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FE-6318

June 27, 2008

Docket Management Facility
U.S. Department of Transportation
West Building, Ground Floor
Rm. W12-140
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

Re: DOT DMS Docket No. 2008-0089
Average Fuel Economy Standards, Passenger Cars and Light Trucks; Model Years 2011-2015 : Notice of Proposed Rulemaking

General Motors Corporation (GM) appreciates the opportunity to offer comments on the National Highway Traffic Safety Administration's (NHTSA's) Notice of Proposed Rulemaking to set passenger car and light truck fuel economy standards for 2011-2015 and to further reform the Corporate Average Fuel Economy (CAFE) program. See 73 Fed. Reg. 24,352 (May 2, 2008).

General Motors also participated in the preparation of the comments submitted by the Alliance of Automobile Manufacturers (the Alliance) and fully supports those comments.

The Energy Independence and Security Act of 2007 (EISA), which Congress passed in December 2007, mandates the setting of the maximum feasible standards for passenger cars and for light trucks, separately, at levels sufficient to ensure that the average fuel economy of the combined fleet of all passenger cars and light trucks sold by all manufacturers in the U.S. in model year (MY) 2020 is at least 35 miles per gallon. Congress also declared that the increases for the years 2011 through 2020 are to be ratable over that period. NHTSA proposes in this NPRM to set the first five years of these increases.

As our CEO Rick Wagoner stated in December of 2007, EISA includes direction "...on tough, new CAFE standards that pose a significant technical and economic challenge to the industry. But, it's a challenge that GM is prepared to put forth its best effort to meet with an array of engineering, research and development resources. We will continue our aggressive pursuit of advance technologies that will deliver more products with more energy solutions to our customers."

We support NHTSA's approach to reforming the CAFE requirements so that they are based upon one or more vehicle attributes. The reform of CAFE helps to mitigate the adverse safety impacts resulting from the traditional unreformed approach. Reform further helps to lessen some of the competitive inequities identified in the traditional unreformed approach.

In addition, GM supports the agency's analysis of the Energy Policy and Conservation Act (EPCA) preemption of state regulation of vehicle fuel economy/CO_2 emissions. We agree with the agency's long-standing position that such state standards are expressly and impliedly preempted by EPCA (49 USC 32919(a)). We further agree with, and fully support, NHTSA's understanding of Congressional intent, as evidenced by EPCA and now EISA, that there is to be a single, national fuel economy program administered by NHTSA. A national program provides the auto industry with a single set of requirements that are based upon NHTSA's ability to conduct a comprehensive review of the abilities of the industry. This allows automakers to focus our efforts on achieving these national requirements, thereby making the best possible use of our limited resources to move toward greater energy independence.

With regard to the specific requirements proposed by NHTSA, GM is concerned that the NHTSA analysis has established targets that are beyond what is "maximum feasible" for the 2011-2015 MYs, and that the proposed targets are beyond, in the earliest years, what would be considered "ratable" increases. We believe that NHTSA's use of outdated studies on technology benefits and costs and NHTSA's use of outdated product plan information from GM and other automakers have contributed to this problem. In this response, we provide the most current information on the state of these technologies and the rates at which they can be implemented on our vehicles. This is especially important with respect to expensive hybrid electric powertrain technology, which NHTSA underestimates the cost of and applies too broadly across the fleet in the early years. GM has an aggressive hybrid roll out plan, but believes that cost reduction programs must be given more time before hybrids can be commercially successful at the volume levels contemplated by NHTSA.

In addition, some incorrect accounting of technology benefits and misunderstanding of technology applicability lead to highly aggressive rates of increase in the early years of the program. We urge NHTSA to look carefully at the latest available information on technology costs and benefits, including those that we are providing in the attachments to these comments as well as those that have been developed in Sierra Research SR2008-04-011[1], the update to SR2008-04-11 dated June 27 [2], and those provided in the June 2008 Martec Update to the 2004 NESCAAF study[3]. In addition, we urge NHTSA to re-examine closely the assessments it made regarding the financial capability of companies to implement the dramatic changes included in its analysis, including the opportunity for companies to recover the capital costs involved. Finally, NHTSA needs to consider more thoroughly the lead times needed to implement changes in technology and the impact of the proposed standards on product availability, jobs and consumer choice.

Our comments include six attachments:

1) Detailed comments (Public and Confidential versions)
2) Detailed Analysis of Energy Usage for small and large vehicles versus footprint (Confidential version only)
3) *Volpe Methodology: Synergies and Decision Trees (Confidential version only)*
4) GM's Critique of the Volpe Model output for GM (Confidential version only)
5) Detailed comments on GM actions needed to comply (Confidential version only)
6) Relevant sections from General Motors 10-K statement

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[1] Sierra Research, Inc., Report No. SR2008-04-01, Basic Analysis of the Cost and Long-Term Impact of the Energy Independence and Security Act Fuel Economy Standards, April 24, 2008

[2] Sierra Research Comments including Attachments Regarding Docket No. NHTSA-2008-0089, June 27, 2008

[3] The Martec Group, Variable Costs of Fuel Economy Technologies, June 10, 2008

We are providing these two copies to the docket with confidential information redacted. We are providing copies containing confidential information to the Chief Counsel's Office by a separate mailing.

If you have any questions regarding this response, please contact me or Barbara Kiss of my staff at (313) 665-2964.

Sincerely yours,

Alan R Weverstad

Alan R. Weverstad
Executive Director
Public Policy Center

Attachments

ATTACHMENT 1

General Motors Detailed Comments on the National Highway Traffic Safety Administration's Notice of Proposed Rulemaking on Average Fuel Economy Standards for Passenger Cars and Light Trucks Model Years 2011-2015

GM's detailed comments on the NPRM are organized as follows:

Section 1.000 Standard Setting and Reformed CAFE

- 1.010 GM Position
- 1.020 Shape of and Adjustments to the Continuous Function Footprint-based Curves
  - 1.021 Small and Large Vehicles versus Footprint
  - 1.022 Use of More Representative Vehicles to Set the "A" Parameter
  - 1.023 Heavy-Tow Capable Adjustment
- 1.030 Clarification of 49 CFR 523.5
- 1.040 Advanced Technologies: Benefits and Challenges
  - 1.041 GM's 2-mode RWD Hybrid Technology
  - 1.042 Plug-in Hybrids (PHEV) & Extended Range Electric Vehicles (E-REV) Challenges
- 1.050 Credits related to the 92% Domestic fleet backstop (536.9 (d))
- 1.060 Volpe Methodology: Synergies and Decision Trees
- 1.070 GM's Critique of the Volpe Model Output for GM
- 1.080 Progression Rate of Standards

Section 2.000 Cost Issues Associated with CAFE

- 2.010 GM Position
- 2.020 GM Actions Needed to Comply
- 2.030 Capital and Spending Constraints
- 2.040 Fines

Section 3.000 Federalism (Preemption)

1.000 Standard Setting and Reformed CAFE

1.010 GM Position

GM is fundamentally supportive of reforming the CAFE program to create a system that more equitably treats competing vehicles in the marketplace. GM is further generally supportive of footprint as the chosen attribute in the standard setting process. We also strongly support the use of manufacturer data in setting and evaluating the fuel economy requirements. Tying the requirements to real world company plans and capabilities provides the greatest likelihood of the requirements making technical and economic sense and satisfying the CAFE law. Finally, we generally support the use of the Volpe modeling process to develop the continuous function curves. At the same time, however, we have carefully reviewed NHTSA's analysis for this proposed rule and we have significant comments about the methodology used and the proposed results. These are spelled out in subsequent sections of our comments. In summary, the Volpe model and NHTSA's modifications to the reform curves could be further enhanced with modifications that take into account the basic physics of vehicles and the use and utility that they provide to consumers.

1.020 Shape of and Adjustments to the Continuous Function Footprint-based Curves

Among the most critical issues in setting the requirements in a reform based system is the shape of the continuous function curve and how various vehicles fare relative to the targets that are created.

1.021 Small and Large Vehicles versus Footprint

In attachment 2, we provide an analysis that shows that the NPRM curves from 2011 to 2015 require the most fuel efficient large trucks to improve by 19%, and the most fuel efficient large cars to improve by 12% from today's levels to reach the 2015 target. Conversely, the most fuel efficient small cars and small trucks require no improvement. Because the proposed curves require little improvement (and therefore little added cost) from the small cars and small trucks, a consequence of the curves could be that manufactures attempt to "mix shift" to smaller vehicles, potentially denying families some of the popular larger vehicle options available today. There is also a lost opportunity for additional fuel savings for the program. If, for example, both the car and truck curves were adjusted such that the "A" parameter is increased by 10% and the "B" parameter is decreased by 5%, the result is not only a more equitable distribution of the overall task, but more importantly an overall increase in the amount of total fuel saved for the program. **We recommend that such an adjustment be made to ensure equity between the challenges allotted to the largest and smallest vehicles and among manufacturers of these vehicles, and to increase the amount of fuel savings.**

1.022 Use of More Representative Vehicles to Set the "A" Parameter

NHTSA's segmentation of the small car fleet and its subsequent use of the smallest 3% of these vehicles to constrain the A parameter distorts the end point of the "s curve" for cars. The smallest 3% of cars by footprint are all in the International A and B segments, also known as the Lower Small or Economy Segments. All of these vehicles are in a very price sensitive entry level segment and have lower levels of technology than the manufacturers' vehicles in the C Segment. The larger footprint C Segment vehicles usually have about the same fuel economy (often due to greater use of advanced technologies), but importantly these vehicles also have much higher sales levels than the B segment model from the same manufacturer. For example, the Civic automatic achieves 39.08 mpg, while the Fit achieves 39.3 mpg. The Corolla achieves 39.11 mpg, while the Yaris provides 39.30 mpg. The Cobalt automatic is rated at 33.71 mpg, while the Aveo is rated at 34.27

mpg. The Sentra with CVT is rated at 37.12 mpg, while the Versa with a 4-speed automatic is rated at 35.75 mpg. (Nissan dropped the CVT transmission on Versa for 2008 Model Year.) The Spectra is rated at 35.36 mpg, while the Rio is rated at 38.02 mpg. (See Table 1 below.)

TABLE 1

	B-Segment Nameplate	Sales	C-Segment Nameplate	Sales
GM	Aveo	54,083	Cobalt	162,229
Honda	Fit	39,303	Civic	293,461
Kia	Rio	28,410	Spectra	65,127
Nissan	Versa	59,282	Sentra	100,509
Toyota	Yaris	81,647	Corolla	304,662
Total		262,725		925,988

Based on a more representative choice of vehicles at the smaller end of the car fleet, the end point and overall shape of the car "s curves" would have been modified. **NHTSA should not rely solely on the smaller footprint, smaller sales volume vehicles in establishing the target curves. Proper recognition of the higher sales volume vehicles in the small car C segment should be included in this analysis to avoid distortion**.

1.023 Heavy-Tow Capable Adjustment

NHTSA requested comment regarding additional appropriate attributes, such as towing capability, as a modifier to the size-based reform proposal. For the MY 2008-2011 light truck rulemaking, we commented[1] that towing capability is an important truck characteristic that should be considered in the reform-based standard setting process. In the 2011-2015 proposal, NHTSA notes that "...the lack of an objective measure for tow rating and the potential for gaming of a system based on this attribute made towing or cargo-hauling capacity an inappropriate attribute at that time."

This lack of an objective measure is no longer an issue. The Society of Automotive Engineers published SAE J2807[2] in April of 2008. This recommended practice establishes objective criteria and procedures for determining a vehicle's Trailer Weight Rating (TWR).

As a result, we recommend that NHTSA again consider creation of a "heavy-tow capable" vehicle classification. A vehicle should be deemed "heavy-tow capable" if its TWR is equal to or greater than 7700 pounds (3493 kg) per the J2807 recommended practice. **To account for these "heavy tow capable" vehicles in the CAFE system, we further recommend that NHTSA enhance the coefficients that define the continuous function curves such that "heavy-tow capable" vehicles be calculated against a curve whose "A" and "B" coefficients are 3.2% less that those defined for the light truck fleet for that year.** The 3.2% modification is based upon the additional mass and hardware needed to make a vehicle "heavy-tow capable." Further, the 3.2% coefficients adjustment was arrived at analytically based on comparing fuel economy performance data from "heavy-tow capable" vehicles against their non-"heavy-tow capable" counterparts.

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[1] GM Comments "Light Truck Average Fuel Economy Standards—Model Years 2008-2011; Request for Product Plan Information", FE-6307, November 18, 2005, and "Reforming the Automobile Fuel Economy Standards Program: Request for Product Plan Information for Model Year 2007-2017 Passenger Car and 2010-2017 Light Trucks", FE – 6316, June 25, 2007

[2] "Performance Requirements for Determining Tow-Vehicle Gross Combination Weight Rating and Trailer Weight Rating," Revised APR2008

Adding a "heavy-towing capable" definition and modifying the continuous function curves to account more accurately for these vehicles would make the proposed standards more reflective of the need for these vehicles in the marketplace.

1.030 Clarification of 49 CFR 523.5

NHTSA discusses its 1981 interpretation letter concerning classification of 2-wheel drive utility vehicles as trucks for CAFE purposes when they are truck derivatives and offer, in base form, greater cargo carrying than passenger carrying volume. We support the agency's affirmation of this long-standing interpretation. This interpretation has allowed vehicles that are truly trucks in all key aspects to be properly classified as trucks for CAFE purposes. However, in affirming its interpretation, NHTSA has provided industry with a new definition of "base form." NHTSA's interpretation letter did not define "base form" and NHTSA has not defined "base form." We believe it was reasonable to construe base form to mean base vehicle.

The agency addresses the ambiguity created by the undefined term "base form" in footnote 207. Because of the importance of this term, we believe that NHTSA should promulgate a definition of "base form" in its fuel economy regulations (e.g. in 40 CFR 523.2). Doing so would help ensure uniform understanding and application of its interpretation. If the agency decides not to include this new definition in its final rule, we request that the agency confirm that this new interpretation of base form will become effective in the 2011 model year at the same time as its revisions to Part 523.5.

Finally, we support NHTSA's clarification that "a 2-wheel drive vehicle is counted as a 2-wheel drive vehicle regardless of whether the same model is available in 4-wheel drive." (73 FR 24460). Here, and in the accompanying text, NHTSA states that vehicles should be classified by "model." We believe that NHTSA means to state that classification should be by "model type." This is consistent with the reporting of "model type" classification information in the pre-model year and mid-model year reporting (49 CFR 537.7).

1.040 Advanced Technologies: Benefits and Challenges

Among the challenges for regulators is to collect and properly evaluate cost and benefit information regarding advanced technologies. Unfortunately, in this proposal, NHTSA relies upon flawed and outdated studies. The studies include the National Research Council CAFE study from 2002[3], 2004 NESCCAF[4], 2006 EEA[5], outdated confidential manufacturer reports (73 FR 24366 col 1-3), as well as input from EPA. EPA's analysis[6] is based upon an earlier EPA report in conjunction with Ricardo Strategic Consulting[7].

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[3] National Research Council, "Effectiveness and Impact of Corporate Average Fuel Economy (CAFE) Standards," National Academy Press, Washington, DC (2002)

[4] 2004 Northeast States Center for a Clean Air Future (NESCCAF) report "Reducing Greenhouse Gas Emissions from Light-Duty Motor Vehicles"

[5] 2006 Energy and Environmental Analysis Inc (EEA) report "Technology to Improve the Fuel Economy of Light Duty Trucks to 2015." Prepared for The U.S. Department of Energy and The U.S. Department of Transportation.

[6] EPA Staff Technical Report: Cost and Effectiveness Estimates of Technologies Used to Reduce Light-duty Vehicle Carbon Dioxide Emissions. EPA420–R–08–008, March, 2008.

[7] "A Study of Potential Effectiveness of Carbon Dioxide Reducing Vehicle Technologies," EPA420-R-08-004, January 2008

The Alliance and GM have provided data-based constructive critiques of all of these third party studies. The 2002 NRC study was assessed in a SAE technical paper[8]. Additionally, the Alliance has gone on record with critical comments of the 2004 NESCCAF that demonstrate why that study does not provide a reliable basis for rulemaking[9]. GM commented critically on the 2006 EEA study in prior comments. The Alliance criticized the Ricardo report in a memo to the NAS panel dated March 6, 2008[10].

NHTSA is correct that "...since the publication of the 2002 NAS Report, there has been substantial advancement in fuel-saving technologies...." (73 FR 24365 Col 1). Several of the recent technology assessments provide a better foundation and framework for considering costs and benefits. **We recommend that NHTSA review the April 28, 2008 Sierra Report No. SR2008-04-01[11], the update to SR2008-04-01 from June 2008[12], and finally the Martec update dated June 10, 2008[13] which supersedes and updates Martec's work from the 2004 NESCCAF study.** A review of these updated reports indicates that NHTSA severely overstates the benefits of many technologies, particularly hybrids, and substantially understates the costs.

In our response to Question 6 of NHTSA's Request for Product Plan Information, we provide detailed information regarding all technologies that GM has in use, and/or under development. Costs are included in our response to question 9. **We urge NHTSA to thoroughly review these updated assessments and adjust its analysis accordingly.**

1.041 GM's 2-mode RWD Hybrid Technology

According to NHTSA's application of fuel economy enhancing technologies, the GM 2-mode hybrid provides a very large benefit, second only to the Toyota Power Split Hybrid. NHTSA directs the Volpe model to apply the 2-mode throughout the analysis. Unfortunately, NHTSA misunderstands and incorrectly applies both the costs and benefits of GM's 2-Mode system. This leads to conclusions about the level of fuel economy achievements that are significantly overstated.

NHTSA states "According to confidential manufacturer data, 2-mode hybrids could achieve incremental fuel consumption reductions of 25 to 40 percent." (73 FR 24377 Col 1). In fact, in GM's response to NHTSA's request for Truck Product Plan Information (June 2007, in the answer to Question 6), GM states that the fuel economy benefit of the 2-mode is "up to 25% for a full-sized RWD utility (Chevrolet Tahoe/GMC Yukon) and up to 40% for a FWD crossover utility (Saturn VUE). The listed values are at a vehicle level, depend on vehicle baseline, include engine improvements, and include improvements to the vehicle system." NHTSA misuses this information in several ways.

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[8] SAE 2002-01-0628, March 4-7, 2002, SAE 2002 World Congress, Aggregating Technologies for Reduced Fuel Consumption: A Review of the Technical Content in the 2002 National Research Council Report on CAFE

[9] Testimony of Kenneth Patton (GM); Testimony of Kevin McMahon (Martec); Plaintiffs' Proposed Findings of Fact, June 15, 2007, pp. 103 - 113

[10] Detailed Technical Comments on Ricardo "Study of Potential Effectiveness of Carbon Dioxide Reducing Vehicle Technologies" Report, March 6, 2008

[11] Sierra Research, Inc., Report No. SR2008-04-01, Basic Analysis of the Cost and Long-Term Impact of the Energy Independence and Security Act Fuel Economy Standards, April 24, 2008

[12] "Comments Regarding the NHTSA Proposal for Average Fuel Economy Standards Passenger Cars and Light Trucks Model Years 2011-2015", June 27, 2008

[13] The Martec Group, Variable Costs of Fuel Economy Technologies, June 10, 2008

First, we specifically note a statement on 73FR 24377 Column 1 that claims the 2-mode system provides, "...fuel consumption reductions of 25 to 40 percent." This is an error. NHTSA should be aware that a reduction of 25 to 40 percent in fuel economy would translate into a 20 to 28.6% reduction in fuel consumption.

Second, NHTSA ignores the remainder of our June 2007 response, which notes that "[the] listed values are at a vehicle level, depend on vehicle baseline, include engine improvements, and include improvements to the vehicle system." Our advertising claim for the 2008 model year 2-mode Chevrolet Tahoe hybrid is an up to 30% increase in ***EPA adjusted*** composite fuel economy when compared "at the vehicle level" to its non-hybrid variant. The 30% claim is based upon final EPA fuel economy label values (as is required by FTC regulations). For purposes of this claim, we use the label values for the 2008 model year 2-mode Chevrolet Tahoe 2WD hybrid.

Table 2 uses certification data to show the ***unadjusted*** composite fuel economies for hybrid and non-hybrid Tahoe models and the percentage improvement attributable to the hybrid system.

TABLE 2

2008 MY	***Unadj.*** Comp. mpg	% FE improvement	Fuel ECONOMY improvements due to Hybrid system (65%)	Fuel CONSUMPTION improvements due to Hybrid system (65%)
2WD Tahoe	21.3			
2WD Tahoe Hybrid	25.2	18.3%	11.9%	10.6%
4WD Tahoe	20.3			
4WD Tahoe Hybrid	23.6	16.3%	10.6%	9.6%

Importantly, these increases come from three distinct sources: vehicle modifications; powertrain hardware; and the hybrid system. The fuel economy enhancing vehicle modifications include changes in aerodynamic design, a reduced axle ratio, aluminum lift gate, electronically controlled air conditioning, electric power steering, and blended electro-hydraulic braking. These vehicle modifications account for 20% of the total fuel economy savings. The powertrain hardware, separate from the hybrid system provides 15% of the overall benefit from a variable displacement oil pump and late intake valve closing (i.e. Atkinson cycle) as well as inclusion of cylinder deactivation on the 6.0 L V8. Assuming a standard 5.3L SUV with cylinder deactivation as a baseline, the overall benefit from a variable displacement oil pump, late intake valve closing and cylinder deactivation on the 6.0 L V8 is approximately 8%. Employing the GM mechanization of late intake valve closing maximizes fuel economy performance for our 2-mode hybrid, but could not be used on standard IC engines.

The battery and hybrid system therefore make up the remaining 65% of the improvement. The Volpe analysis double-counts when it takes credit for the addition of the hybrid system and then further applies level one mass reductions, level two mass reductions, level three mass reductions, several levels of electronics controls, and aero improvements on top of this system.

On the cost side, the total incremental cost for this 2-mode system is [redacted]. This cost includes only material (piece) cost and warranty accrual. Based on General Motors cost structure, this factory cost level of [redacted] would translate into a Retail Price Equivalent (RPE) of today's 2-mode system of approximately [redacted]. This [redacted] is incremental to the price of a base non-hybrid Tahoe. [redacted]

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[redacted]

To compare, NHTSA's analysis applies the 2-mode technology to a truck after applying a 42-volt start/stop system. NHTSA's full retail price equivalent for a 42-volt start/stop system is $600 and $6006 for a 2-mode system. As noted above and in Table 2, this NHTSA estimate significantly understates both the cost and the retail price equivalent of a 2-mode system.

For NHTSA to assume the 2-mode hybrid system will only cost the customer $6600 at retail, the agency is either telling automakers using this system that they must count on absorbing [redacted] of unrecoverable cost per vehicle, or it is greatly underestimating the consumer cost of this technology. Both of these assumptions have potentially significant impacts on other portions of NHTSA's analysis.

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TABLE 3

Technology	NHTSA Price	GM Cost	GM Price[14]
2-mode RWD	$6,606	[redacted]	[redacted]

1.042 Plug-in Hybrids (PHEV) & Extended Range Electric Vehicles (EREV) Challenges

Successfully bringing plug-in hybrids and EREVs to market present numerous challenges to GM both internally and externally[15]. For the purposes of the NHTSA rulemaking, GM's game-changing EREV technology should be treated as a low volume application during the time period under consideration. **We strongly discourage NHTSA from applying either PHEV or EREV technology in any significant volume in the Volpe model during the 2011-2015 timeframe.**

1.050 Credits related to the 92% Domestic fleet backstop (536.9 (d))

GM supports the Alliance comment regarding 536.9 (d). We do not believe it was the intent of EISA to restrict the use of carry forward and carry back credits to meet the requirements of the minimum domestic fleet standard. **The new provisions of EISA make clear that the restrictions on the use of credits with respect to the alternative minimum standard for domestic cars is limited to *credit transfers* and *credit trading*.**

1.060 Volpe Methodology: Synergies and Decision Trees

NHTSA uses the Volpe model to account for technology "synergies" and applies technologies based on a decision tree. As our comments to this section describe GM's planning process with respect to the application of advanced technologies, the entire section is confidential and found in

[14] As in the past, we present GM's price as GM's cost adjusted to a Retail Price Equivalent of 2.0

[15] See "The Electrification of the Automobile: From Conventional Hybrid, to Plug-in Hybrids, to Extended-Range Electric Vehicles," E. D. Tate, Michael O. Harpster and Peter J. Savagian - General Motors, 2008 World Congress April 14-17, 2008

Attachment 3.

1.070 GM's Critique of the Volpe Model Output for GM

In the Volpe analysis, NHTSA started with GM's confidential product plan information and then applied technologies via three technology paths. In May 2008, NHTSA provided GM the output files (one for car and one for truck) from this analysis for comment. Attachment 4, "GM's Critique of the Volpe Model Output for GM" provides a detailed case-by-case assessment of these outputs. In addition to the critique in Attachment 4, we have included edited data files on the data disk that includes the answers to question 3 of our confidential product plan submission.

1.080 Progression Rate of Standards

Among the new requirements that EISA/EPCA imposes on NHTSA is to set CAFE standards in MYs 2011-2020 in a "ratable" fashion. Given that, along with the concerns raised in other parts of our comments about the technical feasibility and economic practicability of the proposed standards – especially in the early years of the five year period of this rulemaking -- **we urge NHTSA to consider further whether a more gradual ramp up of the requirements over this period would be more in keeping with the Congressional provision for "ratable" increases.** Such an approach would also provide greater flexibility to manufacturers in meeting the CAFE standards, and would smooth out the relative burdens of technological introduction for each model year.

Section 2.000 Cost Issues Associated with CAFE

2.010 GM Position

The auto industry faces enormous costs associated with the vehicle changes and the development and implementation of advanced technologies needed to meet the challenges of the Congressionally mandated increases. The following and attached confidential material expands upon GM's expectations regarding these costs. Importantly, how the increases in the CAFE requirements are structured and timed have a lot to do with the ability of a company like GM to be able to manage them. We have stated that GM is prepared to put forth its best effort to meet (them) with an array of engineering, research and development resources. However, **as noted above, we urge NHTSA to promulgate standards that are more aligned with the ratable levels of increases noted in the law, i.e. a progression that is more even, less aggressive than the proposed aggressive and front loaded 4.5%/yr rate, and more in line with the approximately 3%/yr rates needed to achieve the goal of EISA.**

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2.020 GM Actions Needed to Comply

GM's current business plan extends to the 2012 MY. While there is great uncertainty in vehicle demand and pricing beyond 2012MY, a post-2012 MY outlook has been developed to explore possible vehicle portfolio changes and powertrain alternatives as a means of improving overall fleet fuel economy, while still offering consumers a broad range of transportation alternatives. As mentioned in our response to question 12, our post-2012 demand outlook assumes fuel prices of [redacted]/gallon for gasoline and [redacted]/gallon of diesel. With this, we are projecting a fairly constant overall industry volume, with some segment shifting downward, in both the car and truck fleets.

Based on this outlook, we have developed a contingency plan that maintains our previously planned portfolio, but incorporates significant levels of technologies to reach compliance. This contingency plan is not a GM-approved plan, but rather an analytical perspective for us to understand potential differences between what we believe might be a market-driven and CAFE forced portfolio of GM vehicles. As explained in Attachment 5, this contingency plan includes

actions that are very costly and could require the elimination of some models and the addition of expensive technologies to other models that consumers may not find acceptable -- due to price concerns, drivability issues, loss of utility, and noise/vibration acceptance levels. Accordingly, this contingency plan exceeds the boundaries of what would be considered technological feasibility and economic practicability. NHTSA has consistently recognized that in setting CAFE standards it must respect the limited financial capability of the industry and avoid standards that "lead to adverse economic consequences, such as a significant loss of jobs or the unreasonable elimination of consumer choice." See 73 Fed. Reg. 24,352,24,363; see also 67 Fed. Reg. 77,015, 77,021.

2.030 Capital and Spending Constraints

In the Preliminary Regulatory Impact Analysis, NHTSA assumes that manufacturers either have the capital or the ability to borrow funds to meet the proposed standards. That assumption ignores the realities facing GM. None of the supporting studies underlying NHTSA's analysis, nor the NHTSA modeling process itself, quantitatively address the real world constraints that exist at automobile companies in terms of technical and financial resources. Resource constraints clearly limit the rate at which new technologies can be added and they may be far more constraining than the manner described in NHTSA's technical feasibility analysis.

Particularly with respect to the high penetrations of expensive hybrid vehicles, NHTSA has constructed a roll-out rate for new technologies that may substantially exceed the capacity of General Motors to actually implement. If the future standards cannot be achieved through technology additions, then compliance can only be achieved through actions contrary to the CAFE statute, such as product eliminations, plant closings, and degradation of vehicle performance and utility, all of which will lead to reductions in consumer choice and job losses in the auto industry. These risks were described in the General Motors 10-K statement[16] dated February 28, 2008.

2.040 Fines

The agency requests comment on whether it should initiate a proceeding to consider raising the civil penalty for failing to meet a CAFE standard. GM sees no reason to change the current fine level, which has and will be adjusted for inflation.

Section 3.000 Federalism (Preemption)

GM supports and incorporates by reference the Alliance comments on the agency's discussion of EPCA preemption of state regulation of vehicle CO_2 emission. We appreciate and agree with agency's long-standing position that such state standards are expressly and impliedly preempted by EPCA (49 USC 32919(a)). We further agree that the Supreme Court's decision in *Massachusetts v. EPA* did not address the scope of EPCA preemption, and did nothing to call into question NHTSA's reasoned interpretation of EPCA preemption. NHTSA correctly observes that if manufacturers are forced to comply with state standards then Congress's goal of an effective, coherent national fuel economy program will be frustrated, and NHTSA's careful effort to satisfy the statutory requirements set forth in EPCA as amended by EISA will be thwarted.

We intend to do our best to meet these challenging CAFE standards, but *additionally* complying with stringent state standards would present us with huge additional costs and disruption to our business. We do not believe it is realistically possible to comply with California's CO_2 standards given our product portfolio and the extent of technical improvements we believe would be required in the time frame provided. If we cannot reasonably comply with such state standards,

[16] See Attachment 6, Relevant sections from General Motors 10-K statement.

we would be subject to sizable civil penalties or have to restrict product offerings drastically to remain in compliance as long as possible. In turn, such actions could have a substantial adverse impact on our operations, including loss of sales revenue, forcing production cutbacks, reduced employment and plant closings.

Congress, in enacting EISA, affirmed that a national fuel economy program is important to satisfy energy conservation and environmental concerns, even as it reformed the program to address the safety, competitive and energy savings problems that arose under the traditional CAFE program. In so doing, Congress clearly affirmed NHTSA's responsibility to administer this national fuel economy program and to do so by setting standards that reflect a careful balancing of statutory considerations, including the economic practicability of CAFE standards. NHTSA's ability to set standards based upon the proper balancing of these factors will be frustrated if manufacturers will be subject to state-by-state CO_2 emissions requirements.

The preemption position summary that NHTSA has drafted is a sound statement of express and implied preemption of state CO_2 tailpipe emissions standards by the agency responsible for administering and enforcing the CAFE program. However, we believe that the position should also address state attempts to require vehicle labels disclosing vehicle CO_2 information. 49 USC 32919(b) states "A State or a political subdivision of a State may adopt or enforce a law or regulation on disclosure of fuel economy or fuel operating costs for an automobile covered by section 32908 only if the law or regulation is identical to that requirement." We have already seen states attempt to build upon their regulation of vehicle CO_2 tailpipe emissions by requiring special labels disclosing a vehicle's CO_2 emissions. Such label requirements are not identical to the federal fuel economy labels required under 49 USC 32908 and are therefore preempted. We request that NHTSA include in its preemption position a statement of the scope of preemption under 32919(b). Doing so would be consistent with guidance given by NHTSA's Office of Chief Counsel to states that have attempted to require labeling not identical to federal requirements under section 32908. It would also be consistent with the direction Congress gave to NHTSA to develop and implement a program to require manufacturers to label vehicles with fuel economy and greenhouse gas information. (49 USC 32908(g)). Otherwise manufacturers face the prospect of complying with non-identical state and federal labeling requirements, and consumers face the prospect of being confused when confronted by these different labels.

Attachment 6 - Relevant sections from General Motors 10-K statement

From the General Motors 10-K statement dated February 28, 2008:

> "New laws, regulations or policies of governmental organizations regarding increased fuel economy requirements and reduced greenhouse gas emissions, or changes in existing ones, may have a significant negative impact on how we do business.
>
> We are affected significantly by a substantial amount of governmental regulations that increase costs related to the production of our vehicles. We anticipate that the number and extent of these regulations, and the costs to comply with them, will increase significantly in the future. In the United States and Europe, for example, governmental regulation is primarily driven by concerns about the environment, vehicle safety and fuel economy. These government regulatory requirements complicate our plans for global product development and may result in substantial costs, which can be difficult to pass through to our customers.
>
> The CAFE requirements mandated by the U.S. government pose special concerns. In December 2007, the United States enacted the EISA, a new energy bill that will require significant increases in CAFE requirements applicable to cars and light trucks beginning in the 2011 model year in order to increase the combined U.S. fleet average for cars and light trucks to 35 mpg by 2020, a 40% increase. The estimated cost to the automotive industry of complying with this new standard will likely exceed $100 billion, and our compliance cost could require us to alter our capital spending and research and development plans, curtail sales of our higher margin vehicles, cease production of certain models or even exit certain segments of the vehicle market."

Additionally from the February 28, 2008 10-K statement:

> "Our business and results of operations are tied to general economic and industry conditions. The number of cars and trucks sold industry-wide varies from year to year, and sales in the United States declined in 2007 from 2006. Overall vehicle sales, including demand for our vehicles, depend largely on general economic conditions, including the strength of the global and local economies, unemployment levels, consumer confidence levels, the availability of credit and the availability and cost of fuel. Cars and trucks are durable items, and consumers can choose to defer their acquisition or replacement. Difficult economic conditions may also cause consumers to shift to new models that are less expensive and yield lower margins, or to used vehicles. The significant decline in the housing market and the related weakness in the availability and affordability of consumer credit during 2007 affected customers' ability to purchase new vehicles. The decline in housing construction further reduced demand for our vehicles, particularly fullsize pickups, which are among our most popular and profitable models. We believe that the slowdown in the housing market and the constriction of consumer credit are likely to continue into 2008. Moreover, leading economic indicators such as employment levels and income growth predict a downward trend in the United States economy during 2008, and some commentators have predicted a recession. Reflecting these factors, the overall market for new vehicle sales in the United States is expected to decline in 2008, possibly significantly. As a result, we have reduced our projected vehicle production in North America for the first quarter of 2008. If U.S. vehicle sales do not met our expectations, we may choose to reduce our production further. We anticipate that this will have a negative impact on our revenues and profits, at least early in 2008.

These trends can have a material adverse effect on our business. Because our business is characterized by relatively high fixed costs and high unit contribution margins, relatively small changes in the number of vehicles sold can have a significant effect on our business regardless of marketing measures such as price adjustments. Consequently, if declines in industry demand continue to decrease our business, results of operations and financial condition may be materially adversely affected. There can be no assurance that current levels of vehicle sales by the industry or us will continue."

The full General Motors 10-K statement dated February 28, 2008 can be found at

http://phx.corporate-ir.net/phoenix.zhtml?c=84530&p=irol-SECText&TEXT=aHR0cDovL2NjYm4uMTBrd2l6YXJkLmNvbS94bWwvZmlsaW5nLnhtbD9yZXBvPXRlbmsmaXBhZ2U9NTQ5Nzk1NyZhdHRhY2g9T04%3d