UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
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Memorandum

From: Ari Kahan, Air Quality and Modeling Center, Assessment and Standards Division
To: Ed Nam, Director, Light Duty Vehicle and Small Engine Center, Assessment and Standards Division
Date: August 20, 2012
Subject: Projected Fuel Savings of the MY 2012-MY 2025 Greenhouse Gas Standards Expressed as an "Equivalent" Reduction in Gasoline Price.

As a consequence of requiring lower greenhouse gas emissions, the light duty greenhouse gas standards will also produce significant fuel savings. Largely in parallel with the increase of stringency in the greenhouse gas standards, fuel efficiency is projected to also significantly increase between MY 2011 and MY 2025.

We analyze the combined programs (MYs 2012-2016 and MYs 2017-2025) in Chapter 7.4 of the Regulatory Impact Analysis (RIA). As shown in that chapter, increased fuel efficiency in the vehicle fleet will enable consumers to purchase fewer gallons of fuel. In this memo, we express the fuel savings as an equivalent reduction in the price of gasoline; that is, we show the impacts of improved fuel efficiency (which reduces fuel consumption) as equivalent to purchasing the original amount of fuel at a lower price.

For this analysis, we make several assumptions:
* We conduct the analysis using two fuel prices – the gasoline prices that are used in the rulemaking,[1] and today's national average gasoline price of $3.65.[2] The gasoline prices used in the rulemaking are somewhat higher than today's prices.[3]
* We assume the same vehicle lifetimes, survival, and mileage accumulation rates as in the primary rulemaking analysis.[4]
* We assume a sales weighted mix of cars and trucks.
* We exclude the rebound effect[5]

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[1] Drawn from the Energy Information Administration's Annual Energy Outlook 2012 Early Release.
[2] $3.65 per gallon is the average regular gasoline price for the past 4 weeks (entries for July 16th to August 13th, 2012) (http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm)
[3] See TSD Chapter 4.
[4] This assumption is discussed in Chapter 4 of the Technical Support Document, and RIA Chapter 4.
[5] While we consider the rebound effect in analyses of societal costs and benefits, we typically do not consider rebound in the analysis of a single consumer – the additional driving is assumed to yield benefits at least equivalent to the fuel costs or it wouldn't be driven; therefore to consider the rebound effect without considering the additional benefit would be misleading.

- The average MY 2025 vehicle has an increased lifetime cost (the consumer cost of ownership) of $3,200 (3% discount rate (DR)) and $3,100 (7% DR) over a MY 2011 vehicle.[6]

Taking into consideration the *net* savings of a new MY 2025 vehicle relative to a MY 2011 vehicle, the new GHG standards have, on average, the same consumer impact as reducing the price of gasoline by $1.05 per gallon (3% DR) using the fuel prices consistent with the rulemaking. Considering only gross fuel savings (excluding incremental vehicle cost), the impact for a MY 2025 vehicle would be the same as reducing the price of gasoline by $1.37 per gallon (3% DR) using the fuel prices consistent with the rulemaking. The full suite of values is shown in Table 1.

Table 1

Fuel savings expressed as an equivalent reduction in gasoline price		Based on Today's Gasoline Price (7/17/2012-8/13/2012)[7]	Based on Rulemaking Gasoline Prices[8]
3% DR	Net (including vehicle cost)	$0.91	$1.05
	Fuel savings alone	$1.24	$1.37
7% DR	Net (including vehicle cost)	$0.64	$0.74
	Fuel savings alone	$0.96	$1.05

[6] See table 7.4-10 in the EPA RIA Chapter 7. The costs are conservative, as we did not subtract the cost of bringing the MY 2008 baseline to compliance with the MY 2011 standards, but rather used the direct estimate of bringing the MY 2008 vehicles to the MY 2016 technology. In the MYs 2012-2016 rule, we estimated this cost at $89 (See Page 4-18 in EPA-420-R-10-009) per vehicle on average, in 2007 dollars and using MY 2016 technology costs. This cost would be lower in later MYs. We did not repeat the analysis of MY 2011 compliance costs for this rulemaking.

[7] Entries for July 16th to August 13th, 2012. (http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_w.htm)

[8] See TSD Chapter 4.