Addendum to ACEEE Comments to the Environmental Protection Agency and the National Highway Traffic Safety Administration on the Technical Assessment Report; Docket ID No. EPA-HQ-OAR- 2015-0827 and/or Docket No. NHTSA-2016-0068
November 17, 2016

In our comments of September 26, 2016, ACEEE drew certain conclusions regarding NHTSA's compliance scenario from running the Volpe model. As noted in footnotes 8 and 13 of those comments, we used the "Standard Setting" Volpe settings for this purpose in two cases in which the "Real World" settings would have been more appropriate. This addendum is to revise our comments based on model runs using the correct (i.e. Real World) settings. We note that ACEEE's comments on NHTSA's pickup truck technology utilization in 2025 remain unchanged, because in that case we referenced results based on the Real World settings in our original comments.

Power-to-Weight Ratio

In discussing the consequences of NHTSA's allowing vehicle "performance" to increase in its compliance scenario modeling, we stated (p. 9 of ACEEE TAR comments) that the average power-to-weight ratio in the compliance scenario increased relative to the reference case by 4.1% for cars, 7.9% for light trucks, and 5.5% overall. Using the Real World settings, the power-to-weight ratio in 2028 instead increases by 4.0% for cars, 7.4% for light trucks, and 5.5% overall. Hence our conclusion remains unchanged. We reference MY2028 due to NHTSA's identification of MY2028 as the year in which the new vehicle fleet reaches the MY2025 standard through tested fuel economy alone.

Net Benefits

Table 13.25 in the draft TAR provides the estimated present value of costs, benefits, and net benefits, over the lifetimes of MY 2016-2028 vehicles, of the MY 2022-2025 standards relative to continuation of the MY 2021 standard. NHTSA finds an $85 billion net benefit from the augural standards. However, using the Volpe model to run other stringencies, we found even greater net benefits from more stringent alternative scenarios.

In our TAR comments, we stated (p.12) that the 6% per year improvement provided the largest net benefits, based on Standard Setting runs. Here we discuss the results using the Real World settings instead, in order to provide the proper comparison with the analysis in the draft TAR. The Real World runs show maximum benefits at even higher rates of improvement, based on benefit and cost outputs from the Volpe model. We used discounted technology costs and maintenance costs from the Volpe "compliance report" and crashes, fatalities, congestion, noise, fuel savings, refueling time, energy security, increased mobility, and pollutant aspects from the "societal costs report". As shown in the table below, maximum net benefits of MY 2022-2025 standards for MY 2016-2028 vehicles occur at 9% per year improvement in fuel economy. The net benefit at 9% per year is $145 billion, compared with $85 billion for the augural standards.

Net Benefits of MY 2022-2025 Standards over Lifetime of MY 2016-2028 Vehicles

Scenario	Net Benefit ($b)
%/year improvement	
Augural	$ 85
6%	$ 116
7%	$ 124
8%	$ 136
9%	$ 145
10%	$ 142
11%	$ 133
12%	$ 92

We computed these benefits over the lifetime of MY 2016-2028 vehicles in order to provide a basis for comparison across scenarios. However, standards set at higher rates of increase "stabilize" later, in the sense used by NHTSA in the draft TAR (i.e., the fleet meets the standard based on achieved average miles per gallon alone. While the 9% per year scenario does not stabilize within the time horizon of the Volpe model runs (MY 2032), scenarios of 6% and 7% per year improvement do so, and 8% per year very nearly does so, falling 0.029% short, as shown in the table below.

Percent Shortfall/Overcompliance with Standards by Model Year,
Volpe Model Runs with Real World Settings

MY	Augural	6%	7%	8%	9%	10%	11%	12%
				Achieved vs. Standard MPG				
2015	-0.31%	-0.31%	-0.31%	-0.31%	-0.31%	-0.31%	-0.31%	-0.31%
2016	-1.78%	-1.78%	-1.78%	-1.74%	-1.65%	-1.64%	-1.63%	-1.62%
2017	-0.61%	-0.59%	-0.59%	-0.49%	-0.38%	-0.37%	-0.13%	-0.10%
2018	1.94%	2.45%	2.82%	3.31%	3.62%	3.90%	4.28%	4.68%
2019	3.18%	4.23%	5.07%	5.90%	6.44%	6.82%	7.26%	7.98%
2020	4.02%	5.52%	6.59%	7.86%	8.95%	9.82%	10.65%	11.67%
2021	4.94%	7.43%	8.91%	10.78%	12.68%	14.57%	15.89%	17.43%
2022	3.63%	5.46%	6.35%	7.70%	9.13%	10.70%	11.73%	12.61%
2023	1.61%	2.48%	2.85%	3.63%	4.34%	5.13%	5.30%	5.84%
2024	-1.01%	-0.85%	-1.18%	-1.03%	-1.21%	-1.38%	-2.16%	-2.08%
2025	-3.04%	-3.88%	-5.03%	-6.23%	-7.05%	-7.70%	-9.44%	-8.78%
2026	-1.30%	-1.84%	-2.83%	-4.08%	-4.85%	-5.53%	-7.16%	-6.74%
2027	0.42%	-0.26%	-1.16%	-2.26%	-2.71%	-3.12%	-4.51%	-4.54%
2028	**1.14%**	0.37%	-0.32%	-1.23%	-1.72%	-2.06%	-2.49%	-2.85%
2029	1.45%	**0.85%**	0.27%	-0.44%	-0.91%	-1.50%	-1.85%	-2.08%
2030	1.67%	1.06%	**0.45%**	-0.26%	-0.67%	-1.29%	-1.51%	-1.67%
2031	1.90%	1.26%	0.67%	-0.029%	-0.41%	-1.04%	-1.27%	-1.37%
2032	1.90%	1.26%	0.67%	**-0.029%**	-0.41%	-1.05%	-1.27%	-1.38%

Over the lifetime of MY 2016-2032 vehicles, the 8% per year improvement scenario provides maximum net benefits among scenarios that stabilize by that year. The table below compares maximum net benefits under various percent per year improvement scenarios, across three groups of model years: MY 2016-2028 (used in the draft TAR), MY 2022-2025 (the model years nominally covered by the augural standards), and MY 2016-2032 (by which time several scenarios will have stabilized).

Net Benefits of MY 2022-2025 Standards over Lifetime of Three Vehicle Groups

Scenario	Net Benefit ($b)		
	MY 2016-2028	MY 2022-2025	MY 2016-2032
%/yr. improvement			
Augural	$ 85	$ 36	$ 134
6%	$ 116	$ 48	$ 177
7%	$ 124	$ 50	$ 182
8%	$ 136	$ 58	**$ 198**
9%	**$ 145**	$ 63	*
10%	$ 142	**$ 64**	*
11%	$ 133	$ 60	*
12%	$ 92	$ 45	*

Source: ACEEE Volpe model runs

* No value provided for these scenarios because this column is meant to compare only those scenarios that have stabilized by 2032.

For all vehicle groups considered, maximum net benefits occur for a scenario in which the rate of fuel economy increase greatly exceeds the rate in the augural standards. Hence we reaffirm this statement in ACEEE's original comments: "While not dispositive, these results corroborate that the agencies need to investigate the possibility that standards for MY 2022–2025 should be more stringent than the augural standards."