ACEEE Testimony

American Council for an Energy-Efficient Economy

Testimony of

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and the

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Introduction

My name is John A. "Skip" Laitner. I am the Director of Economic Analysis for the American Council for an Energy-Efficient Economy (ACEEE), a nonprofit organization that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments, and behaviors. On behalf of ACEEE and my colleagues Therese Langer, Director of ACEEE's Transportation Program, and Catherine Bell, Senior Economic Analyst for ACEEE, we are here to actively support the role of productive investments in more energy-efficient technologies as they might positively improve the robustness of the U.S. economy. In particular we applaud both the U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA), and the Administration more generally, as well as the state of California for taking steps that will improve the fuel economy in our nation's light duty vehicles.

We concur with the agencies' assessment that, in order to thrive in the global automotive market, domestic manufacturers will need to invest consistently in technologies to improve fuel efficiency. We believe that the standards as now proposed can help achieve that outcome. And in our testimony here today, we will make three points:

(1) There is a huge potential for cost-effective investments in energy efficiency improvements across all sectors of the economy;

(2) Fuel economy standards are a critical first step in capturing the full economic potential; and

(3) Promoting these standards will be good for jobs, even as the fuel economy improvements will save household consumers and businesses money that—almost immediately—can be respent in the broader economy.

The Huge Potential for Cost-Effective Energy Efficiency Improvements

There is a huge potential for cost-effective investments in energy efficiency across all sectors of the economy: on the order of 60 billion barrels of oil equivalent between now and 2030 and nearly 250 billion barrels by the year 2050.[1] This is more than an order of magnitude bigger than what some have suggested might be available from off-shore drilling. As we conclude in the report we released last week, *The Long-Term Energy Efficiency Potential: What the Evidence Suggests* (Laitner et al. 2012), by investing in greater levels of energy productivity, we can slash our nation's energy use by 40 to 60 percent by the year 2050, create nearly 2 million more jobs, and save the equivalent of $2600 per household annually throughout all sectors of the economy.

In today's testimony we would like to reaffirm the compelling evidence that improved CAFE standards can provide a critical step forward in securing the full economic potential of energy efficiency improvements. Should we achieve the 2025 fuel savings projected by the agencies' assessment, that magnitude of energy efficiency gains would increase both the resilience and robustness of our economy and provide a net gain in jobs for the American workforce. They could also generate a significant downward pressure on oil prices.

Fuel Economy Standards a Critical Step in Improving Economic Performance

Any time we can promote cost-effective alternatives to the current pattern of technologies and services, the productivity of the economy is improved. And the evidence suggests that improved fuel economy provides a significantly improved alternative to the purchase of gasoline. The chart on the following page highlights this comparison.

[1] The estimate for the magnitude of the large-scale efficiency opportunity by 2030 and 2050 is adapted from the new ACEEE assessment for the year 2050, *The Long-Term Energy Efficiency Potential: What the Evidence Suggests* (as referenced in the main text above).

Figure 1: Comparing Energy Efficiency with Gasoline Costs

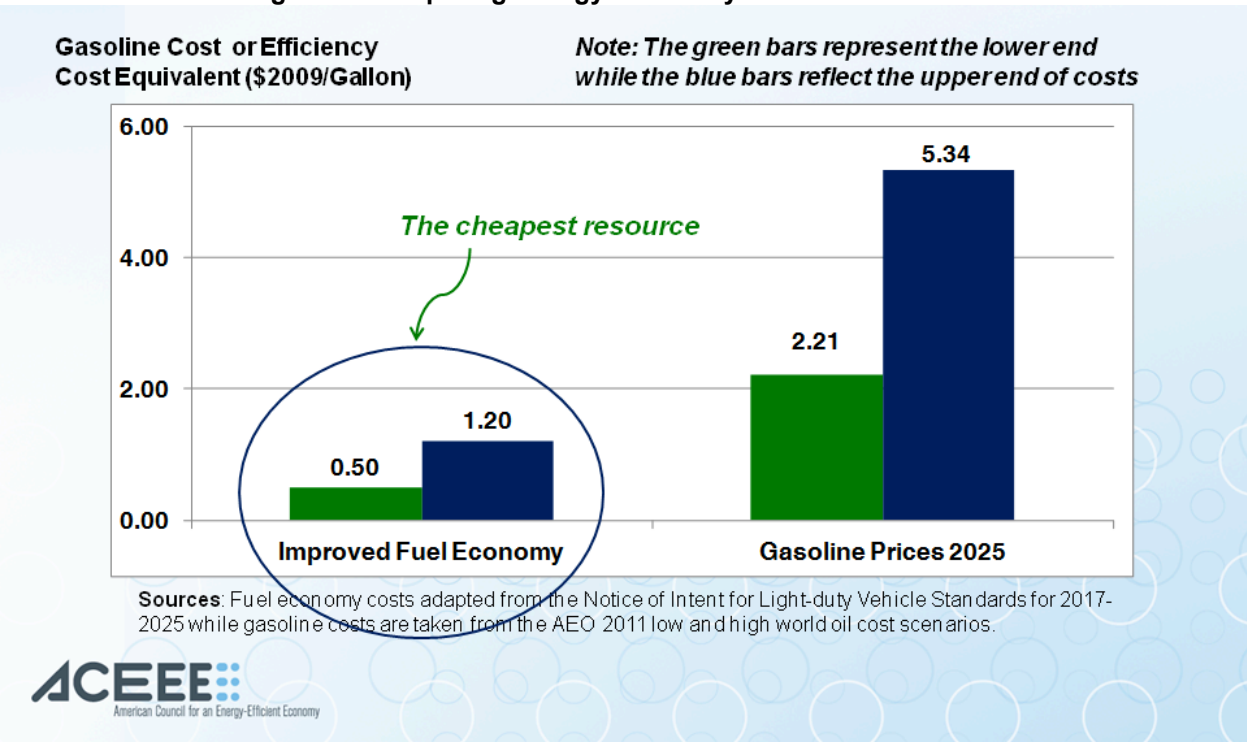


Figure 1 above compares the anticipated costs of gasoline in the year 2025 with costs associated with fuel economy improvements. Depending on increased vehicle costs that might range from $1,600 to $2,400 to achieve a proposed fuel economy of 49.6 miles per gallon by 2025, and further assuming annual travel that might range from 8,000 to 12,000 miles per year, the cost of energy efficiency ranges from a low of $0.50 per gallon (saved) to a high of $1.20 per gallon.[2] This compares to projections released by the Energy Information Administration in its *Annual Energy Outlook 2011* (EIA 2011), that the anticipated costs of gasoline might range from $2.21 per gallon to perhaps as much as $5.34 per gallon. By any stretch of analysis, the proposed fuel economy standards are highly cost-effective.

At the same time, as we redirect investment and spending away from gasoline or other energy purchases and into greater energy productivity, the impact on jobs should be net positive[3]. Figure 2 on the following page underscores this point. Drawing on 2009 economic accounts for the United States (IMPLAN 2011), we can compare the total number of jobs per million dollars of revenue received by different sectors of the U.S. economy. These totals not only include the direct jobs such as those in the automobile manufacturing plants, but also the indirect jobs associated with the domestic supply chain that provides the mix of goods and services necessary to assemble the new cars. And the totals also include jobs induced by the spending of wages from those who are directly and indirectly employed in the different sectors of the economy.[4]

The economic accounts show that every one million dollars spent on gasoline purchases supports about 10.7 jobs. But other sectors of the economy support 17 or more jobs.[5] Hence, the cost-effective redirection of money

[2] The calculations further assume an average cost of about $2,000 with a lower end of $1,600 and an upper end of $2,400 for an effective fuel economy of about 40 mpg. This might be for a car that might have an expected life of 16 years. The calculations also assume a 5 percent discount rate. If we apply a 7 percent discount rate, the cost of energy efficiency might increase by 8 to 18 cents per gallon—still well under the cost of gasoline.

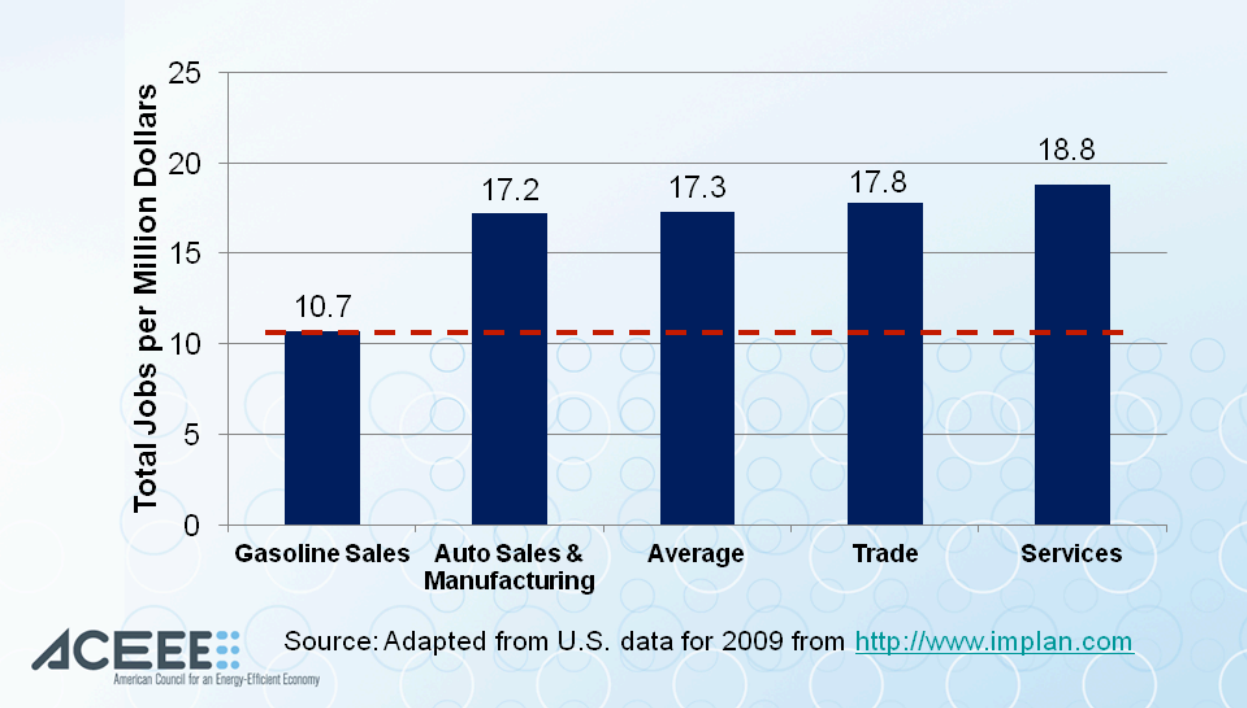
[3] For more information on how energy efficiency creates jobs, please see: http://aceee.org/files/pdf/fact-sheet/ee-job-creation.pdf.

[4] Late last year the economic accounts were updated to the year 2010. We anticipate both updating and re-estimating these job totals over the next two months and will be happy to share those results at that time.

[5] The IMPLAN data set actually show details for a total of 440 sectors of the U.S. economy. The chart shown here provides an aggregate of related sectors to allow an easier comparison of net job impacts by sector.

spent for gasoline will result in money spent in other sectors of the economy. On average, we can expect a net gain of 6-7 jobs per million dollars of annual gasoline savings.

Figure 2: Comparing Total U.S. Jobs by Key Economic Sectors



Fuel Economy Standards a Net Positive Impact on the U.S. Economy

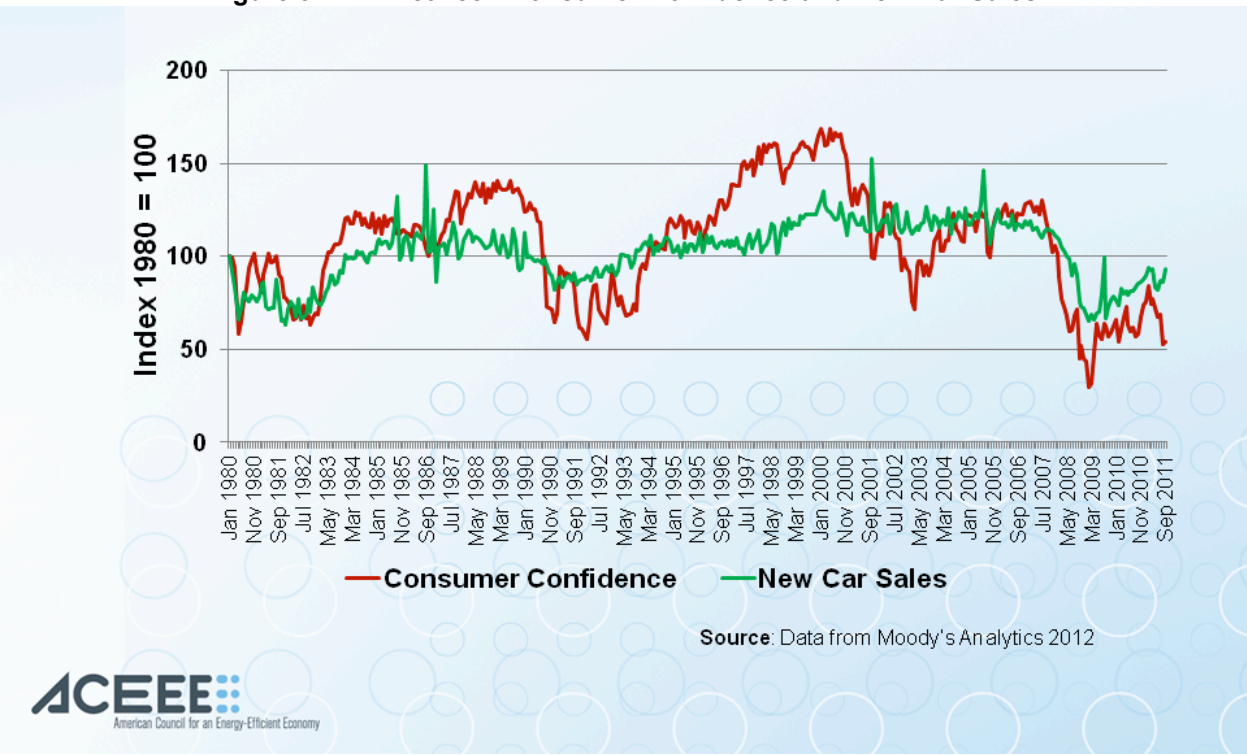
Using a working version of ACEEE's DEEPER Modeling System (DEEPER is the **D**ynamic **E**nergy **E**fficiency **P**olicy **E**valuation **R**outine),[6] we can use NHTSA's projected consumer outlays and anticipated fuel savings that are likely to result from the rule over the period 2017 to 2025. We can then map those changes across affected industries to calculate the likely net job impacts within the United States. We plan to have a more detailed assessment based on the 2010 economic accounts by the end of March 2012, but our preliminary estimates are that as now proposed, the fuel economy improvements should lead to a net positive 300,000 to 400,000 jobs annually for the U.S. economy over that 9-year period. These results are driven by the greater investments in more energy-efficient vehicles as well as the respending of the remaining gasoline savings on goods and services instead of energy.

In addition to the net gain in jobs that we've described, we've also explored the potential impact of fuel economy savings on the price of petroleum products more generally. NHTSA estimates that by 2025 the annual fuel savings would amount to 12.7 billion gallons of fuel, or about 1.6 quadrillion Btus of energy in that year. That savings is about 4 percent of the total petroleum consumption otherwise anticipated in 2025 (EIA 2011). Based on reference case estimates from the *Annual Energy Outlook 2011* (EIA 2011), all else being equal, it appears average petroleum prices—across all end uses of petroleum—might fall about $0.10 per gallon of gasoline equivalent. If that holds, then the fuel economy standards might generate about $25 billion in additional, price-related fuel savings. This means that even if you are not driving a new car, if you are heating your home with fuel oil, if you are using petroleum as a chemical feedstock, or if you are flying from San Francisco to Washington,

[6] Interested readers can find out more about the DEEPER model by going to http://www.aceee.org/fact-sheet/deeper-methodology. ACEEE has also posted a two-page fact sheet showing how we use the DEEPER model to evaluate net job impacts. See: http://www.aceee.org/fact-sheet/deeper-methodology. While the model relies on an input-output framework, it does allow for changes in prices and quantities, as well as sectoral shifts and changes in labor productivity. Hence, the usual criticisms of standard I-O models do not necessarily apply.

D.C., you are benefiting from a lower demand for oil, which places a downward pressure on all petroleum products.[7]

Figure 3: Link Between Consumer Confidence and New Car Sales



One important question is what the higher cost per vehicle might do to new car sales. This effect can be challenging to predict, though evidence from recent polls and industry trends suggest growing demand for fuel efficient vehicles. Moreover, as Figure 3 suggests above, a link appears to exist between consumer confidence and new car sales.

At the same time, an October 2011 national poll of 3,400 consumers conducted by the University of Texas at Austin pointed to a deep discontent among U.S. consumers over the direction the country is headed on energy, and a lack of trust in governmental institutions. Indeed, only 14 percent of the respondents felt that the country was moving in the right direction on the energy issues facing our nation.[8] By enacting the proposed standards, EPA and NHTSA could positively influence consumer confidence by ensuring that we are moving in a positive direction with our energy usage. These effects are likely to stimulate consumer spending in highly positive ways, which would, in turn, result in even greater gains from the proposed fuel economy standards, and equally critical, would drive the positive job and other financial benefits for the U.S. economy.

Rule Makes Innovation Cost-Effective for Industry Leaders

Assertions of the cost-effectiveness and pent-up consumer demand for greater fuel economy also begs the question as to why the market has not moved in this direction naturally. Simply put, there are market failures that slow the entry of fuel economy technologies into the market in the absence of increasing fuel economy standards. Still, there is growing consensus around the idea that consumers place some value on fuel economy, and some evidence that the market is starting to move in that direction. For instance, each auto manufacturer at the annual North American International Auto Show in Detroit in this month had at least one vehicle that achieves 40 mpg. Moreover, a new survey by Deloitte indicates there is evidence of an early shift in consumer preferences as the

[7] All prices discussed here are in constant 2009 dollars. We anticipate more concrete estimates of the energy price savings to be provided later this spring. While the actual results are likely to change, the logic holds—a reduced demand for oil will create a downward pressure on energy prices.

[8] For more information on this survey, go to http://texasenterprise.org/article/poll-americans-arent-optimistic-about-energy.

80 million adults in the Generation Y population (ages 19 to 31) will be the "generation that leads us away from traditional gasoline-powered vehicles."

While this is promising news, supply-side failures can thwart this shift; manufacturers may not keep up with demand for better technology absent a requirement to improve fuel economy. High research and development (R&D) costs for new technologies place the "first-movers," or industry pioneers, at a disadvantage for attempting to achieve broader penetration of fuel-efficient vehicles beyond a slowly growing niche market. In oligopolistic markets such as the automobile manufacturing industry where pricing is highly competitive, there is likely a disincentive to pursue and adopt new technology. A first-mover will incur R&D and marketing costs, while second-movers can free ride on their competitor's investment, observe market response, and optimize their position for entering the market. In other words, the second mover benefits from informational spillovers (Tellis & Golder 1996, Hoppe 2000, Smirnov & Wait 2007).

A regulation that sets a target for fuel efficiency will dissipate the weight of the second-mover advantage. When firms are incentivized to innovate in a short span of time, and to make their new technology available to consumers, it is likely that they will wind up sharing R&D costs. It is also likely some of these costs will be passed along to consumers; however, they will also see greater fuel savings sooner than they would have in a market left to its own devices.

Conclusions

In sum, the rule will drive further gains in gasoline vehicles and begin to pull advanced technologies into the market. Cost-effective investments in more fuel-efficient vehicles resulting from this rule should accelerate and optimize social benefits (e.g., jobs, cleaner air, more robust economy), especially when we take recent consumer interest in fuel economy into account.

On behalf of ACEEE, thank you for the opportunity to present these views today. I am happy to answer your questions.

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