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	Units
Displaced gasoline/diesel	2,791	4,755	11,077	15,669	27,527	37,586	Million gallons/year
% 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	Billion cubic feet/year
% 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:

GDP = private consumption + gross investment + government spending + (exports − 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

(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

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 SO_2 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:

Michael L. DeRosa
Managing Director
Element Partners
Three Radnor Corp. Ctr., Suite 410
100 Matsonford Road
Radnor, PA 19087
charles@elementpartners.com
610.964.8004, extension 222

Charles A. Silio
Senior Associate
Element Partners
Three Radnor Corp. Ctr., Suite 410
100 Matsonford Road
Radnor, PA 19087
charles@elementpartners.com
610.964.8004, extension 223