

Comments on the EPA/NHTSA Notice of Intent to Conduct a Joint Rulemaking for 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards

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The American Council for an Energy-Efficient Economy (ACEEE) is pleased to submit these comments on EPA’s and NHTSA’s Notice of Intent to Conduct a Joint Rulemaking for 2017 and Later Model Year Light Duty Vehicle GHG Emissions and CAFE Standards. ACEEE is a nonprofit organization dedicated to advancing energy efficiency as a means of promoting economic prosperity, energy security, and environmental protection.

ACEEE strongly supports the adoption of standards that will bring the greatest cost-effective reduction in energy consumption and GHG emissions from light-duty vehicles. We applaud EPA and NHTSA for the substantive and forward-looking Notice of Intent they have issued in this crucial matter. 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, and we believe that standards can help to achieve that outcome. Below we offer comments on the following topics:

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All page references below are to the Notice of Intent (NOI) appearing in the Federal Register on October 13, 2010 (FR Vol. 75, No. 197), unless another source is referenced.

Achievable emissions levels

The NOI presents a range of stringencies defined by 3 to 6 percent per year reduction in average GHG emissions. It also explains that the agencies will seek “to narrow the range of potential

stringencies” (p.62741), that savings estimates in the NOI “do not include all relevant costs (p.62746), and that “a manufacturer-specific assessment based on footprint-attribute standard curves will result in costs which are in aggregate higher than those presented here” (p.62747). The TAR also notes that “this preliminary assessment does not include consideration of all statutory requirements and other factors that will be assessed in the upcoming Federal rulemaking. Consideration of these factors is expected to affect cost assessments and may affect the proposed standards” (TAR at viii).

The agencies thus suggest that a stringency below 6 percent is called for. The choice of the initial range appears to have been somewhat arbitrary (p.62744), however, and the agencies should leave open the possibility that a higher rate of improvement is appropriate for the standards. Indeed, all Pathways discussed in the NOI achieve large net consumer savings, and the highest net savings of \$7,400 occur in one of the 6 percent per year scenarios (Pathway C) (Table 2 p.62746). Furthermore, the agencies note that some of the estimates of technology effectiveness are “conservative”, e.g. for the P2-hybrid (TAR p. 3-7), cooled EGR (TAR p. 3-13), and low rolling resistance tires (TAR p. 3-23). These facts indicate that levels of reductions exceeding 6 percent per year may be feasible.

We recognize that 6 percent per year is a high rate of improvement. This rulemaking rightly aspires to create a transformative program of efficiency gains, however, and the improvement rates of recent decades have limited relevance to such a program. Perhaps the more relevant rates of change are those characterizing the speed with which the global auto industry is evolving, since the domestic industry’s ability to keep up with that pace will be a key determinant of its ability to thrive.

Further analysis of technology potential

The agencies also indicate the need for additional analysis and in particular state that unfinished elements of the Ricardo work could reveal greater potential effectiveness for hybrid technologies (TAR p.3-15). The agencies should fully incorporate any additional findings into their further consideration of appropriate levels and timetables for the standards. We request that the agencies make available any such findings to the public as early as possible and not wait for the NPRM to do so. Stakeholders will want to evaluate the agencies’ findings on this matter in detail, and this will require more time than is typically afforded by a regulatory comment period. Moreover, the agencies may find it useful to have more feedback than can be offered in the short time frame of this NOI process prior to making a proposal next fall.

Another important possible outcome of the ongoing research would be that improvements at the rate of 6 percent per year could be achieved without relying on significant penetrations of plug-in vehicles. ACEEE supports the goal of accelerating the penetration of plug-ins into the vehicle market, but we have concerns about setting standards that can only be met in this way, especially if this approach involves the use of zero upstream accounting (discussed below). The cost consequences of relying upon plug-ins to achieve a given standard could constitute an obstacle to demonstrating the economic practicability of the standard.

Approach to choosing stringency

It is unclear what approach the agencies will take to choosing a stringency for the standards. The NOI states: “The future Joint NPRM will consider a number of alternative levels of stringency, including an alternative which is estimated to maximize net benefits.” (p.62748) The agencies have adopted a “technological pathway” approach, which we support, that demonstrates how various mixes of technology could be used to achieve a given standard (p.62745). It is not clear how this approach would be preserved in constructing an alternative to maximize net benefits. Moreover, as ACEEE and other groups have noted in comments on earlier fuel economy rules, the “maximum net benefits” approach to determining stringency will not generally yield the maximum feasible standards. We suggest that EPA, in keeping with the 2008 ANPRM on Regulating Greenhouse Gases Under the Clean Air Act, place this rulemaking in the context of the need to reduce US GHG emissions to at least 70 percent below 2005 emissions by 2050.

The agencies also note that in past rulemakings, individual manufacturers’ “different levels of baseline technology utilization” and resultant ability to meet certain stringency targets has been, and will continue to be, relevant to NHTSA’s determinations of whether standards are economically practicable (TAR p. 6-4). The agencies emphasize that this discussion should not be interpreted as an indication that they will return to a “least capable mfr” approach, but it is not clear how this thinking differs from the short-range analyses NHTSA did in the CAFE rulemakings earlier in the decade. The agencies should clarify what role the proposed manufacturer-specific analysis will have in determining the stringency of the standards.

Another issue relevant to the choice of stringency is that the agencies’ analysis of the costs of the various vehicle technology pathways in the NOI is based on average vehicle costs. When the range of costs among vehicle technologies in a single pathway is large, which is the case for some of the pathways listed, evaluating those pathways in terms only of average cost may not be adequate to determine feasibility.

Treatment of plug-in vehicles

The agencies propose to treat EVs as zero emissions vehicles but do not provide a compelling reason for doing so. In the 2012-2016 rule on light-duty fuel economy and greenhouse gas emissions, the agencies stated:

The purpose of these [zero upstream] provisions is to provide a temporary incentive to promote technologies which have the potential to produce very large GHG reductions in the future. The tailpipe GHG emissions from EVs, FCVs, and PHEVs operated on grid electricity are zero, and traditionally the emissions of the vehicle itself are all that EPA takes into account for purposes of compliance with standards set under section 202(a). This has not raised any issues for criteria pollutants, as upstream emissions associated with production and distribution of the fuel are addressed by comprehensive regulatory programs focused on the upstream sources of those emissions. At this time, however, there is no such comprehensive program addressing upstream emissions of GHGs, and the upstream GHG emissions associated with production and distribution of electricity are higher than the corresponding upstream GHG emissions of gasoline or other petroleum based fuels. (Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, Fed. Reg. May 7, 2010, p. 25341)

This passage clearly states the intention of making the incentive temporary, and the agencies go on to state that “EPA will reassess the issue of how to address EVs, PHEVs, and FCVs in rulemakings for model years 2017 and beyond, based on the status of advanced vehicle technology commercialization, the status of upstream GHG control programs, and other relevant factors” (Ibid, p. 25341) The NOI does not contain such a reassessment. It does comment that “EPA has not considered upstream fuel-related emissions issues in the past with respect to the non-GHG emissions standards for motor vehicles” (TAR p. 7-3), even though the agencies themselves had previously responded to this point, as indicated in the passage quoted above.

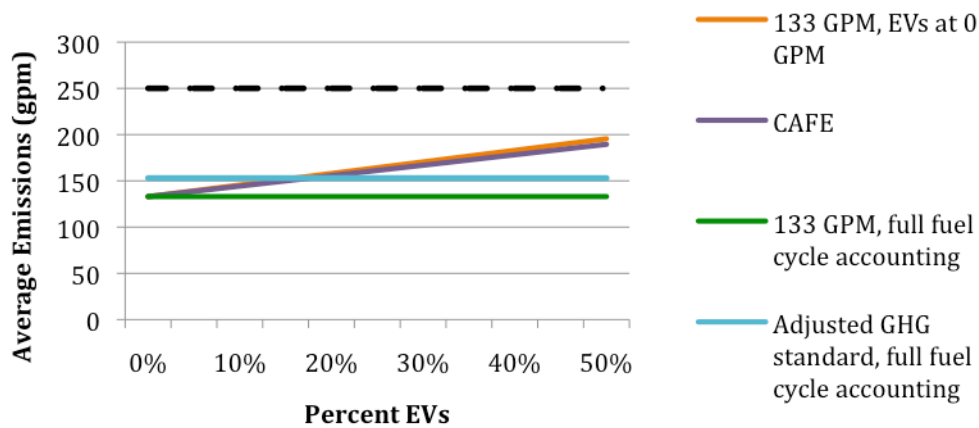
ACEEE reiterates its support for full fuel cycle accounting in the rule. More generally, we do not support the idea of using non-performance-based credits in standards to promote new vehicle technologies. There is ample evidence that this approach can backfire and establish precedents that are difficult to reverse. Ignoring upstream emissions in the standards will mean that: 1) the standards will not promote plug-in vehicle efficiency; 2) growth in plug-in sales could conflict with the goal of reducing emissions from power generation; and 3) plug-in sales will detract from emissions reductions resulting from the standards.

With regard to the first point, improvements to the energy efficiency of EVs will be important to reaching battery cost objectives. With zero upstream accounting, however, GHG standards cannot acknowledge EV efficiency gains and therefore cannot promote them. Regarding the second point, some utilities are seeking off-peak load for high-emissions power plants and are eager to provide power to charge EVs for that reason. If GHG emissions attributed to plug-in vehicles do not include emissions from power generation, utilities will receive no signal from the transportation sector that low-emissions power is preferable to high-emissions power.

That the net emissions impact of EV sales could be negative is particularly troubling. If EVs are treated as having no GHG emissions, manufacturers will be able to increase average emissions of their vehicles, because these nominally zero-emissions vehicles will be used to offset higher emissions of their remaining vehicles. Actual GHG emissions of a fleet in compliance with a standard based on zero upstream accounting will exceed the standard by an amount directly proportional to the percent of EVs sold. This relationship is illustrated in the figure below. The figure shows that, if the standard is set at 133 GPM and counts EVs as zero emissions vehicles, an EV share of 20 percent, for example, will mean a more than 20 percent decline in emissions reductions due to the standard.¹ In principle, zero upstream accounting could facilitate a more stringent standard that could only be met by a fleet that includes plug-ins, but we do not believe the agencies can or should adopt this approach.

¹ Assumes upstream EV emissions of 125 GPM, net of comparable gasoline upstream emissions.

Average Emissions of Fleet Meeting Various Standards



The figure also shows that a GHG standard with zero upstream accounting (orange) treats EVs almost the same way that the comparable CAFE standard (purple) does. The CAFE standard is slightly stronger, however, because under CAFE rules, EVs are assumed to consume a small but non-zero amount of fuel. The GHG standard serves no purpose in this situation.

Complementing CAFE with GHG standards is important precisely because strategies to achieve high fuel economy and those to achieve low GHG emissions may diverge at certain key points. Plug-ins will provide petroleum savings, but so long as the U.S. power grid remains reliant on high-emissions fuels, they may not provide reductions superior to those provided by, say, hybrid electric vehicles. Hence it is appropriate that at present plug-ins would provide a big boost for CAFE compliance but not for GHG emissions standard compliance at a national level.

To save oil, and in anticipation of a low-carbon grid in the future, plug-in vehicles are rightly seen as a promising technology that should be vigorously promoted. A good case can be made for providing investment in plug-in development and deployment as well as purchase incentives. Bills introduced recently include a wide variety of provisions to support EVs, including tax credits for purchase, tax credits for charging infrastructure, component and battery investment support and deployment programs.

That GHG standards should be designed to promote plug-ins specifically is less clear, but they should certainly treat plug-ins fairly. ACEEE supports various mechanisms to ensure that plug-in vehicles are properly credited for reducing emissions. In particular, geographic and temporal variations in emissions should be reflected to the extent possible in upstream emissions accounting. For example, standards should permit manufacturers to certify these vehicles based on emissions from electricity generation in the region in which the vehicle is registered as an alternative to using average emissions. Furthermore, the applicable regional emissions rates should be adjusted to reflect trends or policies in place that will reduce emissions rates over the life of the vehicle. This approach would provide the most accurate accounting of the GHG emissions associated with EV use while driving EV sales to places where the grid is cleanest.

Should a further incentive be warranted, the GHG standard could be adjusted (blue line in the figure above) so that the CAFE standard will be binding as the first EVs enter the fleet. Once EVs exceed the penetration level at which the adjusted GHG standard is equivalent to CAFE (blue and purple lines intersect), the GHG standard will be binding. This option is similar to counting a certain percentage of EVs as zero emissions vehicles and using full upstream accounting thereafter, as the 2012-2016 light-duty rule did. It is preferable from a policy perspective, however, because it establishes full upstream accounting as the norm and uses a temporary adjustment to boost EV production. This approach incentivizes the production of EVs up to a predetermined percentage, but avoids setting a precedent for special treatment that would likely be difficult to revoke.

We believe that the exclusion of upstream emissions from GHG accounting could undermine the credibility of the EPA and contribute to public skepticism regarding plug-in vehicles just as they are entering the market.

Harmonization of fuel economy and greenhouse gas emissions standards

The agencies define a harmonized approach as one that “will allow industry to build a single national fleet that will satisfy both the GHG requirements under the CAA and CAFE requirements under EPCA/EISA” (p.62742). The two standards need not be equivalent to satisfy this definition, and their efficacy should not be compromised by an artificial harmonization. The TAR points out that it may be possible under the Clean Air Act to set standards more stringent than CAFE standards, because certain manufacturer flexibilities cannot be taken into account under CAFE (TAR p.6-6). This added stringency need not be forfeited to harmonize the standards.

We also believe the agencies’ practice of discussing fuel economy standards using CAFE values that have been adjusted to correspond to GHG standards that reflect air conditioning credits is unhelpful. The agencies should consistently describe fuel economy standards in terms of actual CAFE values. We believe this CAFE value will have meaning for the public, unlike the notion of a CAFE value that would be achieved only “if all of the CO₂ reductions came from fuel economy improvement technologies” (TAR p. 6-7). In fact, the TAR notes that the cost-effectiveness of air conditioning improvements “suggests that manufacturers will use them to meet any standard” (TAR p.6-7), so it is misleading to even introduce such a notion.

Consumer welfare

The NOI, like the 2012-2016 rule, raises the question of “whether there may be unidentified additional costs associated with [the available fuel-saving] technologies or other economic assumptions not included in the analysis” (p.62746). The NOI also indicates that the agencies will consider this issue further in preparing the NPRM. We urge the agencies in so doing to count only those additional costs that have been reasonably defined and quantified in some way. This would differ from the treatment in the 2012-2016 light-duty rule, where hypothetical additional costs were assumed at an arbitrary level as part of a “sensitivity analysis” of net benefits of the rule. An example of a reasonable non-monetary cost to introduce in this context might be the “loss of range” associated with an EV, which has similarities to the reduced time spent in refueling that accrues as a benefit of higher fuel economy in CAFE rule analyses. As the agencies continue to evaluate this issue, however, they should also consider the possibility of *gains* in consumer welfare that may not have been captured in the earlier analysis of costs and benefits. For example,

EVs may carry connectivity benefits that should also be included in the analysis of cost and benefits of the rule.

Truth in Testing

We urge the agencies to address where possible the problem of fuel economy compliance values that are some 20 percent higher than typical real-world fuel economy. While Congressional action may be required to completely remedy this problem, the agencies can take steps to minimize it and facilitate its eventual resolution. In the 2012-2016 light-duty rule, the agencies noted their interest in developing “test procedures that are more representative of real-world driving conditions” and their intent “to evaluate it in the context of a future rulemaking to address standards for model year 2017 and thereafter.”² We encourage the agencies to pursue this and believe in particular that EPA should set GHG standards, along with testing, compliance and reporting protocols, based on the best available approximation to real emissions values. This need not impose a new burden on manufacturers, who are required to do more accurate testing and reporting for fuel economy labeling purposes already.

Air Conditioning Credits

With regard to air conditioning, EPA states that it “has not made any determination at this time whether reductions due to improvements in air conditioning should be treated as a credit or a requirement during the 2017-2025 timeframe.” (TAR p. 6-7) EPA has however included reductions from A/C in assessing technically feasible emissions levels (p.62749 and TAR p. 5-6). While we support the idea that the rule be used to promote reduction of GHGs through air conditioning improvements, we do not support allowing A/C credits to substitute for GHG reductions achievable through other vehicle technology improvements unless this permits the adoption of more stringent standards than would otherwise be feasible.

Stakeholders’ Support for a National Program

The agencies state that “there was a consensus among stakeholders that a National Program should continue, and that the program’s design should allow a single national fleet to comply with Federal GHG standards, Federal CAFE standards, and California GHG standards” (p.62748). ACEEE and its colleague groups do support the National Program. We also believe it is essential that California retain its right to set GHG standards that are higher than federal standards, however, which may or may not allow a single national fleet to comply with all three standards after MY2016.

Criteria Pollutant Standards

ACEEE supports EPA’s consideration of further criteria pollutant standards. We note that, in order to ensure that such an action gains the support of the public, EPA should continue to convey to the public and to policymakers the health benefits of further reductions in criteria pollutant emissions. One setting in which this issue arises is in the redesign of the fuel economy label to add

² Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule, Fed. Reg. May 7, 2010, p.25332.

environmental performance information. This label should underscore that criteria pollutants remain an important component of the environmental impacts of automobiles, and any overall environmental performance rating on the label should reflect this.

Conclusion

ACEEE commends the agencies for the excellent work the NOI and TAR represent, and we urge that they complete the work begun in the preparation of those documents and apply it to developing the most ambitious possible greenhouse gas emissions and fuel economy standards for MY2017-2025, without allowing the potential weaknesses discussed above to undercut those standards.