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December 30, 2016

Environmental Protection Agency  
EPA Docket Center (EPA/DC)  
Air and Radiation Docket  
Mail Code 28221T  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Attention: Docket ID No. EPA-HQ-OAR-2015-0827

Subject: Request for Comments – Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light Duty Vehicle Greenhouse Gas Emissions Standards Under the Mid-Term Evaluation

Ford Motor Company (Ford) hereby submits our response to the November 30, 2016 request for comments to the Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light Duty Vehicle Greenhouse Gas Emissions Standards Under the Mid-Term Evaluation.

These comments include some material that is confidential business information, submitted voluntarily. **Pursuant to 40 CFR § 2.203(b), Ford asserts a claim of business confidentiality with respect to this information.** The information at issue pertains to internal cost assessments, projections related to Ford's future product plans, and other sensitive matters relevant to Ford's competitive position in the marketplace. The disclosure of this information to the public would result in competitive harm to Ford. Ford takes reasonable measures to protect against the disclosure of this information outside the Company, including marking it "Confidential" or "Secret," limiting the distribution of the information within the Company to those with a need to know, and establishing encryption protocols for the electronic transmission of the information.

Two versions of our comments are being provided. One includes the confidential business information and is marked "CONFIDENTIAL" in the upper left-hand corner. The other version, which has the confidential information redacted, is provided for EPA to include in the public docket. EPA can identify the specific information subject to Ford's claim of business confidentiality by comparing the confidential and non-confidential versions to see what has been redacted.

In accordance with 40 CFR Part 2, we request that EPA not disclose the confidential version of these comments to any third parties. In the event of any request or proceeding in which a third party seeks disclosure of Ford's confidential information, we request that EPA provide notice to Ford in accordance with 40 CFR § 2.214(b) so that Ford may take the necessary steps to protect the information from disclosure.

If you have any questions about this request for confidential treatment of information, please contact Mark D. Edie, Counsel, at [medie@ford.com](mailto:medie@ford.com) or Ex. 6. If you have any questions about the substantive comments, please contact Todd Fagerman at Ex. 6 or Nancy Homeister at Ex. 6. Thank you for your attention to these comments.

Sincerely,



John J. Viera

Ford Motor Company

**NON-CONFIDENTIAL VERSION**

Ford Motor Company

**Proposed Determination on the Appropriateness of the Model Year 2022-2025 Light Duty Vehicle Greenhouse Gas Emissions Standards Under the Mid-Term Evaluation**

Docket ID No. EPA-HQ-OAR-2015-0827

**Supplemental Comments of Ford Motor Company**

This document sets forth the comments of Ford Motor Company (Ford) on the Proposed Determination for the MY 2022-2025 motor vehicle greenhouse gas standards, published in the Federal Register on December 6, 2016 [**Federal Register** /Vol. 81, No. 234].

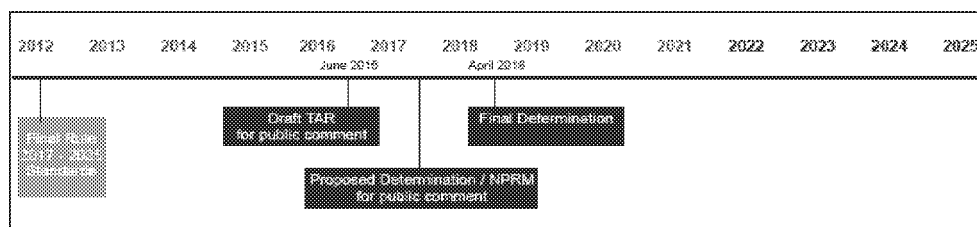
Please note that these comments contain confidential business information (CBI). Ford is providing a confidential version with the CBI visible, and a non-confidential version with the CBI redacted. Please place only the non-confidential version into the public docket.

Introduction

Ford is a member of the Alliance of Automobile Manufacturers (Alliance) and fully supports the Alliance's comments on the Proposed Determination. These Ford comments are intended to complement and supplement the Alliance's comments.

We are disappointed that the mid-term evaluation (MTE) process has not been followed as indicated by the Agencies throughout the year and as shown on the EPA website as recently as November 28, 2016 (see Figure A, below). The draft technical assessment report (TAR), published just over 5 months ago, provided Ford and the industry only 60 days to comment on a 1,200+ page document with additional supporting materials as well as model data input. When the request for extension of the TAR comment period was rejected, EPA stated that there would be additional opportunities for public input in the future. We were therefore surprised that the Proposed Determination, an additional 1,000+ page document, with attachments, was published 65 days after the end of the comment period, and provided only a 30-day period for public comments.

Figure A: Mid-Term Evaluation timeline provided on EPA website, prior to November 30, 2016.



Ford's comments will not separately address the procedural problems with EPA's actions in carrying out the Mid-Term Evaluation (MTE), including 1) the abrupt and unexpected truncation of the MTE process, and 2) the unduly short comment periods that have limited the ability of manufacturers and other stakeholders to effectively analyze and comment on the materials generated by EPA. We incorporate by reference the Alliance's comments on those points, along with the rest of the comments submitted by the Alliance throughout the course of the MTE process.

These comments will elaborate on key reasons why the analysis underlying EPA's Proposed Determination is either incorrect or incomplete.<sup>1</sup> In these comments, Ford does not advocate for specific changes to the Proposed Determination at this time. Rather, Ford's position is that, because of the shortcomings in EPA's analyses, the Proposed Determination should be withdrawn, and the MTE process should be reinstated to allow for further development of the administrative record as originally intended. This position is entirely consistent with EPA's own regulations, which do not require an MTE determination until April 1, 2018, approximately 15 months from now. Rather than shutting down the information-gathering process, EPA should be welcoming additional information that will help the Agency and the nation get to the best possible set of MY 2022-2025 GHG and fuel economy standards, taking into account all of the factors listed in the MTE regulation and preamble.

It must be noted that these comments do not represent a comprehensive review of the Proposed Determination. The comment period did not allow sufficient time for a thorough analysis.

Ford has met repeatedly with EPA (as well as NHTSA and CARB) to provide information relevant to the MTE and to share our experience, expertise and knowledge as a company that has been in the business of manufacturing and selling vehicles for over a century. The comments that Ford and the Alliance provided on the draft TAR appear in many cases to have been dismissed without adequate consideration or analysis. The Proposed Determination repeats a number of statements from the TAR that do not square with information already provided to EPA by Ford, the Alliance, and other industry members. These statements include:

- "It is difficult, if not impossible, to separate the effects of the standards on vehicle sales and other characteristics from the impacts of macroeconomic or other forces on the auto market" (Page 6-1, TAR); "EPA has chosen for this Proposed Determination to continue with the qualitative approach that it used for setting the standards in the 2012 FRM, and in the Draft TAR, due to the significant uncertainties involved in conducting a quantitative analysis" (page A-40)
- "With the very low proportion of PEVs projected to be needed for compliance, EPA expects that compliance will mostly depend on advanced conventional vehicles." (page 27)
- "EPA expects that any effects of the standards on the vehicle market will be small relative to market responses to broader macroeconomic conditions." (page 28)
- "Thus, while the standards are likely to have some effect on employment, this effect is likely to be small enough that it cannot be distinguished from other factors affecting employment, especially macroeconomic conditions. As has been noted, under conditions of full employment, any changes in employment levels in the regulated sector due to this program are mostly expected to be offset by changes in employment in other sectors." (page 29)

We believe that the above statements fail to account for information already provided to EPA through TAR comments and other submittals provided by the Alliance, Ford, and other manufacturers. Perhaps the most important—and puzzling—development is EPA's continued assertion that electrification rates can and will remain low through the MY 2025 period, in the face of clear evidence

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<sup>1</sup> Ford and the Alliance of Automobile Manufacturers submitted comments on the draft TAR. We incorporate those comments by reference, as we believe they are still applicable to the Proposed Determination.

and credible analyses showing that this cannot be the case. Even NHTSA acknowledges that electrification will need to grow substantially by MY 2025 in order for manufacturers to continue complying with the standards currently in place. As discussed in more detail in the Alliance comments and below, solid evidence indicates that industry levels of electrification will need to be several times EPA's estimate. In a market that has already resisted the growth of electrified market share for several years, there is no viable path forward to such high levels of electrification in such a short period of time. In addition to the lack of demand for such products, the necessary increase in electrification would raise prices and erode industry profitability, ultimately having adverse impacts on new vehicle sales and employment. Such an outcome would neither be consistent with the directives of the Clean Air Act nor good for U.S. society as a whole.

Our comments below are organized along the following key points:

- A wide variety of vehicle attributes, such as safety, utility, and price/value, contribute more significantly to the typical consumer's purchase decision than fuel economy
- The costs of new technologies and the accelerated investment cadence necessary to meet the MY 2022-2025 GHG standards cannot be fully recovered
- Compliance with the MY 2022-2025 GHG standards would require far more electrification than EPA has projected
- The MY 2022-2025 GHG standards would drive increased vehicle costs, reducing the affordability of vehicles and adversely impacting vehicle sales, segmentation and industry employment

We believe that careful consideration of the information presented below, and the input provided by Ford and the Alliance throughout the MTE process, leads to the conclusion that the Proposed Determination is not aligned with the available facts and the most reliable future projections. The Proposed Determination should be withdrawn and the MTE process should be resumed so that EPA can reconsider and revise its conclusions.

I. **A wide variety of vehicle attributes, such as safety, utility, and price/value, contribute more significantly to the typical consumer's purchase decision than fuel economy**

Customers have many priorities when shopping for a vehicle. Safety, utility, value, comfort, and performance are significant purchase drivers. While fuel economy is also a factor, it often ranks lower on consumers' priorities list in today's low fuel price environment. In the Strategic Vision New Vehicle Experience Survey (NVES), fuel economy ranked 26<sup>th</sup> in customer responses as a vehicle attribute that drove their purchase decision. The NVES results demonstrate that while fuel economy is a consideration for about 46% of consumers, there are many other factors that are more important to most consumers. (see Figure 1)

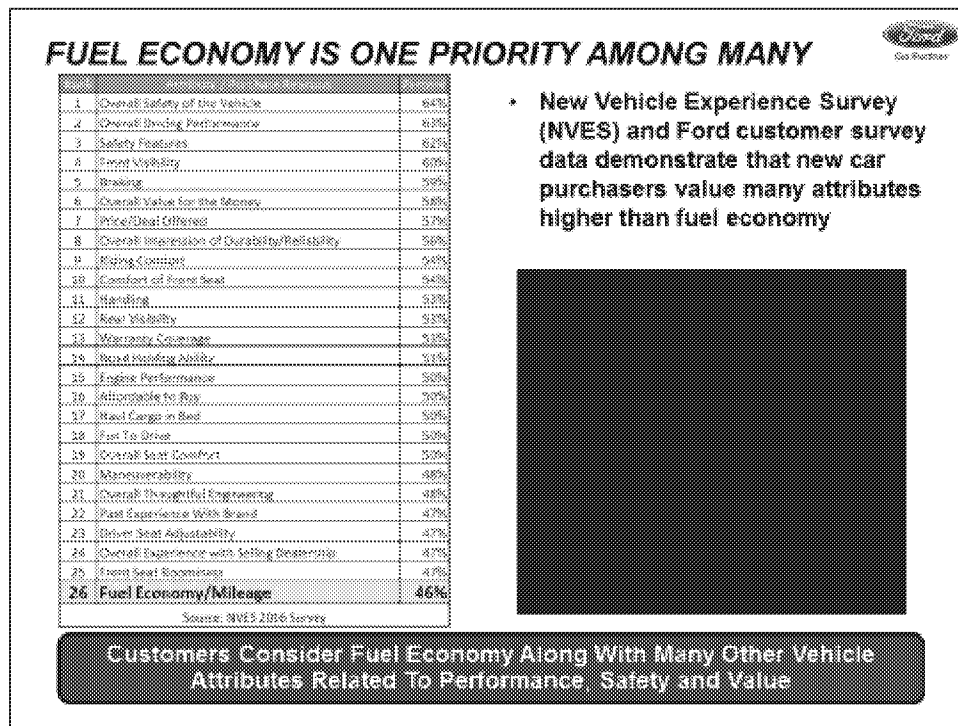


Figure 1. 2016 New Vehicle Experience Survey from Strategic Vision

Ford’s internal customer survey data (shown on the right side) is consistent with the NVES results, finding that gas mileage is a purchase consideration, but many other attributes are ranked higher by customers than gas mileage as factors in purchase decisions. The top attribute was “a person like me”—in other words, a vehicle that reflects the customers’ views of their own identity and values. Trustworthiness, quality and value are the next highest considerations; utility and performance also top fuel economy. The NVES and Ford customer data are consistent in demonstrating that many factors are more significant than fuel economy in driving consumer purchase decisions.

Fuel economy is not likely to become a more important purchase consideration as the standards become more stringent. As fuel economy increases, the incremental benefit of each additional MPG to the consumer with respect to fuel savings diminishes significantly. As shown in Figure 2, a fuel economy improvement from 20 to 25 mpg provides significant fuel savings to consumers—even at lower fuel prices. However, the incremental benefit of increasing from 55 to 60 mpg, even at \$3.50 per gallon, yields a consumer savings of only about \$70 per year over a 6.5 year new car ownership period.

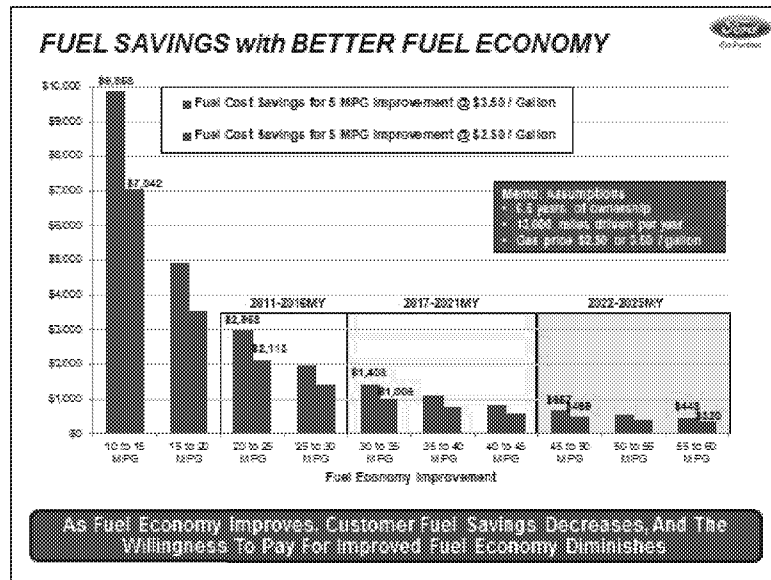


Figure 2. Fuel Economy Improvement vs. Fuel Savings

At the same time, the cost increase of the vehicle technology needed to meet the incremental improvements in fuel efficiency is substantially higher at the higher levels of fuel economy, further diminishing the benefit to the consumer.

It has been suggested that the automobile industry should be able to overcome these obstacles through marketing. While marketing can be useful in making consumers aware of new products and encouraging consumers to try them, marketing alone cannot sustainably change behavior contrary to consumers' perceived economic interests.

For some time, Ford and the industry have worked to raise awareness of our fuel efficient products through advertising and promotions.

Our Power of Choice campaign highlights the range of powertrain offerings available in the Ford lineup including EcoBoost engines, full hybrids, plug-in hybrids and battery electric vehicles. (Figure 3)



Figure 3. Marketing Fuel Economy

Ford’s efforts to promote fuel efficient products also include experiential events such as ride and drives to demonstrate the capabilities of our fuel efficient powertrains and vehicle models to customers first hand and to provide the potential customers with the ability to compare them to more “traditional” technologies. (Figure 4)



Figure 4. Ride and Drive Events - EcoBoost and Electric Vehicles (EVs)

While these efforts have been well-received, the market for electric vehicles remains small. Plug-in hybrids and battery electric vehicles (BEVs) appeal to a relatively narrow segment of the market. As noted above, marketing efforts are not sufficient to change consumer behavior; most consumers, particularly as fleet fuel economy has increased, are satisfied with their gasoline-powered vehicles in the

current environment. They see little reason to change because ICE vehicles already meet essentially all of their functional needs, with low fuel costs and convenient refueling at many locations.

**II. The costs of new technologies and the accelerated investment cadence necessary to meet the MY 2022-2025 GHG standards cannot be fully recovered**

Under the existing One National program standards, the fuel economy and greenhouse gas requirements are increasing at an unprecedented annual rate. The year-over-year tightening of the standards results in unintended consequences that impact vehicle cost and overall compliance, which were not fully assessed in the draft TAR, nor in the Proposed Determination.

Historically, a newly launched car would not go through a major redesign for 5 to 6 years, while for trucks it was usually longer. However, given that fuel economy needs to increase roughly 4.5% per year, it is now necessary to increase the product update cadence to maintain alignment with the rapidly increasing requirements. This drives an increase to the cadence of vehicle redesign, resulting in increased investment in programs and reduced time to recoup investments. For instance, the industry's ability for long term use of tooling/equipment, and to recover the cost of the tooling, may be more limited today than in the past.

Further, the Agencies often refer to the OEM cost saving opportunities from "learning"—after a new technology has been developed and implemented. The increased cadence of vehicle redesign limits this opportunity as engineers must develop the "next new technology" almost immediately after the "current new technology" is launched.

Figure 5 demonstrates the shortened cadence we are moving toward. It should be noted that in the "Evolving Cadence" graph on the right, the green bar at 3 years is primarily investment for fuel economy and other regulatory actions.

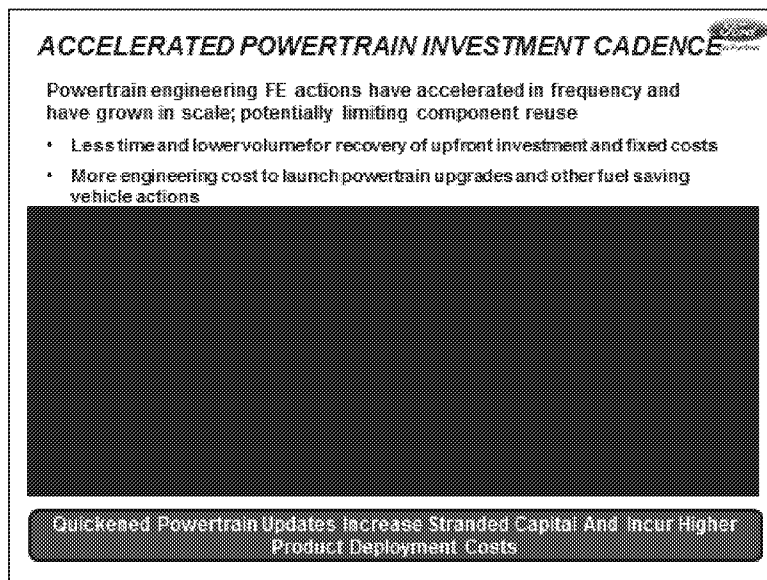


Figure 5. Changes to Powertrain Investment Cadence

Figure 6 demonstrates how the year over year stringency increase drives more frequent product actions to maintain compliance to the requirements. As noted above and shown below, the investment in the mid-cycle action is heavily focused on powertrain actions to improve regulatory compliance.

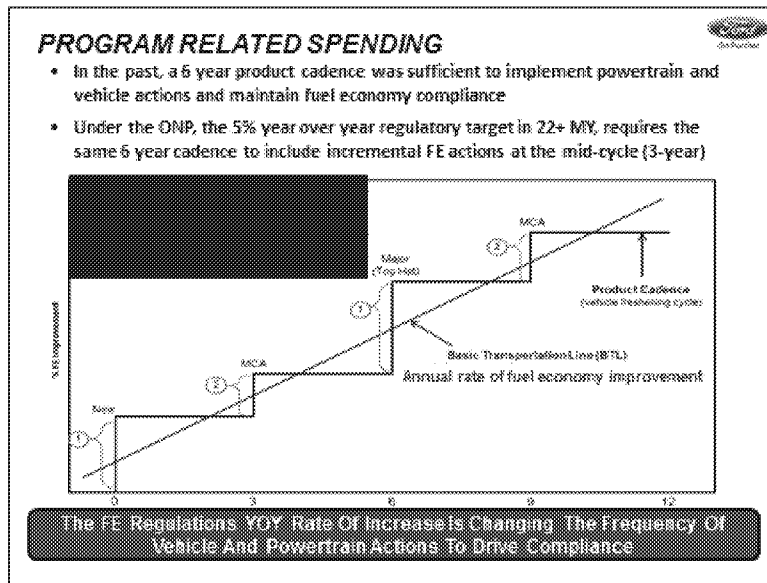


Figure 6. Changes to Program Spending

The challenge to the automotive industry goes beyond required actions for fuel economy improvement and GHG reduction. We are also simultaneously facing increasingly stringent tailpipe criteria pollutant standards and increasingly challenging safety standards. These standards are often not aligned, leading to the need to redesign products more frequently. It should be further noted that the regulations are also often at odds. Reduced engine out emissions and improved catalyst designs often impact the ability to optimize engine calibration for fuel economy, and potentially preclude some fuel efficient vehicle technologies entirely. For instance, after-treatment technologies required to meet future tailpipe standards, can negatively impact fuel efficiency due to elevated backpressure. Safety standards continue to increase vehicle weight, which also offsets fuel economy gains. No manufacturer has unlimited ability to invest, so the conflicting investment requirements can result in a significant impact to a program's ability to meet the regulations while maintaining an acceptable business case. We do not believe the Proposed Determination is based on a proper assessment of the cost and investment impact of the cadence of the year-over-year increases in GHG standards; nor does it consider the misalignment of those standards with other automotive requirements.

The F-150 is a good example of not only the need to continually update the product to stay ahead of the requirements, but also of the cost associated with those actions. And as discussed above, the ability to price for the regulatory compliance actions is sharply limited due to the low value customers place on these attributes when making their purchasing and financing decisions.

Figure 7, below, highlights the frequency of product actions required for fuel economy compliance (actions taken/planned in '11, '15, '17, [REDACTED] model years). This rate of technology deployment is much more frequent than typically seen in the past. Additionally, the technology costs relative to pricing opportunities is highlighted. The top green line provides the cost of compliance in our

investments in the F-150, from 2011 to 2021MY, however the blue line indicates the revenue we can book in terms of vehicle pricing for those actions. Because customers do not highly value fuel economy in this environment, the additional costs cannot be fully recovered. In order to make the product more appealing to consumers, FE improvements must be packaged with other improvements that are more highly valued by consumers, such as Increased performance, added functionality, and new/improved safety features.

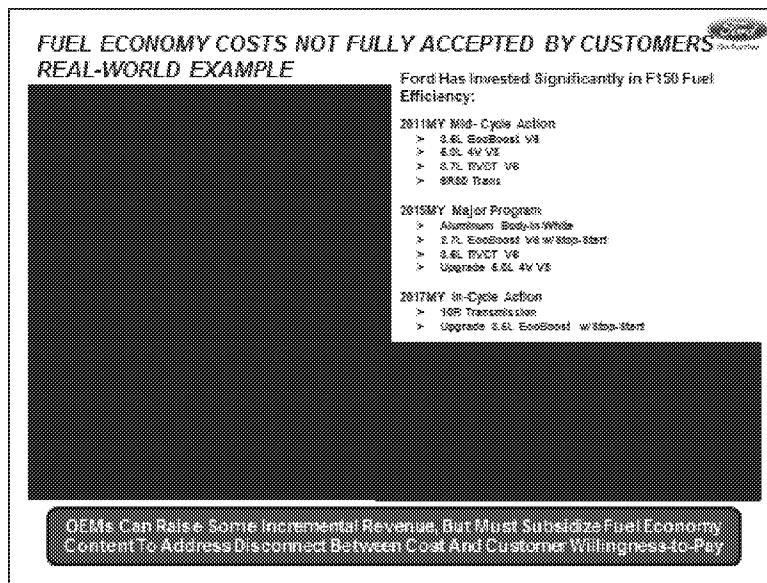


Figure 7. Priceable Fuel Economy Content Costs

This challenge is highlighted further when you consider Figure 8, below, which shows that the F-series product will be required to improve fuel economy by the same percentage from the 2020 to the 2021 model year, as it had over the previous 5 model years *combined*.

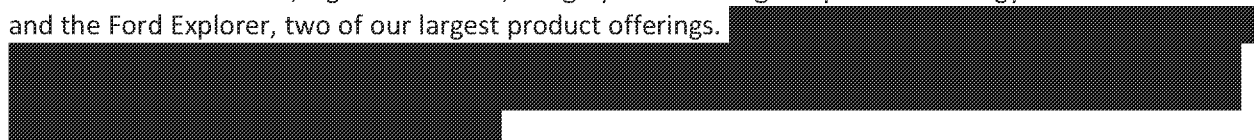


Figure 8. F-150 Stringency Increases

III. **Compliance with the MY 2022-2025 GHG standards would require far more electrification than EPA has projected**

The industry response to the draft TAR, to which Ford contributed significantly, provided information regarding the future capability of internal combustion engines to meet the standards out to MY 2025. To our disappointment, however, the Proposed Determination has concluded that costs are lower and capability is even higher than the findings presented in the TAR. While we have not had time to conduct a detailed assessment of the changes in EPA's analysis, this finding does not square with the available facts. The continued disconnect in EPA's internal combustion engine (ICE) technology assumptions have driven the greater disconnect on the assumption of the amount of electrification — hybrid electrics, plug-in hybrids and full battery electric vehicles — that will be needed to support industry compliance in 2025.

Provided below, Figures 9 and 10, are graphics showing our product strategy for the Ford Fusion and the Ford Explorer, two of our largest product offerings.



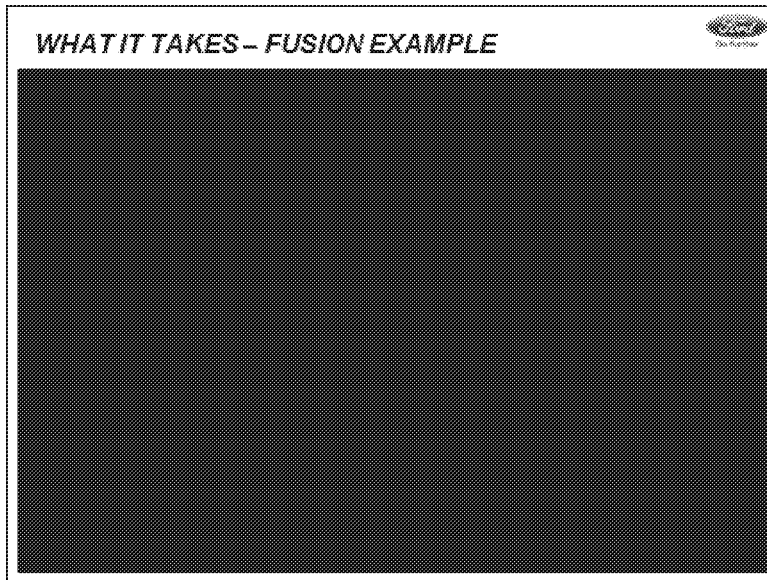


Figure 9. Fusion Regulatory Obligation vs. Fuel Consumption

[Redacted text block]



Figure 10. Explorer Regulatory Obligation vs. Fuel Consumption

These examples illustrate why we forecast such high levels of electrification by 2025MY.

[Redacted text block] (Figure 11)

- [Redacted text block]

- Ford’s estimate of [REDACTED] electrification [REDACTED] EPA’s estimate of about 4% for 2025
- Ford sees no pathway for compliance with the 2025 standards at 4% electrification under the current regulations

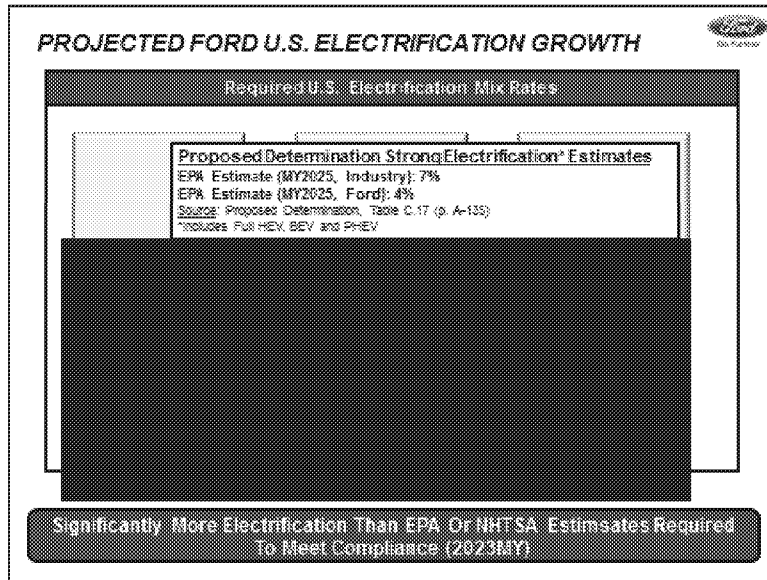


Figure 11. Projected Compliant Electrification Mix

As the result of the high level of electrification required and the associated costs, the costs of other necessary fuel economy related technologies and our inability to recover these costs, the overall financial impact of compliance will be significant. Figure 12 illustrates the projected challenge associated with pricing and revenue over the period in question. Revenue is projected to offset only a small portion of the cost increase.



Figure 12. Projected Fuel Economy Content Costs

### Advanced Technology Multipliers and Other Electrification Incentives

One way to enable manufacturers to approach the levels of electrification required to meet the 2022-2025 MY standards could be to extend and increase the multipliers for advanced technology vehicles and to add incentives for full hybrid vehicles. Expanded incentives for advanced technology vehicles would better align the level of electrification required with consumer demand, which has been limited to date as is discussed above.

Advanced technology multipliers were adopted in the 2017-2025MY final rule in recognition of the high costs of these technologies and the role they would play in the meeting the requirements from 2022-2025MYs. As stated by the EPA:

*“EPA is finalizing, as proposed, an incentive multiplier for CO2 emissions compliance purposes for all electric vehicles (EVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCVs) sold in MYs 2017 through 2021. The incentives are expected to promote increased application of these advanced technologies in the program’s early model years, which could achieve economies of scale that will support the wider application of these technologies to help achieve the more stringent standards in MYs 2022–2025.”* (Fed. Reg., Vol. 77, No. 199, page 62628)

Despite this production/sales incentive, as well as several efforts in the marketplace – by both manufacturers and government the market has seen very little growth in the share of advanced technology vehicles in the new vehicle fleet. EPA requested comments on the multipliers in the Proposed Determination:

*EPA believes that the MY2022-2025 standards remain appropriate with the credit and incentive provisions currently in place and EPA is not proposing any changes to these provisions as part of this Proposed Determination. Nevertheless, several of these provisions were developed in the 2012 rulemaking to incentivize very advanced technologies that will likely be needed for long-term GHG reductions beyond the 2025 timeframe, such as plug-in hybrid electric vehicles, all electric vehicles, and fuel cell vehicles (see Section V of this document for additional detail). EPA requests comment below, in addition to the request for comment on this Proposed Determination, regarding the need for continued incentives for these technologies, including for the 2022-2025 model years. (Page 32)*

As noted above, there is currently limited demand for advanced technology vehicles. Substantial efforts will be necessary to increase the sales of such vehicles to the levels needed to sustain compliance with the standards that EPA is seeking to finalize in its Proposed Determination. To assist in this effort, we support the continuation of the advanced technology multipliers, and support strong consideration for increasing the multipliers as one component of a revised package of standards.

Furthermore, full hybrid vehicles (HEV) do not currently receive a sales multiplier - or any other incentive under the existing rules beyond the full-size pickup credit. Yet manufacturers face a similarly daunting challenge in attempting to increase market penetration these vehicles, which has been stagnant or declining since 2013 despite a dramatic increase in the number of product offerings. Given the volumes of HEVs that will be needed in our fleet to achieve compliance, and the low market acceptance of the technology, some form of credit-based incentive (not necessarily a multiplier) should be considered for these highly efficient advanced powertrains.

**IV. The MY 2022-2025 GHG standards would drive increased vehicle costs, reducing the affordability of vehicles and adversely impacting vehicle sales, segmentation and industry employment**

**Economic Conditions Affecting Affordability**

The cost increases associated with the 2022-2025 MY standards reduce the affordability of new vehicles, which impacts consumers and affects vehicle sales, segmentation and industry employment. Affordability is reduced when costs increase in an economic environment that includes a slowdown in disposable income growth, history of flat or declining real vehicle prices on a content-equivalent basis, and the likelihood of future increased borrowing costs.

Real disposable personal income growth has been lower in recent years during the economic recovery compared to the 1990s and early 2000s (Figure 13). Lower disposable income growth reduces households' ability to pay for cost increases related to the standards compared to periods of higher disposable income growth. As is demonstrated below, real vehicle pricing declined during this period of stronger disposable income growth.

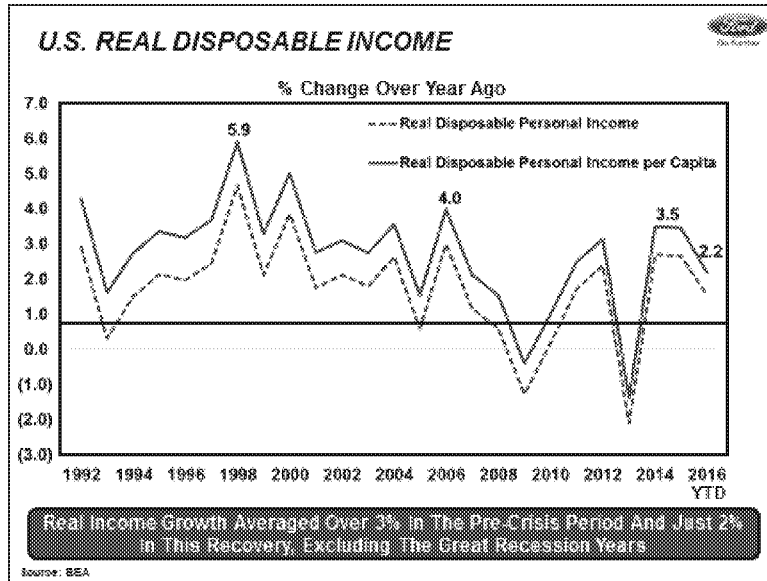


Figure 13. Disposable Income

Content-equivalent real vehicle prices have been flat in recent years during a period of industry growth and declined during the pre-recession years, despite stronger income growth during that timeframe (Figure 14). The trends in real vehicle prices reveal recent consumer expectations for flat or declining vehicle pricing on a content-equivalent basis. If stronger income growth during the 1990s and early 2000s could not sustain industry pricing, it is unlikely that currently weaker income growth will support an increase in pricing due to the standards. Affordability would be reduced and vehicle sales would be affected as a result.

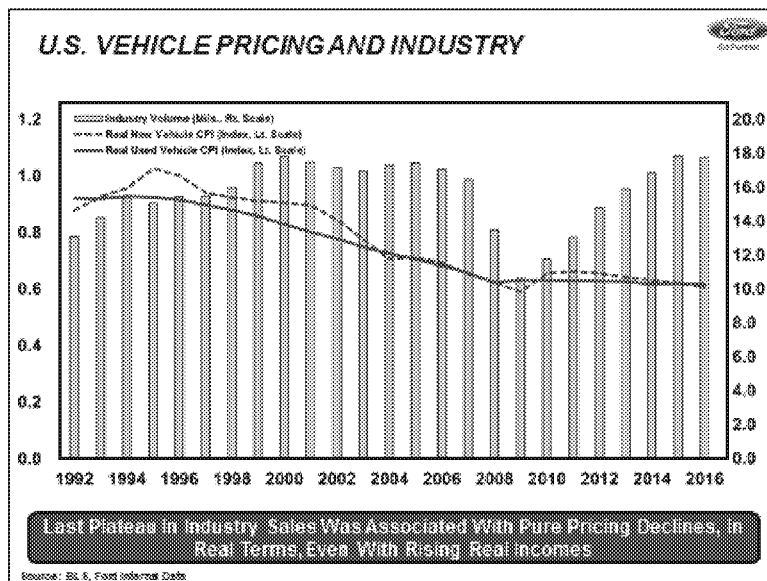


Figure 14. Industry Volume vs. Pricing

Recent lending conditions have also supported the industry's recovery by reducing vehicle financing and leasing costs. Interest rates are now rising and expected to increase through 2019 and beyond, however. The Federal Reserve increased the federal funds rate in December 2015 and December 2016, and the Federal Open Market Committee projects continued increases in the coming years.<sup>2</sup> Increasing interest rates will result in higher monthly payments. With cost increases due to the greenhouse gas standards and other safety and emissions regulations, payments will be pressured further upward.

Increased vehicle and financing costs will reduce the affordability of new vehicles, leading some consumers to delay purchases (by retaining vehicles longer) or shift to the used vehicle market. Cost increases under the standards will reduce new vehicle sales compared to the baseline macroeconomic conditions, slowing the vehicle park turnover to more fuel efficient vehicles. The affordability impacts of increased lending costs and price increases due to both consumer-demanded features and other regulations will reduce the margin for further increases and magnify the impact of incremental price increases from the 2022-2025MY standards.

### **Ford Study of Sales and Segmentation Impacts of Cost Increases Under the Standards**

Ford investigated how total industry volume and segment mix will change in response to incremental cost due to technology deployment to satisfy fuel economy requirements. When the incremental cost is passed to customers, the subsequent transaction price increase will impact vehicle sales. To evaluate this impact at the industry-level, we built a market demand model with real industry volume and transaction price data in order to characterize the inter-relationships of price, volume, and product.

We used 2014 CY transaction price from JD Power PIN, and retail volume from POLK registration as baseline. Two cost assumptions, i.e. \$2,000 and \$2,500, are adopted as the industry-average incremental cost. Average segment-level costs are then estimated according to a third-party (FEV) study prepared for Ford. Fuel savings with a payback period of 36 months at fuel price of \$2.97/gal, and additional loan interest generated by the incremental cost at an APR of 6% (the first 36 months of a 60-month loan, compound interest and monthly payment considered) are also incorporated. The overall costs are applied to the baseline prices, and the volume estimates produced by our model are used to quantify the segmentation shift and industry volume change.

The results indicate that the total industry volume is lowered due to the incremental cost (by 9% under the \$2000 cost assumption, and 12% under the \$2,500 cost assumption). The sales of passenger cars are affected the most, (volume drops by 19% and 24%, respectively). This is because the incremental cost of installing fuel economy-related technology in cars is higher, on a percentage basis, than those in utility, truck, and luxury vehicles.<sup>3</sup> The results also show that the cost increment will deteriorate the already-low consumer acceptance for smaller, more fuel-efficient vehicles, and this trend will be worsened as fuel economy-related costs increase. (Figure 15) Thus, in addition to causing adverse economic impacts, higher vehicle costs also have the potential to trigger segment shifts that work against CO<sub>2</sub> reduction efforts.

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<sup>2</sup> Federal Open Market Committee, "Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy, December 2016." <https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20161214.pdf>, accessed December 15, 2016.

<sup>3</sup> Also, as noted above, incremental increases in fuel economy at higher MPGs provide less consumer savings than incremental increases at lower MPGs.



3/LEV III is considered, the corresponding cost increments will become even higher. Therefore, the Agencies should assess the comprehensive cost increments related to regulatory compliance, in order to fully capture their impact on consumer acceptance and segmentation shift.

### **Sales and Employment Impacts**

The Center for Automotive Research (CAR) provided a study showing that the incremental costs associated with fuel economy technologies could have substantial adverse effects on vehicle sales and auto sector employment. While EPA has been critical of the CAR study, EPA has undertaken an inadequate analysis of the issue itself. The discussions of this issue in the draft TAR and the Proposed Determination do not constitute a thorough or realistic analysis of the projected sales and employment impacts.

The Agency should collaborate with other organizations within the government, as well as external stakeholders, to develop a macroeconomic forecast and use these assumptions as a baseline to conduct an analysis of the impact of the 2022-2025 MY standards on vehicle sales. The analysis would demonstrate the difference in projected vehicle sales between a reference case with standards remaining at 2021MY levels and a control case with the 2022-2025MY standards in place. Although macroeconomic conditions impact vehicle sales, such an analysis would permit an estimate of the impact with and without the standards under the same set of economic assumptions. The Agency has developed similar projections for other aspects of the 2022-2025 MY standards that rely on projections of outside factors, such as the technology penetrations that rely on projections of advances in vehicle technologies that affect greenhouse gas emissions. Ford encourages the Agency to withdraw the Proposed Determination at this time while conducting a similar analysis for vehicle sales.

### **Affordability Impacts Due to Access to Credit**

Ford's comments on the draft TAR noted that the TAR did not include a comprehensive analysis of the impacts of the standards on vehicle credit availability. In the Proposed Determination, the Agency commented that Ford "did not provide any data to inform such analysis, nor did it provide suggestions for what additional analyses EPA should conduct."<sup>4</sup> Our comments were intended to suggest that the Agency should estimate the number of customers that will be unable to obtain financing under the cost increases associated with the 2022-2025 MY standards.

Vehicle affordability under the standards can be analyzed in part by evaluating access to credit after accounting for cost increases under the standards. The Proposed Determination Technical Support Document (TSD) notes that "if lenders do not take fuel savings into account in providing loans, households that are borrowing near the limit of their abilities to borrow will either have to change what vehicles they buy, or not buy vehicles at all."<sup>5</sup>

The Agency noted that an analysis of debt-to-income (DTI) ratio was provided showing that some customers are able to obtain financing even if their DTI is more than 36 percent. The results demonstrated that "28 percent of lower-income households and 7 percent of higher-income households

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<sup>4</sup> Proposed Determination, p. A-75

<sup>5</sup> Proposed Determination TSD, p. 4-50

with a DTI of over 36 percent [and] that purchased at least one new vehicle”<sup>6</sup> were able to obtain financing. The Proposed Determination notes that these results suggest “that it is possible to obtain a loan for a new vehicle even with a DTI over the assumed thresholds. Thus, if increases in vehicle prices push some households over the 36 or 40 percent DTI, it nevertheless may be possible for them to get loans.”<sup>7</sup>

Although the Agency notes that some households with a DTI over 36 percent are able to obtain loans to finance their vehicle purchases, the Agency cited “sources stating that most lenders avoid giving loans to consumers who have over 36 percent DTI.”<sup>8</sup> This acknowledgment, supported by the Agency’s analysis of access to credit, implies that many consumers with a DTI over 36 percent are unable to obtain loans.

The analysis we are suggesting could evaluate the number of customers that would be pushed above the 36 percent DTI threshold under the cost increases associated with the standards. The number of customers unable to obtain financing due to the GHG standards could then be estimated by applying the difference in automotive lending rates for households above and below 36 percent DTI.

### Conclusion

As noted above, the amount of time provided to Ford, the auto industry, and other stakeholders to digest and comment on the Proposed Determination is woefully inadequate. Even so, it is clear from our comments above, in addition to the comments submitted on the Proposed Determination by the Alliance and the comments submitted on the draft TAR by Ford and the Alliance, that the analysis underlying the Proposed Determination is either incomplete or incorrect with respect to a number of issues that are critical to a meaningful midterm evaluation.

Ford is *not* asking EPA to make a different determination at this time. Rather, Ford believes EPA should withdraw the current Proposed Determination and allow the mid-term evaluation process to continue, in accordance with the timeline set forth in its own regulations, and in accordance with our understanding of EPA’s schedule prior to the unexpected release of the Proposed Determination on November 30th. The EPA midterm evaluation regulations do not require a final determination until April 2018. There is no conceivable harm in continuing the midterm evaluation process and gathering additional information that will enable the Agency to improve and refine its analysis. One would think that EPA would want to base its Proposed Determination on the most robust administrative record possible, rather than cutting short the midterm evaluation process for reasons that have not been made clear.

For the reasons stated above, Ford respectfully requests that EPA withdraw its Proposed Determination and resume the midterm evaluation process in accordance with 40 CFR 86.1818-12 (h).

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<sup>6</sup> Proposed Determination, p. A-75

<sup>7</sup> *Ibid.*

<sup>8</sup> Proposed Determination TSD, p. 4-51