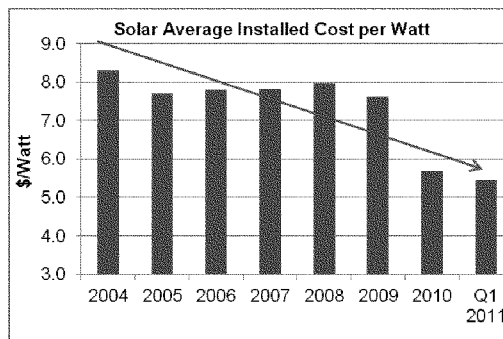
The sharp growth in project installations after passage of the ITC jump-started domestic U.S. solar manufacturing. Between enactment of the ITC through the end of 2010, U.S. solar manufacturing capacity quadrupled from 726 MW in 2007 to 2,887 MW.

Today, there are at least 51 domestic facilities in 21 states manufacturing the primary components of solar PV systems, including solar-grade polysilicon, wafers, cells, solar modules, and inverters. The U.S. was a \$2 billion net exporter of solar products in 2010.

The Falling Cost of Solar for Consumers

Since the beginning of 2010, the price of solar panels has dropped by 30%, and costs continue to fall, making solar even more affordable for residential and business consumers. This is part of an ongoing trend that has shown consistent declines in solar pricing in the marketplace.

The existence of the ITC through 2016 provides market certainty for companies to develop long-term investments in manufacturing capacity that drives competition, technological innovation, and ultimately lowers costs for consumers.



Source: LBNL Tracking the Sun III; SEIA/GTM Research Solar Market

An Engine for U.S. Job Creation

Due in large part to the availability of the multi-year ITC, the solar industry grew by 69% in last year, making it one of the fastest growing industry sectors in the U.S. economy – in contrast to the 2.8% GDP growth of the U.S. economy overall in 2010.

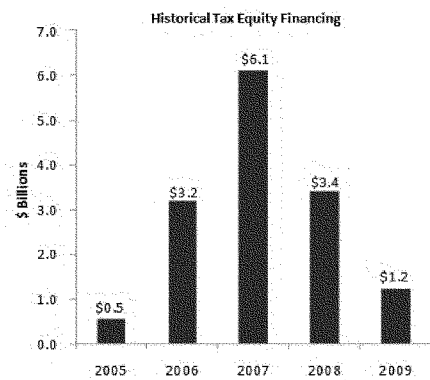
Today, the solar industry employs more than 100,000 Americans, more than double the number from 2009. They work at more than 5,000 companies, the vast majority being small businesses, in all 50 states. Additional job growth is expected as the industry continues to grow in the future.

Importance of Tax Equity Financing and Credit Liquidity

The 2008 economic crisis rendered solar and other renewable energy tax incentives of little immediate value. Prior to the financial crisis, many large-scale renewable energy projects relied upon third-party tax equity investors to monetize the value of federal renewable energy incentives. The economic downturn drastically reduced the availability of tax equity, severely limiting the financing available for renewable energy projects.

Tax equity is the term used to describe the passive financing of an asset or project by large tax-paying entities that can utilize tax incentives to offset future tax liabilities. Tax equity investors in renewable energy projects receive a return on investment based not only on the income from the asset or project, but also on federal income tax deductions (through the utilization of tax credits). Renewable energy developers themselves typically do not have sufficient taxable income to benefit directly from these tax credits and must partner with tax equity investors in order to finance projects. For example, they participate in a partnership structure in which ownership of the project is transferred from the tax equity investor to the developer-owner once the tax benefits are realized. Leasing structures akin to those commonly found in many sectors of the economy are also utilized.

The pool of tax equity investors is typically limited to the largest and most sophisticated financial firms and utilities, and the 2008 economic crisis significantly reduced the market demand among these entities for tax equity. A report released



Sources: U.S. Department of The Treasury, US Partnership for Renewable Energy Finance, and Leading Tax Equity Market Participants

by the Bipartisan Policy Center on March 22, 2011, noted that the number of tax equity investors in renewable energy projects declined from approximately 20 in 2007 to 13 in 2008 and only 11 in 2009. The associated decline in overall tax equity financing provided to renewable energy projects was equally dramatic, falling from \$6.1 billion in 2007 to \$3.4 billion in 2008 and \$1.2 billion in 2009.

Section 1603 Treasury Program

In response to the dramatic decline in capital available for renewable energy projects, the *American Recovery and Reinvestment Act* (ARRA)(P.L. 111-5) included important modifications to the ITC and other renewable energy tax incentives to address the lack of available tax equity financing, including the Section 1603 Treasury Program. This program allows solar and other renewable energy developers to receive a direct federal grant in lieu of taking the ITC that they are otherwise entitled to receive. The goals of this modification were to simplify financing for renewable energy projects and to provide access to capital during a time when project developers' tax burdens were inadequate to capitalize on tax incentives and tax equity financing was both scarce and expensive. The program has been very successful in achieving these goals.

It is important to note that the Section 1603 Treasury Program does not significantly increase the overall cost to the federal government of tax incentives for solar energy projects. Instead, the program primarily affects the timing of when ITCs for solar projects can be utilized.

Section 1603 Treasury Program has been a Proven Success

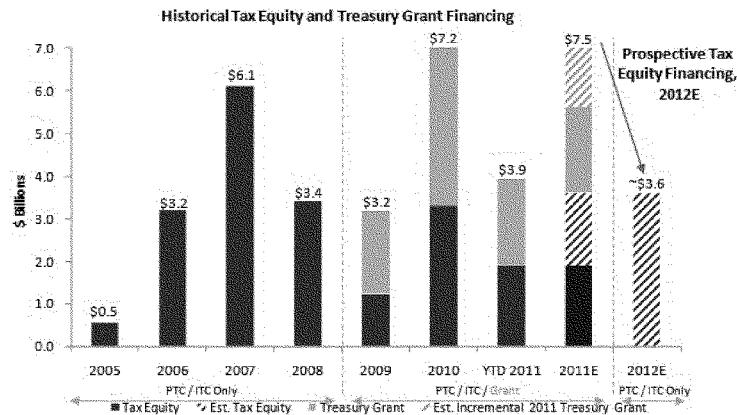
Due in large part to the liquidity provided by this important incentive, the solar industry grew by 69% in the last year, making it one of the fastest growing industry sectors in the U.S. economy. The solar industry employs more than 100,000 American workers in all 50 states.

In its preliminary evaluation of the Section 1603 Treasury Program, conducted at the request of the House Ways and Means Committee, DOE's Lawrence Berkley National Laboratory, noted:

[T]he Section 1603 program provides significant economic value to many renewable power projects, relative to the PTC or even ITC. Specifically, the grant program reduces the market's dependence on scarce and/or costly third-party tax equity, and also in many cases provides more direct or face value to renewable power projects than does the PTC. In addition, a number of indirect or ancillary benefits favor the grant from a renewable project developer's perspective, potentially helping to drive additional renewable capacity additions.

The 1603 Program revived the renewable energy industry in 2009 when the lack of tax equity financing in late 2008 brought many projects to a halt. As of August 16, 2011, the program has

awarded 3,026 grants to solar projects totaling \$1.31 billion and has supported over \$4.35 billion in solar investment.



Congress Should Extend the Section 1603 Program

Tax equity financing has still not recovered to the levels available prior to the recession and the rates of return that are being demanded in today's marketplace by investors remain prohibitively high. In December 2010, tax equity investors in solar projects required returns from 9% to as high as 20% compared to pre-recession levels of 6% to the low teens. Due to global economic conditions, a large gap persists between the total amount of financing renewable energy developers need to build a thriving U.S.-based clean-tech industry and what money is available. Expiration of the 1603 Treasury Program this year is projected to reduce the availability of financing from an estimated \$7.5 billion in 2011 to approximately \$3.6 billion in 2012 – a reduction of more than 50%. Therefore, to continue this successful, job-creating program, SEIA encourages Congress to extend the 1603 Treasury Program and explore ways to improve the liquidity and efficiency of the solar ITC.

Global Competitiveness and the U.S. Solar Industry

The U.S. is a \$2 billion net exporter of products in the solar value chain, and has the potential to be the world leader in solar energy. But for this to occur, policymakers should support smart policy that supports the global competitiveness of the U.S. solar industry while allowing market forces and global trade to spur growth and innovation. For example, other significant global players in the solar industry, such as China, Germany and Malaysia employ a variety of initiatives including but not limited to federal and local tax abatements; low cost access to

capital; and aggressive policies to attract foreign direct investment and promote growth and stability in their domestic solar industries.

It is in the nation's best interests, from both an economic and energy policy perspective, to remain competitive in the global solar marketplace. This is particularly the case with domestic solar manufacturing. Section 48C of the Internal Revenue Code previously provided for a 30 percent ITC that could be claimed on the cost of re-equipping, expanding or building a factory to make clean energy products. The incentive could be claimed by a wide variety of renewable energy technologies. The Section 48C credit was capped at \$2.3 billion in 2010. While the incentive was in place, solar manufacturing facilities in 21 states received support to promote production activities across the broad spectrum of solar energy technology. Expiration of the Section 48C manufacturing incentive at the end of 2010 removed a viable incentive to help U.S. solar manufacturers remain competitive in both the global and domestic marketplace. Moving forward, lawmakers should carefully consider the important role tax policy can play to bolster the nation's solar energy industry in an increasingly competitive global marketplace.

Conclusion

As the brief duration of federal solar tax incentives demonstrates, effective federal tax policy can yield significant energy and economic policy benefits. SEIA and the U.S. solar industry looks forward to working constructively with the Ways and Means Committee as it considers tax reform.



**PREPARED TESTIMONY OF MICHAEL C. MENDEL, CHIEF LEGAL OFFICER
SOLID WASTE AUTHORITY OF CENTRAL OHIO**

**BEFORE THE SUBCOMMITTEE ON SELECT REVENUE MEASURES AND
THE SUBCOMMITTEE ON OVERSIGHT**

WAYS & MEANS COMMITTEE

JOINT HEARING ON ENERGY POLICY AND TAX REFORM

Mr. Chairman, Members of the Subcommittees:

I, on behalf of the Solid Waste Authority of Central Ohio, would like to thank the respective Chairman and the members of the Subcommittees for the opportunity to provide testimony on an issue which is of great importance not only to our region, but to the United States.

The Solid Waste Authority of Central Ohio (SWACO) is a unique government-run entity charged with the safe and sanitary management of all solid wastes within its District, an essential public service provided regionally to all of Franklin County, Ohio as well as parts of surrounding counties, and the City of Columbus, the largest city in Ohio. SWACO operates the Franklin County Sanitary Landfill, the largest publicly owned landfill in the State of Ohio, as well as three transfer facilities. Our Sanitary Landfill is the 8th largest publically-owned landfill in the United States, and the 69th largest among all landfills in the country. SWACO's is employing multiple strategies to effectuate a proficient and progressive resource recovery and reuse strategy for our region and our State.

SWACO has transformed the last step in the waste stream process, landfilling, into a source of economic development and energy production through its landfill gas collection system. This system harnesses the landfill gas collected and transforms it into Compressed Natural Gas (CNG) for vehicle fuel and can be cleaned to produce pipeline-quality gas. Further, SWACO promotes the use of CNG as an alternate vehicle fuel which decreases air emissions. Our Landfill alone, presently unhamessed, produces approximately ten (10) million gasoline gallon equivalents ("GGE") of CNG annually. SWACO has transformed the landfill into more than just the final step in the waste stream – it is part of an ongoing cycle of economic development, job creation using renewable resource recovery and energy production.

SWACO supports H.R. 1380, the NAT GAS Act, as well as expanding its definition of, and tax credit for, "alternative fuels" to that of "renewable fuel", as contained in the Energy Policy Act of 1992, in order to promote utilization of additional sources of renewable energy, such as biogas, from readily available sources that provide innovative economic solutions for obtaining fuel and support American energy independence.

It is estimated that by utilizing natural gas to fuel heavy-duty vehicles alone, the United States would reduce its dependence on foreign sources of oil by fifty percent.¹ Our ability to utilize domestic sources and decrease dependence on foreign sources is facilitated by expanding the definition of alternative fuels, for tax credit purposes, to include biofuels, while concurrently increasing economic and technology development, and promoting consistency in legislation.

SWACO's proffered amendment extracts the definition of "renewable fuel" as provided for in the Energy Policy Act of 1992; this is not a proposal for inclusion of terms that are completely new or unfamiliar. Rather, H.R. 1380 and our proposed amendment to this bill remove barriers to job creation and economic development, and put our country on the path to sustained economic recovery and

¹ Rccio, Maria, *Obama, T. Boone Pickens push natural gas as energy fix*, McClatchy Newspapers, April 1, 2011.

independence using our own energy and bioenergy sources. Specifically, our proposal seeks to amend the definition of "alternative fuel", as currently incorporated in H.R. 1380, the 'New Alternative Transportation to Give Americans Solutions Act of 2011', to add the definition of "Renewable Fuel" in the Energy Policy Act of 1992, as amended by the Energy Policy Act of 2005, and to incorporate the tax credits, as allowed by H.R. 1380 for "alternative fuel", for each source of "Renewable Fuel" recommended to be included:

Add Paragraph after H.R. 1380, Title I, Section 101 – Modification of Alternative Fuel Credit, page 4, line 21, to state:

(e) **ALTERNATIVE FUEL** – Paragraph (d)(2) of section 6426(d) (relating to alternative fuel) is amended by striking "and" after "section 45K(c)(3)", and inserting ", and (H) any liquid fuel which is natural gas produced from a biogas source, including a landfill, sewage waste treatment plant, feedlot, anaerobic digester, or other place where decaying organic materials is found, or produced from gasification and/or pyrolysis technologies. This term shall include –

- (i) (a) cellulosic biomass ethanol and 'waste derived ethanol', meaning ethanol derived from any solid waste materials which have been processed, reused, and reconstituted; and
- (ii) biodiesel (as defined in section 312(f) of the Energy Policy Act of 1992 (42 U.S.C. 13220(f)) and any blending components derived from renewable fuel (provided that only the renewable fuel portion of any blending component shall be considered part of the applicable volume under the renewable fuel program established by this subsection)" after "(as defined in section 45K(c)(3))".

Add Paragraph after H.R. 1380, Title I, Section 102 – Extension and Modification of New Qualified Alternative Fuel Motor Vehicle Credit, page 5, line 9, to state:

(b) **ALTERNATIVE FUEL** – Paragraph (4)(B) of section 308(e) (relating to new qualified alternative fuel motor vehicle) is amended by adding ", or any natural gas produced from a biogas source, including a landfill, sewage waste treatment plant, feedlot, anaerobic digester, or other place where decaying organic materials is found, or produced from gasification and/or pyrolysis technologies. This term shall include –

- (i) (a) cellulosic biomass ethanol and 'waste derived ethanol', meaning ethanol derived from any solid waste materials which have been processed, reused, and reconstituted; and
- (ii) biodiesel (as defined in section 312(f) of the Energy Policy Act of 1992 (42 U.S.C. 13220(f)) and any blending components derived from renewable fuel (provided that only the renewable fuel portion of any blending component shall be considered part of the applicable volume under the renewable fuel program established by this subsection)" before the period at the end.

There are approximately 1,754 active landfills in the United States according to the U.S. EPA; while the number of landfills has steadily decreased over the years, the average size has increased.² Landfills, the second largest cause of methane gas emissions, represent key sources for the recovery of biogas as an alternative energy source to produce electricity and heat, use as a natural gas substitute, or as transportation biofuels.

² EPA, Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2009; U.S. EPA Landfill Methane Outreach Program (LMOP), at <http://www.epa.gov/lmop/basic-info/index.html>.

Technologies such as landfill gas collection systems, anaerobic digesters, and gasification/pyrolysis technologies not only decrease greenhouse gas emissions (GHGs), agricultural wastes, and environmental pollution in air and water, but also reduce dependence on domestic and international fossil fuels for energy requirements. The production of renewable energy and utilization of byproducts from such technologies further increases their attractiveness and allows industries to become more economically competitive because of a more judicious use of natural resources.³

Major companies in the private industry are using landfill gas to power and/or heat their manufacturing plants and run their industrial boilers.⁴ This represents a significant opportunity for growth and partnership among the public and private sectors, as well as the non-mutually exclusive concept of economic development, while promoting the introduction of valuable resources and products into the marketplace.

The proposed tax credit in H.R. 1380 is distinct from current ongoing subsidies for other energy sources. It utilizes a one-time tax credit for infrastructure development and implementation to incentivize private sector investment. This type of one-time credit, which will promote economic development and job growth for a new portion of the energy sector, should be part of a comprehensive energy strategy for to achieve energy security and independence for the United States.

The harnessing of renewable sources of natural gas can have significantly positive effects on the economy and the environment, as new jobs will be created to develop the infrastructure for and expand the use of these cleaner, cost-effective resources. Further, biogas production and power technologies, considered 'carbon-neutral', concurrently mitigate wastes while producing renewable energy and high-quality renewable fuels.

The proposed amendments and definition provide incentives for feasible, comprehensive energy infrastructure development and implementation necessary to promote economic growth and independence, sustainable methods of resource recovery and reuse, and environmental stewardship.

On behalf of SWACO, I would again like to thank the Chairman and members of the Subcommittees for the opportunity to provide testimony on this important issue. We are more than happy to provide any additional information at your request.

³ Alternative Energy News: Anaerobic Digestion of Biomass (August 25, 2008), at <http://www.alternative-energy-news.info/anaerobic-digestion-biomass/>

⁴ Greenwire: ALTERNATIVE FUELS: Company claims progress on turning natural gas into gasoline (November 2010).

Greenwire: RENEWABLE ENERGY: How one energy-hungry company learned to love landfill gas (E & E Publishing, October 2007).

CONTACT INFORMATION

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Joint Hearing on Energy Tax Policy and Tax Reform

Sep 22, 2011

Thank you for the opportunity to comment on H.R. 1380, the "NAT GAS Act of 2011." As a company focused on providing strategic energy services throughout New Jersey and the nation, South Jersey Industries (SJI) strongly supports the passage and enactment of this important initiative. SJI is actively pursuing development of CNG fueling infrastructure in the South Jersey region, and is in the process of converting our fleet to CNG fueled vehicles. In addition, we are working with local government, business, and industry to determine market interest and strategic location of future infrastructure necessary to support the natural gas vehicle (NGV) market demand.

The "NAT GAS Act of 2011" extends and modifies tax credits for vehicles that operate on natural gas, the natural gas used in those vehicles, and natural gas fueling infrastructure, as well as other provisions to accelerate the production and use of NGVs. This initiative supports many of our nation's goals. First, NGVs can play an important role in reducing our nation's dependence on foreign oil. In addition, the "NAT GAS Act of 2011" will provide Americans with an alternative transportation fuel that is more economical, while simultaneously reducing greenhouse gases and urban pollution. Finally, the abundance of natural gas supply in our country makes it a reliable source of cleaner fuel, as well as a driver of economic development and job creation through the construction of refueling infrastructure.

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STATEMENT FOR THE RECORD

OF

THE AMERICAN INSTITUTE OF ARCHITECTS

FOR THE JOINT HEARING ON

“ENERGY TAX POLICY AND TAX REFORM”

BEFORE

THE U.S. HOUSE
COMMITTEE ON WAYS AND MEANS
SUBCOMMITTEE ON SELECT REVENUE MEASURES
&
SUBCOMMITTEE ON OVERSIGHT

SEPTEMBER 22, 2011

The American Institute of Architects (AIA) appreciates the opportunity to submit this statement for the record and commends the Subcommittees' work on the critical issue of tax reform.

Given the critical economic, security, and environmental considerations surrounding the energy sector, the issue of energy tax policy is an important consideration as tax reform progresses. Although there are numerous tax policies that impact energy policy and the built environment, our statement focuses on an energy efficiency and conservation tax provision, the Energy Efficient Commercial Building Deduction, which is contained in section 179D of the Internal Revenue Code. The 179D deduction has leveraged billions of dollars in private capital, resulted in the energy-efficient construction or renovation of thousands of buildings, and created or preserved hundreds of thousands of jobs in the process.

In recognition of the benefits of the section 179D deduction, there have been reform proposals offered in recent months aimed at further enhancing the important tax benefit. The AIA supports reform of the 179D deduction. As these discussions progress, the AIA also strongly urges Congress to consider enhancements to 179D that would provide an effective and efficient way to encourage investments in energy efficiency, stimulating construction activity and jobs during this fragile time in the nation's economy.

The AIA represents over 80,000 architects and emerging professionals nationwide and around the world. As a leader in the design and construction industry, the AIA supports incentivizing energy efficiency in a myriad of ways, but particularly through provisions like 179D, that have proven to be quite successful in the field.

The AIA strongly supported this provision when it was enacted as part of the Energy Policy Act of 2005. The AIA also helped form a partnership with other concerned stakeholders and through this partnership, developed implementation recommendations for building owners to obtain this tax deduction. In 2008, the AIA helped pass legislation to extend the life of the deduction so that it covers property placed in service by December 31, 2013. That same year, at the AIA's urging, the IRS issued guidance on how the deduction could be allocated to the designer.

The AIA was pleased with the initial clarification that this IRS guidance provided, and many agencies on the federal, state and local levels followed suit by issuing policies on the allocation of this deduction.

Background on Section 179D, the Energy Efficient Commercial Building Deduction

The Energy Efficient Commercial Building Deduction was created by the Energy Policy Act of 2005 (Pub. L. No. 109-58), in recognition of the fact that a substantial portion of U.S. energy consumption is attributable to commercial buildings and to provide a tax incentive to help offset the costs associated with enhancing their energy efficiency. Section 179D provides a deduction equal to energy-efficient commercial building property expenditures.

Eligible expenditures are for property which is: (1) installed on or in any building that is within the scope of Standard 90.1-2001 of the American Society of Heating, Refrigerating, and Air Conditioning Engineers and the Illuminating Engineering Society of North America

("ASHRAE/IESNA"); (2) installed as part of the (i) interior lighting systems, (ii) heating, cooling, ventilation, and hot water systems, or (iii) building envelope; and (3) certified as being installed as part of a plan designed to reduce total annual energy and power costs by 50 percent or more. The deduction is effective for property placed in service prior to January 1, 2014.

The maximum deduction is \$1.80 per square foot. In the case that a building does not meet the 50 percent energy savings requirement, a partial deduction of \$0.60 per square foot is allowed for each separate building system that comprises energy-efficient property and that is certified as meeting required savings targets. To encourage the public sector to utilize these same energy efficient enhancements, the 179D deduction also provides a federal, state, or local government owner of a commercial building an election to allocate the tax deduction to the primary person responsible for designing the energy efficient enhancements installed in the building.

Building owners who take advantage of 179D not only enjoy a deduction for qualifying levels of efficiency but also enjoy significantly lower energy costs down the road, the benefits of leading edge design and construction which enhances the building's long term market value, and the benefits of a cleaner environment overall. Owners have utilized the deduction for both new construction projects and retrofits of existing buildings.

Although a public entity cannot take advantage of the tax proceeds from the 179D deduction allocation, it will also receive other benefits in the form of energy savings and market value, often totaling more than the deduction proceeds received by the designer.

The average 179D project (typically \$0.60/ sq. ft. for lighting upgrades) saves an agency an average of 20 percent on their energy expenses. However, even in cases where there are minimal upgrades that qualify for 179D, agencies have saved relatively large amounts.

For example, when a middle school set out to retrofit its lighting system, an architect worked to find 12 percent energy savings just on that single lighting system. The system then qualified for the 179D partial lighting deduction. In return, the school saved \$15,000 on its energy bill in that year alone. It saved even more the next year, and will continue to save each year. Over 10 years, that totals to over \$150,000, for a single school. School districts that take advantage of 179D for five, 10, or 20 schools can save millions of dollars over 10 years, at no additional cost to them, because they can utilize the 179D deduction to finance the additional energy savings.

This example illustrates the impact of just 12 percent energy savings in a single school. There are hundreds of other examples of the deduction providing even greater benefits to school districts, army bases, civic structures, and other publicly owned buildings across the nation.

Proposals to Improve the 179D Deduction

There have been reform proposals offered in recent months aimed at further enhancing this important tax benefit. AIA supports commonsense efforts that make 179D more usable, effective and simpler. As these discussions progress, the AIA, in particular, strongly urges Congress to consider three key improvements to 179D: (1) ensuring the ability of pass-through entities to capture the full value of an allocated deduction in the case of a public owner of a

building; (2) enhancing the value of the 179D deduction; and (3) allowing non-profit owners of buildings, similar to public owners of buildings, to allocate the deduction.

Allocating the Section 179D Deduction to a Pass-Thru Entity

The section 179D deduction provides a federal, state, or local government owner of a commercial building an election to allocate the tax deduction to the primary person responsible for designing the energy efficient enhancements. In December 2010, the IRS released a memo that effectively prevents design firms organized as partnerships or S corporations from fully realizing the benefit of a section 179D allocated deduction.

This problem is not merely theoretical – almost 80 percent of architectural firms have fewer than 10 employees and a significant number of these small businesses are organized as partnerships and S corporations. Moreover, it is often these small and mid-size firms that work on state and local government projects such as schools.

By way of background, an allocated section 179D deduction is a tax deduction that does not reflect an economic cost to the recipient taxpayer, because similar to a tax credit, the deduction provides an incentive. The technical tax rules nonetheless treat an allocated deduction as reflecting an economic cost to the taxpayer and accordingly reduce partnership and S corporation taxable income *and* the partners'/shareholders' basis in the partnership/S corporation (*i.e.*, "outside basis") by the amount of the allocated deduction. The reduced outside basis may force partners and S corporation shareholders to recognize taxable gain on the distribution of economic earnings that were excluded from tax by the allocated section 179D deduction at the partnership and S corporation level. The IRS memo states that, in the absence of explicit statutory authority allowing for basis adjustments to preserve the benefit of the deduction at the partner or shareholder level, the technical tax rules govern. The result will be that, in the case of many partnerships and S corporations, the benefit of the section 179D deduction will be lost or significantly diminished. This will harm not only these firms, but also the school districts and other public entities who own the buildings.

In order for partnerships and S corporations to obtain the intended benefits, it is necessary for partners and S corporation shareholders to obtain a basis in their partnerships and S corporations that is not reduced by an allocated 179D deduction. This issue could be addressed by a simple modification to expressly require Treasury to issue regulations that properly determine partnership or S corporation outside basis in the case where the 179D deduction is allocated. Such a clarification would provide certainty and address a widespread concern among many small businesses that design energy efficient buildings.

Enhancing the Section 179D Deduction

The impact of the section 179D deduction has become muted over time. The maximum deduction of \$1.80 per square foot has not been increased since the deduction was put in place in 2005 and, as a result, has not kept pace with inflation. Moreover, as the economy and financial markets continue their fragile recovery, the amount of capital available for building design, construction, and renovation continues to be limited. A recent AIA survey of architecture firms shows that nearly two-thirds report that a lack of financing has slowed or stopped construction projects that would create jobs. Owners are also less likely to invest the upfront capital costs

associated with energy efficient systems, which oftentimes are somewhat more expensive to design, build, and install than their less efficient counterparts.

In 2010, a coalition of more than 80 organizations and companies called on Congress to increase the 179D deduction from the current maximum allowable amount of \$1.80 per square foot to \$3.00 per square foot. In the case of individual subsystems, the maximum allowable deduction should be increased from \$0.60 per square foot to \$1.00 per square foot. Bipartisan legislation was introduced in both chambers in the 111th Congress to enhance the deduction in this way.

Enhancing the 179D deduction would provide an important source of additional capital to stimulate building design, construction, and renovation, driving the creation of well-paying jobs. Studies have shown that every \$1 million invested in design and construction yields 28.5 full-time jobs. Moreover, an enhanced section 179D deduction would further incentivize energy efficiency, improve the nation's commercial building stock, and increase energy independence.

Allocating the Section 179D Deduction in the Case of a Non-Profit Owner of a Building

The 179D deduction allocation provision, which allows a federal, state, or local government owner of a building to allocate the deduction to the designer, has been used to great effect by design professionals to encourage their public sector clients to meet the energy targets of the deduction and then have the client assign them the tax deduction. The result has been more energy efficient public buildings, lower energy costs for the building owners, and tax relief for design professionals.

In many cases, non-profit entities, such as hospitals, universities, private schools, charities, and foundations, conduct functions similar to state and local governments. Currently, non-profit entities own thousands of properties across the country. Although retrofits to these properties could result in significant energy savings, the non-profit entities do not pay taxes and, consequently, cannot benefit from the section 179D deduction.

The section 179D allocation provision should be expanded to provide non-profit owners of buildings, similarly to public owners of buildings, with the ability to elect to allocate the deduction to the primary designer of the building. Such a provision would assist non-profits in financing energy efficiency upgrades and would reduce their energy costs in the longer-term.

Conclusion

The AIA appreciates the opportunity to submit this statement for the record. As Congress considers energy tax policy issues, it is important to recognize the impact the 179D deduction has had in leveraging private capital and increasing energy-efficient construction and renovation. Modest improvements to the section 179D deduction would increase the effectiveness and efficiency of this important tax policy. The AIA and its members are ready to serve as a resource to Congress, the Committee, and the Subcommittees on these and other issues.

Statement of Steven J. Abramson
Publisher, VATinfo.org
Submitted to Joint Hearing of the House Ways and Means Committee
on Energy Tax Policy and Tax Reform
September 22, 2011

Dear Chairman Tiberi, Chairman Boustany and Members of the Committee,

Thank you for the opportunity to provide you with this submission for your hearing on Energy Tax Policy and Tax Reform.

Historically, with the notable exception of the internet bubble, to climb out of recession we have needed growth in one of two core industries, automobiles or housing. Today, automobiles are a smaller portion of our economy, with much of that industry comprised of imported cars and outsourced parts. The housing market is sitting on a huge inventory, and heightened foreclosures threaten further price decline.

There is no more promising industry to create economic growth and jobs than in renewable energy, particularly solar and nuclear, but that will require a robust industrial policy to support private investment. This is the role that government should play — to encourage the private sector creation of jobs, while reducing our dependence on imported oil. China now produces over half the world's supply of solar panels and exports 96% of them to the U.S. and Germany. This is an industry in which we must successfully compete. Our industrial policy will have to include domestic content provisions that skirt WTO restrictions, just as China has managed to do in building its industries. Domestic content provisions will assure that we capture solar manufacturing jobs, here, for our middle class.

Overall, we must find the way to create and hold these domestic manufacturing jobs in the face of low Asian labor costs and subsidies. In the absence of such policies, CEO's can be expected to outsource all the new ideas for production to Asia for the benefit of their shareholders and their own stock options. In January 2011, Evergreen Solar, the third largest domestic solar panel producer announced that it was closing its main U.S. factory, eliminating 800 jobs, and shifting its proprietary technology to China. In August 2011, Evergreen filed for bankruptcy, as did Solyndra and SpectraWatt. In May 2011, BP closed its U.S. solar manufacturing plant in Maryland and shifted its production to India, China and other low-cost countries. Then CEO, BP's Tony Hayward said: "We remain absolutely committed to solar, (but BP was) moving to where we can manufacture cheaply."

The Evergreen example, particularly, should be another wake-up call for the need of a protective renewable energy industrial policy. Even though Evergreen received \$43 million in tax credits and grants from Massachusetts, Evergreen is not to blame for making

the decision to sell their technology and outsourcing their labor. The business motive is rightfully the bottom line, and not to protect domestic jobs. Incentivizing job creation is the policy role of government.

About Solyndra. The failure of this manufacturer has much to do with the hyper-competitiveness of the industry, including the plummeting cost of silicon (which Solyndra does not use) and lower costs in Chinese manufacturing (labor and overhead plus subsidies). Solyndra's technology is unique (<http://www.youtube.com/watch?v=2DICUmBw7AU>), and their robotic manufacturing plant with one-of-a-kind systems represents hugely expensive start-up costs. However, the Solyndra solar panels have features and benefits not available with other systems, and are superior for commercial flat roofs and apartment buildings: lower installation costs, wind resistance, omni-directional placement affording more wattage per square meter, zero-visibility on flat roofs, no need for roof-penetrating fasteners. Hopefully, by virtue of the public investment in this technology (plant and equipment), Solyndra will emerge from bankruptcy in the hands of an American company, rather than see this promising breakthrough technology exported to China as was Evergreen's.

A U.S. Patent Restriction? Recently, it was revealed that the Defense Department is requiring domestic content for solar panels. This is a step in the right direction to build and retain a home-grown industry and jobs. Government policy could also make it more difficult for companies like Evergreen to transfer their technology abroad. For example, U.S. Patent protection could be restricted to products with a minimum 80% domestic value-added in manufacturing.

On January 9, 2011, The New York Times reported that China is disturbed that the Pentagon, a rapidly growing consumer of renewable energy products — in insisting on buying solar panels made here is interfering with world trade. This despite China's pervasive export subsidies and local content requirements. China has subsidized their solar panel manufacturing industry, something the U.S. is loath to do. Our policy has been to subsidize consumers and let them choose in the "free market." But, the price advantage to Chinese panels gives them an almost insurmountable advantage. The result: today, China produces well over half the world's solar panels and exports 96% of them to Germany and the U.S.

The intent of the Buy American provision in the defense appropriations section of the 2009 stimulus legislation is that Chinese manufacturers, and others, will be encouraged to establish manufacturing production in the U.S. This restriction can and probably will be challenged under WTO free trade rules. However, the U.S. would be wise to look at additional barriers to protect nascent industries for future U.S. jobs. Innovators will make their initial products in the U.S., but if successful in finding a market, will look to scale-up in lower-waged countries with fewer workplace and environmental restrictions.

Replacing the Corporate Income Tax with a VAT. Under GATT rules, the value added tax is subtracted from exports and added to imports with the purpose of excluding the burden of a producing country's government from the price/value relationship of

competing goods and services. Currently, all U.S. trading partners and over 120 countries use a VAT to the competitive disadvantage of the U.S. The U.S. should consider replacing the Corporate Income Tax and other taxes including the payroll tax with a VAT balanced by a flat personal income tax with a high threshold as recommended by Gov. Mitch Daniels.

Federal FIT Match for States Paid-for with Gas Tax. The uncertainty of the incentive price for clean energy production is a large impediment to domestic demand. In 2010, I had the opportunity to ask then energy czar Carol Browner about the potential for a national Feed-In Tariff (FIT), i.e. the incentive price at which green energy could be sold back to the grid. The FIT has propelled Germany into first place in the installed base of solar panels; this, even though Germany is at a latitude close to New York City's, i.e., far from the maximum incidence of light. Ontario, too, which has recently implemented a VAT, is rapidly expanding solar installations. Ms. Browner responded that a FIT would not work here because the U.S. has diverse power companies regulated by individual states. However, that should not preclude the incentive of a federal matching FIT subsidy to the states. Electric utilities would be responsible for their average production cost per kilowatt hour and the FIT incentive overage would be shared by the states with a federal match. The FIT demand incentive expense should be paid-for by an increase in states' gasoline taxes, adding an economic disincentive for imported fossil fuel.

Fully Deductible PACE Financing. Demand would also be fueled by the state and local government adoption of fully deductible PACE bonds (Property Assessed Clean Energy Bonds) that would enable the deduction of principal as well as interest for residential installations of solar panels. Fannie Mac and Freddie Mac are known to oppose this incentive since the liens would come before their mortgage liens. Congress could and should legislate this hurdle away.

Again, thank you for the opportunity to submit these ideas for your consideration.



Statement of the Window & Door Manufacturers Association
before the joint hearing of the
Subcommittee on Select Revenue Measures and the Subcommittee on Oversight

Committee on Ways and Means
United States House of Representatives

on

“Energy Tax Policy and Tax Reform”

September 22, 2011

The Window and Door Manufacturers Association (WDMA) would like to thank Chairman Tiberi, Chairman Boustany and the members of the Subcommittees for the opportunity to provide this statement regarding our nation's energy tax policy and the vital role it plays increasing energy efficiency and job creation.

Founded in 1927, WDMA is the premier trade association representing the leading manufacturers of residential and commercial window, door and skylight products for the domestic and export markets. WDMA members are focused on Total Product Performance™ products that are designed and built to performance-based standards. WDMA members are leading America's efforts to develop and utilize energy efficient windows, doors and skylights for both new and replacement construction.

We are particularly appreciative of the Subcommittees' interest in examining the goals and implementation of energy tax credits. Our testimony will comment in general on the goals of energy efficiency in buildings and specifically on the importance of the 25c tax credit to attaining dual objectives of saving energy and spurring investment in U.S. job creation.

Meeting Our Nation's Energy Goals Through Window, Door and Skylight Replacement

While much has been said and written about reducing our nation's reliance on foreign oil and investing in renewable energy technologies—both important goals—not as much attention has been paid to the dramatic impact that improving the energy efficiency of existing buildings could have on reducing energy consumption, and, as a result, reducing our dependence on foreign oil and other fossil fuels.

40 percent of all energy consumed in the U.S. is consumed by residential and commercial buildings, while U.S. buildings alone accounted for 8 percent of global energy consumption in 2008.¹ Significantly contributing to that energy consumption is the stock of nearly a billion single-pane windows still in use in residential buildings alone. As the California Energy Commission notes, the amount of energy lost each year through inefficient windows and doors is equivalent to the amount of oil the nation receives from the Alaska pipeline.²

Any national energy tax policy needs to make replacing these inefficient windows and doors a major component if we are to make a dent in the overall efficiency of our nation's residential and commercial building stock.

The 25c Residential Energy Efficient Tax Credit

Enacted as part of the Energy Policy Act of 2005, the original purpose of the Residential Energy Efficient Tax Credit (IRC 25c) was to save energy. However, in recent years, the 25c incentives have achieved two compelling national goals:

¹ 2010 Building Energy Data Book, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy,

² "Today's Windows," California Energy Commission, Consumer Energy Center, www.consumerenergycenter.org

- Saving energy by making energy efficient home improvements more affordable for a wide spectrum of the American public; and
- Saving thousands of U.S. manufacturing and construction jobs.

We believe that a properly focused residential tax credit can efficiently and effectively spur significant private investment in energy saving measures. While niche populations utilize other tax credits, the 25c tax credit is broad-based. By all accounts, it has been hugely popular with the American homeowner, particularly the middle class, in 2009 and 2010. Internal Revenue Service (IRS) preliminary data for 2009 shows that taxpayers making under \$100,000 a year claimed two-thirds of the credits.³

Also known as the Nonbusiness Energy Property Credit, 25c provides a credit to homeowners who make qualified energy efficiency improvements, including windows, doors and skylights, to their homes. In 2009, the credit was increased to 30 percent of the cost of the improvements up to \$1,500 for the 2009 and 2010 tax years. For 2011, the 25c credit was reduced to 10 percent of the cost up to \$200 for windows and skylights and \$500 for exterior doors and is due to expire altogether at the end of 2011. Many of the products that qualify for the 25c tax credits, including windows, doors and skylights are manufactured in America, unlike alternative energy sources that have benefited from other federal incentives.

As most are aware, the nation's housing industry is mired in recession, which has had a profound impact on the window, door and skylight industry. Residential window sales for new construction dropped 66 percent from 34.1 million units in 2005 to just 11.4 million units in 2009.⁴ This has resulted in over a one-third decline in employment in our industry since 2005.⁵

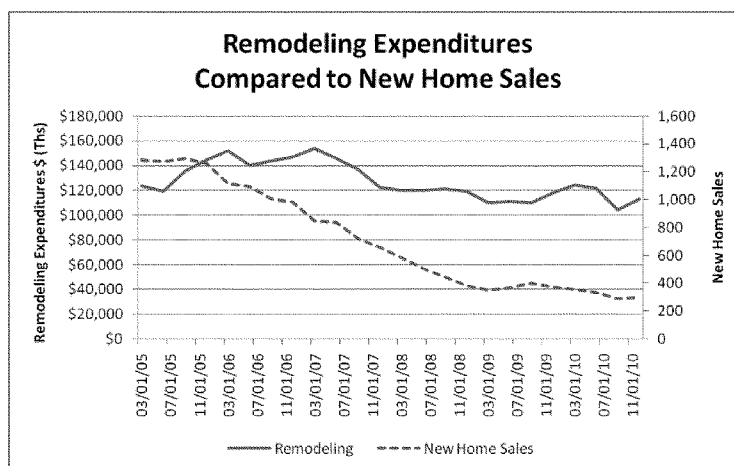
As a result, there has been a demonstrable shift in the last few years to the remodeling and retrofit market for the window, door and skylight industry, spurred in part by the 25c tax credit. The 25c tax credit in effect for 2009-2010 was tremendously successful in supporting this industry and its workers during the worst housing downturn since World War II. The tax credit can be directly tied in our industry to the preservation and creation of American jobs and keeping plants and production lines open.

This shift to the remodeling and retrofit market is evident in the comparison to new home sales over the past five years. While total remodeling activity declined somewhat, it certainly has weathered the recession much better than new home construction, in large part due to the 25c energy tax incentives Congress enacted in 2009.

³ Individual Tax Returns Preliminary Data, 2009, Statistics of Income Bulletin, Winter 2011. Michael Parrisi

⁴ AAMA/WDMA U.S. Industry Statistical Review and Forecast, 2010

⁵ U.S. Bureau of Labor Statistics data



In addition, there are further benefits to the economy because of the remodeling and retrofit market over the last several years. Economists at the National Association of Home Builders⁶ estimate that for every \$10 million in remodeling expenditures:

- 111 full-time jobs are created
- \$5.3 million in wages and salaries are generated
- \$3 million in net business income is produced
- \$3 million in federal, state and local tax revenue is collected

Treasury Inspector General Report on Residential Energy Credits

On April 19, 2011, the Treasury Inspector General for Tax Administration issued a report on the residential energy efficient tax credits (IRC 25c and 25d) and came to the conclusion that inadequate processes were in place to verify eligibility for the credits. Specifically, the report stated that:

*The IRS **cannot verify** [emphasis added] whether individuals claiming Residential Energy Credits are entitled to them at the time their tax returns are processed. The IRS does not require individuals to provide any third-party documentation supporting the purchase of qualifying home improvement products and/or costs associated with making energy efficiency improvements and whether these qualified purchases and/or improvements were made to their principal residences.*⁷

⁶ The Direct Impact of Home Building and Remodeling on the U.S. Economy. National Association of Home Builders. October 7, 2008. Helen Liu, Ph.D. and Paul Emrath, Ph.D.

⁷ "Processes Were Not Established to Verify Eligibility for Residential Energy Credits," Treasury Inspector General for Tax Administration, Reference Number 2011-41-038, April 19, 2011

While the report did note a number of deficiencies with the IRS process for establishing verification of eligibility for the credit, some of the credits claimed are legitimate despite the inability to establish eligibility for the credit. In addition, the IRS notes that it can improve its processes to add additional safeguards and improve its ability to verify eligibility. WDMA stands ready to assist the government in making sure that the credit is only going to those who truly deserve the benefit.

To that end, WDMA has recommended consumer-friendly verification techniques to the IRS with the goal of improving the system for assuring that the tax credits claimed on returns are actually for qualifying energy efficient windows, doors and skylights. Currently, no documentation is provided on tax returns about the qualifying product. Taxpayers must maintain documentation in the event of an audit.

There are a variety of methods that should be explored to provide an identifying number or code that could be included on tax returns to help the IRS establish the eligibility of a product for the tax credit, which could be implemented for use with electronic filing. WDMA will continue to work with Congress and the IRS to improve the system of product verification.

Conclusion

Without question, the nation is facing the twin challenges of reducing energy consumption while spurring job creation. The 25c residential energy efficient tax credit encourages middle-class homeowners to undertake important and beneficial energy saving upgrades, which in turn supports American jobs preservation and creation across the housing industry supply chain—from manufacturing to distribution to sales to installation. The 25c credit has been popular because it works.

As we move toward the end of 2011, WDMA would like to work with the Ways and Means Committee to extend the 25c tax credit to 2012 and beyond at a level that will continue to support the nation's energy goals while continuing to create and preserve American jobs.

WDMA would like to thank the Subcommittees for this opportunity to provide this statement and looks forward to working with them on this important issue.

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Industrial Energy Consumers of America
The Voice of the Industrial Energy Consumers

1155 15th Street, NW, Suite 500 • Washington, D.C. 20005 • 202-223-1420

October 4, 2011

The Honorable Pat Tiberi
 Chairman
 Subcommittee on Select Revenue
 Measures
 Committee on Ways and Means
 Washington, DC 20515

The Honorable Charles Boustany
 Chairman
 Subcommittee on Oversight
 Committee on Ways and Means
 Washington, DC 20515

Joint Hearing on Energy Tax Policy and Tax Reform
Submitted for the Record
 by
The Industrial Energy Consumers of America

The Industrial Energy Consumers of America (IECA) oppose H.R. 1380, the New Alternative Transportation to Give Americans Solutions Act of 2011 that subsidizes the use of natural gas in the transportation sector. Stimulating demand for natural gas is the responsibility of the markets, not Congress, subsidies or mandates. Manufacturing competitiveness is dependent upon the price of natural gas for both fuel and feedstock. If Congress passes this legislation it will increase natural gas demand and price, directly impacting us. While some in Congress are advocating for subsidies to increase demand in the transportation sector, others are promoting policies and regulations that would restrict its production. We urge you to not support H.R. 1380.

IECA member companies are not alone in the opposition to natural gas demand subsidies. Attached is a letter dated May 23, 2011 to Senate and House leaders signed by 65 manufacturing and agricultural organizations that are on record opposing H.R. 1380.

The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with \$700 billion in annual sales and with more than 750,000 employees nationwide. It is an organization created to promote the interests of manufacturing companies through research, advocacy, and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of industries including: plastics, cement, paper, food processing, brick, chemicals, fertilizer, insulation, steel, glass, industrial gases, pharmaceutical, aluminum and brewing.

Advocates of H.R. 1380 have said that it will increase natural gas demand by 1.5 trillion cubic feet by 2025, about 7 percent of current demand, a significant increase. For perspective, according to the EIA, total U.S. demand from 2000 to 2010 increased by only 2.9 percent. This new demand, coupled with the *cumulative demand* described

below will result in a substantial increase in natural gas prices for every homeowner, farmer and business. And, because 24 percent of US electric generation is fueled by natural gas, electricity prices will go up as well.

We urge the Committee to consider the following information as it addresses this legislation.

The assumption that natural gas prices are going to remain low is false

The Chicago Mercantile Exchange (CME) futures price of natural gas five years from now is already selling at prices that are 56 percent higher than today. That represents an 11.0 percent per year increase. The futures price of natural gas for November 2011 is trading at around \$3.63 mm Btu and the November 2016 price is trading around \$5.68 mm Btu. H.R. 1380 will increase prices even higher.

Power sector demand is surging – Too much reliance on one fuel raises risks for all consumers

According to the EIA, power sector demand has increased 42 percent since 2000. Demand will accelerate even faster going forward because of the coal to natural gas fuel switching that will occur as a result of the EPA Electric Utility Boiler MACT Rule and the EPA Utility Cross-State Air Pollution Rule. The June 2011 National Economic Research Associates (NERA) study concludes that these two rules will shut down 15 percent of the coal-fired power capacity and increase natural gas prices by 17 percent by 2016.

EPA Industrial Boiler MACT Rule will increase demand by the industrial sector

The EPA Industrial Boiler MACT Rule will cause coal to natural gas fuel switching to enable manufacturers to meet new stringent air quality rules over the next three years.

DOE approved or soon to be approved waterborne export facilities increases demand by nearly 12 percent

The export capacity of these three facilities, by themselves, would increase natural gas demand by nearly 12 percent. And, other LNG terminals are preparing to apply for approval. This is significant demand – all by itself.

Subsidies are not needed to increase demand in the transportation market

Given the high and rising price of gasoline, natural gas is a competitive fuel right now without subsidies.

Subsidies pick winners (the natural gas industry) and losers (manufacturing)

There is a direct relationship between natural gas prices and manufacturing competitiveness. Manufacturing has lost 5.7 million jobs (33 percent decline) since 2000. Millions of jobs were lost from 1999 to 2004 when natural gas doubled from \$3.12 per mcf to \$6.53 per mcf. Energy intensive manufacturing industries like chemical, paper, fertilizer, paper, steel, aluminum and glass shut down thousands of facilities.

Because American manufacturers compete globally against subsidized manufacturers in countries like China, it is essential that Congress do its part to preserve America's competitiveness by refusing to artificially inflate natural gas and electricity costs. It is important to note that manufacturing uses natural gas as both a fuel and feedstock. As a feedstock, natural gas (liquids) represents about 80 percent of the cost of making

ethylene and propylene, a key building block to produce a substantial variety of chemicals and plastics. If natural gas prices escalate due to subsidies – so does the price of every consumer product derived from that feedstock.

Higher costs of fertilizer to farmers

Natural gas makes up about 80 percent of the production cost of anhydrous ammonia, a nitrogen fertilizer and the chemical building block for all other nitrogen fertilizer products. The farm sector also depends on significant use of natural gas for food processing, irrigation and crop drying.

The transportation sector already has many alternatives – home owners and manufacturers do not

Lastly, subsidies will increase the U.S. deficit

Given the \$14 trillion deficit, it is unthinkable that Congress would support legislation that would add to the deficit by subsidizing corporate fleets. And, T. Boone Pickens does not need a subsidy.

We are not opposed to using natural gas in the transportation sector, but we are opposed to federal or state subsidies that distort the marketplace at the expense of consumers. Manufacturing is critical to increasing U.S. jobs and this bill jeopardizes American industry's competitiveness.

Sincerely,

Paul N. Cicio
President

Attachment:

Letter dated May 23, 2011 to Senate and House Leadership in opposition to H.R. 1380



ENERGY TAX POLICY AND TAX REFORM