

**Comments of The Chemours Company**

**Proposed Rule**

**The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model**

**Years 2021-2026 Passenger Cars and Light Trucks**

**83 Fed. Reg. 42,986 (Aug 24, 2018)**

**October 26, 2018**

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## I. Summary of Comments

- The Chemours Company (“Chemours”), together with its suppliers, have invested nearly \$1 billion in research, development and commercialization of new refrigerants for the mobile vehicle air conditioning (“MVAC”) sector, including construction of a \$370 million facility in Corpus Christi, Texas.
- The Environmental Protection Agency (“EPA”) and the National Highway Traffic Safety Administration (“NHTSA”) are proposing to fundamentally change the agencies’ longstanding approach to the regulation of greenhouse gas (“GHG”) emissions and fuel economy from mobile sources, specifically standards and credits that are based on the use of new MVAC refrigerants. If finalized, this approach could strand investments that have been made by the U.S. refrigerant and automotive sectors and create perverse incentives that could reverse nearly a decade of progress in transitioning to new generation MVAC systems.
- The main rationale put forward for this change is to better “harmonize” EPA and NHTSA standards, but the agencies’ preferred alternative (Alternative 1) would actually have the opposite effect. EPA and NHTSA would no longer have light duty vehicle (“LDV”) standards aligned with their respective statutory authorities.
- This is unforced error. The current regulatory framework has been successfully implemented without any identified problems related to “harmonization.” Automobile manufacturers have been able to produce vehicles for the past seven Model Years (“MYs”) which meet both EPA greenhouse gas standards and NHTSA mileage standards. Any compliance issues with current standards are solely related to the *stringency* of such standards, not the *form* of the standards.
- Conversely, eliminating credits related to MVAC refrigerants will only reduce the compliance flexibility allowed under the current regulatory framework. Automobile and light duty truck manufacturers should be allowed to select what technological approaches work best within their product offerings; MVAC credits many times offer the “least cost” approach to compliance.
- It is also claimed that retaining current credits for the use of new MVAC refrigerants could result in “market distortion” but the proposed rule and its supporting technical analysis do not provide any evidence or quantification of this effect. Moreover, since the MVAC credits that are available are roughly equivalent to the increased stringency of EPA GHG standards, it is hard to see how there could be any market distortion. Given that the automotive industry operates on a nearly seven-year design cycle and all previous EPA statements since 2010 have reinforced the viability of MVAC credits, the sudden withdrawal of these credits without justification would actually create, rather than resolve, a significant market distortion.
- All other proposed Alternatives also raise substantial legal issues. While the form of current EPA and NHTSA standards has survived judicial review, EPA and NHTSA provide no analysis as to how the proposed alternatives comply with EPA’s duty to

regulate the “air pollutant” emitted from LDVs. In a proposal of this magnitude, it is striking that the agencies have not included any specific discussion of each agencies’ respective legal authority for the rulemaking as well as how proposed alternatives are based on both relevant provisions of the Clean Air Act and the Energy Policy and Conservation Act.

- Compounding this infirmity is lack of a “reasoned explanation” as to why EPA and NHTSA are changing their approach to the regulation of LDV greenhouse gas emissions and fuel economy following two final rules (in 2010 and 2012) which included metrics that account for emissions other than carbon dioxide.
- EPA and NHTSA should therefore address these fundamental flaws and include provisions within any revision to MY 2021 to 2025 and subsequent MY standards that incorporate the current credit system for MVAC refrigerants. Such is needed to both complete the transition to a new generation of refrigerants and to recognize the massive investments that have already been made by U.S. suppliers and vendors.

## **II. Interest of Chemours in Current Rulemaking**

The Chemours Company (“Chemours”) appreciates the opportunity to comment on the EPA’s and NHTSA’s proposed rulemaking concerning light duty vehicle standards for Model Years (“MYs”) 2021-2026 referenced above. Chemours is a global leader in the production and sale of motor vehicle air conditioning (“MVAC”) refrigerants and has been at the forefront of the development of alternative refrigerants for this sector. Thus, Chemours will be directly and substantially affected by the outcome of this rulemaking and any change to current regulations allowing for generation and use of MVAC emission credits.

As detailed below, it has taken many years and considerable effort for Chemours to develop, test and gain approval of new MVAC refrigerants like hydrofluoroolefin-1234yf (“HFO-1234yf”). Our company has done so not only on the basis of market opportunities, but in furtherance of Clean Air Act (“CAA”) programs designed to address stratospheric ozone depletion and other atmospheric effects stemming from the release of refrigerants and other substances. Specifically, Chemours invested over \$1 billion together with its suppliers in its research, development and commercialization efforts including over \$100 million in research and development efforts in the United States and \$370 million in the construction of our Corpus Christi Texas facility which produces HFO-1234yf. These efforts have been intended to provide the domestic capacity that is necessary to support the transition of an estimated 16 million LDVs each year to a new generation of MVAC refrigerants in the U.S. and millions more in Canada, the European Union and elsewhere.

By proposing to repeal long-standing provisions providing emission credits for the use of new refrigerants like HFO-1234yf, EPA and NHTSA have created a cloud of uncertainty over the MVAC refrigerant market. This cloud not only threatens to upend the current transition in MVAC refrigerants, which now covers approximately 50% of newly manufactured U.S. vehicles, away from hydrofluorocarbons (“HFCs”), specifically HFC-134a, but also creates the prospect -- previously thought to be highly unlikely -- that original equipment manufacturers (“OEMs”) might be motivated to “switch back” to HFCs. Thus, the proposed elimination of

refrigerant credits threatens to reverse the many years of progress that have been made since the first credits affecting MVAC systems and refrigerants were incorporated into the EPA/NHTSA 2010 rule for LDVs.

Although Chemours is obviously concerned about the effect of this proposal on our company, should EPA and NHTSA act to repeal or severely constrain the current credit system for MVAC refrigerants, it is also likely that there will be a “ripple effect” among MVAC vendors and suppliers to the domestic auto industry. Air conditioning (“A/C”) system suppliers, aftermarket equipment manufacturers and other equipment suppliers (*e.g.*, manufacturers of automobile hoses and gaskets used in MVAC systems) as well as other members of the refrigerant value chain (*e.g.* distributors, producers, automobile manufacturers, and local service garages that have prepared for the transition) will be impacted. The Motor & Equipment Manufacturers Association, representing 871,000 workers and 4.2 million indirect jobs has testified in favor of retaining MVAC refrigerant credits and noted that in response to current regulations “suppliers have invested significant resources and made long-term planning decisions committing to develop the necessary technologies and materials for their customers.”<sup>1</sup>

Like Chemours, many of these suppliers and members of the value chain have made significant investments to produce or purchase systems, components and service items that are designed to work with HFO-1234yf or other alternative refrigerants. If OEMs delay their transition to alternative refrigerants or “switch back” to HFC-134a on the basis of short-term economic gains, investments made by Chemours and other companies could realistically become stranded to the detriment of our nation’s manufacturing base and automotive service industry. Alternately, in a more costly scenario, a partial transition will be completed making costs higher as economies of scale are never reached for production of refrigerant or equipment.

Chemours respects the process being undertaken by EPA and NHTSA to reconsider what GHG and corporate average fuel economy (“CAFE”) standards will apply for MY 2021-2025 and later MY LDVs. It is evident that projections in 2012 concerning gasoline prices, vehicle attributes and consumer preferences fell short of eventual market realities – factors that the Mid Term Evaluation process was explicitly designed to analyze, along whether or not standards were appropriate and conformed to EPA’s and NHTSA’s respective statutory duties.

But as our comments below indicate, we strongly believe that whatever final decision is made with respect to altering the form or stringency of applicable standards, EPA and NHTSA should retain provisions that credit the use of alternative refrigerants in MVAC systems. EPA and NHTSA should not assume that such credits are no longer needed or that they do not serve a vital purpose in ensuring the continued success of the LDV program as well as the transition to environmentally beneficial refrigerants. Instead, the opposite is true and it is both possible and appropriate to integrate such credits into a fully “harmonized” national program for LDVs.

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<sup>1</sup> September 24, 2018 *Statement of the Motor & Equip. Mfrs. Ass’n., EPA and NHTSA Pub. Hr’g.*

### **III. Amending Standards to Eliminate Credits Will Have Serious Negative Impacts on Private Sector Investments Made on Basis of 2010 and 2012 Final Rules**

Regulations allowing for the generation of credits stemming from the use of new refrigerants in MVACs have been in place for the past eight years. As a result of this regulatory structure, use of new refrigerants has expanded while, at the same time, vehicle manufacturers have maintained the flexibility to use – or not use – new refrigerants and redesigned MVAC systems. This transition has been beneficial to companies such as Chemours that are in the business of developing new refrigerant formulations, but it has also been beneficial to original equipment manufacturers (“OEMs”) who must annually comply with vehicle standards for GHG emissions on a fleet-wide basis and which must choose between various approaches to achieve compliance. Chemours estimates that OEMs are already using the MVAC credits for low GWP refrigerants in more than 50% of the vehicles produced for sale in the U.S. The flexible nature of this credit/compliance system has also enhanced the international competitive position of U.S. manufacturers, including MVAC equipment suppliers that develop the technology allowing for safe and efficient use of alternative refrigerant formulations.

As outlined in more detail in Section IV, Chemours does not believe that elimination of credits based on the use of new refrigerants is required as part of the legal rationale for the proposed rule. But elimination of credits for new refrigerants is also destructive of a fundamental policy rationale of the proposed SAFE rule, which is to achieve greater harmonization between EPA’s and NHTSA’s implementation of the national program. Eliminating credits has the potential to strand billion-dollar investments in new refrigerants and MVAC systems, create long-term uncertainty in the vendor market for new automobiles, complicate the national program for LDVs, and increase costs for companies that choose to continue to use this technology.

#### **A. EPA and NHTSA should maintain a stable regulatory framework that includes emission credits for new refrigerants**

##### **i. The MVAC market is making a transition to alternative refrigerants**

As noted above, Chemours and other companies have invested heavily in bringing new, alternative refrigerants to the MVAC market. Credits for MVAC systems and refrigerants have been in place since MY 2012 and have resulted in significant adoption of alternative refrigerant systems. Two facts therefore weigh strongly against the elimination of credits based on alternative refrigerant use. First, the transition to new generation MVAC systems is far from complete. One analysis indicates that about 50% of new model vehicles for 2018 are using HFO-1234yf as compared with HFC-134a.<sup>2</sup> And while such adoption rate for new refrigerants can be seen as encouraging, it is also true that it has taken at least *five years* for this degree of technology/refrigerant changeover to take place. Second, as reflected in the chart below, it is also clear that some manufacturers have made little or no effort, to date, to move away from the use of HFC-134a.

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<sup>2</sup> Chart created by Vehicle Service Pros.com. [vehicleservicepros.com/in-the-bay/too](http://vehicleservicepros.com/in-the-bay/too).

OEM	Total # of Models	Percentage of R-134a	Percentage of R-1234yf	OEM	Total # of Models	Percentage of R-134a	Percentage of R-1234yf
<b>Acura</b>	5	<b>100%</b>	0%	<b>JLR</b>	7	0%	<b>100%</b>
<b>Audi</b>	9	<b>78%</b>	22%	<b>Kia</b>	10	30%	<b>70%</b>
<b>BMW</b>	11	0%	<b>100%</b>	<b>Lexus</b>	9	<b>89%</b>	11%
<b>Buick</b>	8	50%	50%	<b>Lincoln</b>	5	<b>60%</b>	40%
<b>Chevrolet</b>	17	35%	<b>65%</b>	<b>Mazda</b>	6	<b>100%</b>	0%
<b>FCA</b>	8	13%	<b>87%</b>	<b>Mini</b>	2	0%	<b>100%</b>
<b>Ford</b>	14	<b>57%</b>	43%	<b>Mitsubishi</b>	4	50%	50%
<b>Genesis</b>	3	33%	<b>67%</b>	<b>Nissan</b>	12	<b>100%</b>	0%
<b>GMC</b>	6	17%	<b>83%</b>	<b>Ram</b>	2	50%	50%
<b>Honda</b>	9	22%	<b>78%</b>	<b>Subaru</b>	7	<b>71%</b>	29%
<b>Hyundai</b>	8	<b>75%</b>	25%	<b>Toyota</b>	14	<b>71%</b>	29%
<b>Infiniti</b>	6	<b>100%</b>	0%	<b>Volvo</b>	6	<b>100%</b>	0%

Since different original equipment manufacturers (“OEMs”) have taken different approaches for compliance with GHG standards, continued movement to alternative refrigerants is therefore not assured, especially if a major current incentive to do so (credits based on alternative refrigerant use) is eliminated. Without either a credit mechanism for alternative refrigerants or a GHG standard that takes into account any emissions other than tailpipe CO<sub>2</sub>, there is also no assurance that OEMs which have converted to alternative refrigerants will not revert to using HFC-134a based on competitive pressures from manufacturers that did not undertake any transition.

All of our automotive customers commented favorably on the flexibility of technology options for compliance provided in the current CAFE/GHG emissions standards as opposed to the command and control approach used in Europe since it provided them the ability to choose the options that best fit their platforms and their customer needs. Testimony received by EPA and NHTSA at its September 25, 2018 public hearing indicates that automobile manufacturers support continuation of the current system:

[The Auto Alliance] supports the continuation and expansion of flexibilities, such as accounting for the benefits of air conditioning efficiency improvements, accounting for new refrigerants but lowering greenhouse gas impacts, and fully acknowledging the benefits of technology that improve efficiency beyond what is measured in the lab.<sup>3</sup>

Similarly, the Global Automakers have stated that

“The regulations should provide a variety of regulatory tools that automakers can use to manage many different product mixes. Compliance challenges differ from one company to another, and there should be more than one path for improving fuel efficiency. For example, the off-cycle and air conditioner programs provide important additional efficiencies beyond those gained by the powertrain and for managing fleet compliance.”<sup>4</sup>

<sup>3</sup> Test. of Chris Nevers, Alliance of Auto. Mfrs., September 25, 2018 NHTSA and EPA Pub. Hr’g Tr. at 22.

<sup>4</sup> Test. of Julia Rege, Glob. Automakers, September 24, 2018 NHTSA and EPA Pub. Hr’g.

Simply put, while conversion to alternative refrigerants is considered to be a relatively low-cost option to meet current GHG LDV standards, it is not a “no cost” option. Therefore, in the absence of regulatory incentives like credits and a lack of clarity regarding GHG standards, should EPA and NHTSA focus solely on CO<sub>2</sub> tailpipe emissions as indicated by the proposed rule, there is the potential for hundreds of millions of dollars in investments by U.S. refrigerant suppliers and supporting vendors to be stranded or substantially de-valued.

**ii. Abandoning credit system and the progressive targets will upset OEM compliance strategies**

The proposed rule would allow for the generation of credits through MY 2020 by implementing specific air conditioning technologies. *See* proposed revisions to 40 C.F.R. §86.1867-12. Provisions that allow for the calculation of leakage credits on the basis of a formula providing for crediting of lower GWP refrigerants (*i.e.*, a  $GWP_{REF}/1430$  value to be calculated and applied as a multiplier to the “leak score”) however are completely eliminated.<sup>5</sup> Depending on the effective date of the rule, this means that such credits may not be able to be generated as soon as the end of 2019.<sup>6</sup> It is not clear from the proposed rule when the revisions to 40 C.F.R. 86.1867-12 would take effect or whether EPA and NHTSA will include different effective dates for various provisions in a final rule. For rulemakings of this type, the effective date could be 60 days following publication of the rule in the Federal Register. Use of any and all credits generated on the basis of MVAC refrigerants could thus be eliminated as of 2024, depending on the scope of the final regulations.<sup>7</sup>

This is likely to affect OEMs in different ways given how each incorporated the flexible technology options into their respective compliance strategies. OEMs which already integrated credits as part of their compliance strategy will not be able to generate additional credits to correspond to their current production plans.<sup>8</sup> OEMs which have not used such credits, but rather intended to pursue this compliance option in the future, will be denied this opportunity and, as a result, will be disadvantaged and similarly need to develop different (and perhaps more expensive) compliance strategies. Finally, U.S. automotive manufacturers who embraced this

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<sup>5</sup> Compare proposed 40 C.F.R. §86.1867-12 with current 40 C.F.R. §86.1867-12, specifically §1867-12(b)(1).

<sup>6</sup> EPA indicates that it may propose new provisions, but it is unclear whether such will or can be done so as to assure that there is “no lapse in regulation.” *See* 83 Fed. Reg. at 43,194. Proposed 40 C.F.R. 86-1867-12 provides that credits may be generated “[t]hrough model year 2020.” In practice, many MY 2020 vehicles would be manufactured starting in 2019. Under the proposed regulatory language, restrictions on the generation of credits for MY 2021 vehicles therefore would become fully effective throughout calendar year 2020 as manufacturers completed final designs and certification of MY 2021 vehicles and began to build inventory.

<sup>7</sup> Currently, credits may be banked and carried forward for five years. *See* 40 C.F.R. 86-1865-12(k)(6). Chemours interprets the proposed rule to not affect the ability to use credits previously generated for compliance. To the extent that this interpretation of the proposed rule and regulatory language is not correct, Chemours would urge EPA to not restrict the use of such credits generated in years prior to the termination of credit generation for MVAC refrigerants.

<sup>8</sup> The use of HFO-1234yf in LDVs began in 2013 and has grown. Available data indicates that in model year 2016, 13 percent of new vehicles were using this refrigerant, allowing for the generation of credits. Greenhouse Gas Emission Standards for Light-Duty Vehicles, Manufacture Performance Report for the 2016 Model Year at 34-35.

flexible structure by making early transitions will lose the value of their investment while foreign OEMs who lagged in conversions will benefit from not having made the investment.

This situation will only become more critical over time. As noted by Fiat Chrysler:

Notwithstanding our investments and our competitor's investments, 2016 marked the first time since the new standards were put in place that the industry as a whole could not comply with the fleet standard without using credits earned from previous years . . . FCA supports the policy change in favor of ongoing fuel economy . . . But that policy needs to be based on market realities since 2012. In business and government we have to make decisions on the best information available to us at the time, but we must also be able to adjust our plans when the facts on the ground change.<sup>9</sup>

While EPA and NHTSA are proposing to “freeze” the stringency of standards at MY 2020 levels through MY 2026, it cannot be presumed that the need for credits has been eliminated. This would especially be true if Alternative 1, the preferred Alternative, is not finalized. In this regard, the proposed rule indicates that “[t]he technology to improve fuel economy and reduce CO<sub>2</sub> emissions has not changed dramatically since prior analyses were conducted . . . There remains no single technology that the majority of vehicles made by the majority of manufacturers can implement at low cost without affecting other vehicle attributes that consumers value more than fuel economy and CO<sub>2</sub> emissions.”<sup>10</sup> In this situation, retaining MVAC refrigerant credits, which offer a demonstrated, low-cost compliance strategy that is broadly available, is essential.

In the absence of any other “one size fits all” technological approach to meeting LDV GHG emission standards, EPA and NHTSA should endeavor to retain a wide range of compliance flexibilities. This will remain important given that the bank of available emission credits has been declining and, at the same time, such credits “have been extensively generated by manufacturers, and make up a portion of their compliance with EPA’s CO<sub>2</sub> standards.”<sup>11</sup> EPA has estimated that in MY 2016, such credits average 6 grams per mile per manufacturers, with a range among manufacturers of 3 grams per mile equivalent to 17 grams per mile.<sup>12</sup> In this circumstance, it makes little sense to eliminate a current credit mechanism which has been successfully used to facilitate the introduction of approximately one-half of all new vehicles being brought to market. This is especially true when the use of credits has been fundamental to compliance strategies.

### **iii. The rationale for changing MY 2021-MY 2026 standards supports retaining credits**

EPA and NHTSA have indicated that the following conditions justify maintaining the stringency of LDV standards at MY 2021 levels:

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<sup>9</sup> Statement of Steve Bartoli, September 25, 2018 Glob. Fuel Economy and Greenhouse Gas Emissions Compliance at Fiat Chrysler, Pub. Hr’g Tr., at 23.

<sup>10</sup> 83 Fed. Reg. at 42,991.

<sup>11</sup> Preliminary Regulatory Impact Analysis at 159.

<sup>12</sup> *Id.*

- Technologies available today are different than what was assumed when the MY 2022-2025 rules were promulgated in 2012
- Technology that can improve fuel economy and/or performance may not be dedicated solely to improving fuel economy
- Previous assumptions on the cost of fuel economy gains are not accurate
- Fuel economy technologies are subject to diminishing returns over time
- Consumer preferences regarding vehicles have shifted since 2012
- Increased vehicle prices “keep consumers in older, dirtier, and less safe vehicles”<sup>13</sup>

In view of these current market conditions, EPA and NHTSA have determined that maintaining MY 2021 vehicle standards through MY 2026 is what is “technologically feasible and economically practicable, as directed by Congress.”<sup>14</sup> In other words, EPA and NHTSA are proposing to determine that keeping MY 2021 standards in place is what is required pursuant to the determinations that each agency must make pursuant to their respective CAA and EPCA authorities.

But if this is so, then allowing for continued credits to be generated on the basis of alternative refrigerants used in MVACs is fully consistent with EPA and NHTSA’s previous determination of the appropriate level of the GHG and CAFE standards. Just as the credits were formerly determined to be consistent with the form and the stringency of the 2010 and 2012 LDV standards, so would the credits now be consistent with the form and stringency of revised MY 2021-2026 LDV standards as long as EPA continues to regulate all GHGs, not just CO<sub>2</sub> tailpipe emissions.

EPA and NHTSA may, of course, adjust the standards to take into account the availability of A/C emission credits as *both agencies* have previously done in order to promote harmonization of each agencies’ standards.<sup>15</sup> So there is no reason why credits for new refrigerants cannot be accommodated within revised standards on the same basis as they were originally included. Conversely, eliminating the compliance flexibility allowed by such credits is not justified since many of the automotive manufacturers have incorporated the use of credits in their compliance strategies prior to the proposed 2020 model year and conditions affecting the vehicle market, consumer preferences and fuel economy technology could change in an unanticipated fashion, just as assumptions underlying the 2012 rule changed over time.

As noted by EPA in its most recent report regarding implementation of the LDV standard, “[s]ixteen manufacturers used the A/C credit provisions – either for leakage reductions, efficiency improvements, or both – as part of their compliance demonstration in the 2016 model

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<sup>13</sup> Bullet points derived from “Summary of Rationale.” 83 Fed. Reg. at 42,990-94.

<sup>14</sup> *Id.* at 42,995.

<sup>15</sup> “NHTSA also notes that the rates of increase in stringency for CAFE standards are lower than EPA’s rates of increase in stringency for GHG standards. As in the MYs 2012-2016 rulemaking, this is for the purposes of harmonization and in reflection of several statutory constraints in EPA/EISA. As a primary example, NHTSA’s standards, unlike EPA’s, do not reflect the inclusion of air conditioning system refrigerant and leakage improvements, but EPA’s standards allow consideration of such A/C refrigerant improvements which reduce GHGs but do not affect fuel economy.” 77 Fed. Reg. at 62,639.

year.”<sup>16</sup> Eliminating the availability of credits earned on the basis of the use of low-GWP refrigerants would directly affect these manufacturers (plus those who have adopted such refrigerants since model year 2016) as well as others who will be seeking to comply with “maximum feasible” CAFE standards and appropriate CAA section 202(a) standards. It would be illogical for the agencies to not allow for similar flexibility in the future as compared with flexibility that has been available and widely used in the past.

As EPA and NHTSA well know, OEM design cycles often range between 5 and 7 years with some product offerings undergoing engineering redesign only after 10 years duration.<sup>17</sup> EPA and NHTSA have also noted that manufacturers use “diverse strategies with respect to when, and how often they update vehicle designs. While most vehicles have been redesigned sometime in the last five years, many vehicles have not.”<sup>18</sup> Thus, proposing to discontinue existing refrigerant credit generation as of 2020 (when the restrictions on generating credits for MY 2021 would become effective, in practice, pursuant to proposed 40 C.F.R. §86.1867-12) is inherently disruptive. Given normal rulemaking timeframes, it is likely that a final rule will not be promulgated until sometime in 2019, meaning that the end of MVAC refrigerant credits will occur barely one year (or less) after the requirements become effective.

#### **B. EPA and NHTSA can best maintain national uniformity by retaining alternative refrigerant credits**

While the decision in 2010 and 2012 to use a credit system for the conversion of MVAC systems allowed for flexibility and did not require OEMs to change over A/C systems by a specific date, it is also apparent that the form and stringency of the standards eventually had this result. Specifically, as a lower cost option to achieve GHG standards, alternative refrigerants presented a viable economic choice in meeting LDV standards over the long term. And this was accomplished while NHTSA and EPA maintained a national program of comparable stringency. Given this history, repeal of the current credit system would weigh *against* a national, uniform approach to reducing GHG emissions from LDVs and improving fuel economy from the same vehicles in the most cost-effective manner.<sup>19</sup>

In this regard, the proposed rule claims that excluding CO<sub>2</sub>-equivalent emission improvements associated with air conditioning refrigerants (as well as with leakage and offsets for N<sub>2</sub>O and methane (“CH<sub>4</sub>”)) are necessary for the pursuit of “one national standard.” EPA notes that the CAFE program “does not include A/C refrigerant leakage, nitrous oxide and methane emissions

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<sup>16</sup> Greenhouse Gas Emission Standards for Light-Duty Vehicles, Mfrs. Performance Rept. for the 2016 Model Year at 30.

<sup>17</sup> Table II-3, 83 Fed. Reg. at 43,104.

<sup>18</sup> *Id.* at 43,012.

<sup>19</sup> Chemours recognizes that the proposed rule attempts to distinguish between technologies and approaches which it believes solely impact fuel economy (as measured by tailpipe CO<sub>2</sub>) versus approaches that affect CO<sub>2</sub> and other GHGs. But unless the agencies decide to provide for *no controls or standards affecting non-CO<sub>2</sub> GHGs*, then costs associated with such limits or reductions will be incurred elsewhere (*e.g.*, under a separate regulatory program to control HFCs, N<sub>2</sub>O and methane). This would mean that the national LDV program as a whole was less economically efficient than it could be since it would result in two different compliance systems. Moreover, by controlling CO<sub>2</sub> and non-CO<sub>2</sub> emissions separately, EPA and NHTSA would presumably not allow the use of non-CO<sub>2</sub> credits for compliance with the CO<sub>2</sub> national program and/or limit the trading of CO<sub>2</sub> and non-CO<sub>2</sub> emission credits. All of these actions would result in a less efficient program than exists now.

because they do not impact fuel economy.”<sup>20</sup> Thus, it is asserted that under the proposed rule standards become “completely aligned for gasoline because compliance is based on tailpipe CO<sub>2</sub>, CH<sub>4</sub> and CO for both programs and not emissions unrelated to fuel economy.”<sup>21</sup>

But such “alignment” is merely a function of a compliance methodology, *i.e.*, the fact that vehicle treadmill tests are conducted for LDVs over specific duty cycles and carbon-based emissions measured on the using sophisticated test cell equipment that continuously sample resulting tailpipe emissions. The fact remains that NHTSA and EPA would *not* be implementing one national standard under the proposed rule, but two separate and distinct federal standards measured by different metrics (g CO<sub>2</sub>/mile and mpg). These two distinct federal standards would also continue to be enforced through divergent statutory schemes, resulting in different results for violations of the same “harmonized” standard. And this result cannot be avoided without either agency risking non-compliance with its statutory authority to regulate motor vehicles.

Therefore, the proposed rule does not result in the “complete alignment” that is claimed as a major policy objective and desired accomplishment of the rulemaking and the overall burden of compliance would not be reduced on the regulated community. OEMs will still need to comply with *at least* two separate standards, with at least one standard based on GHG emissions from the “air pollutant” being controlled. Separating the existing combined program for GHGs and fuel economy into two different regulatory schemes (one solely centered on fuel economy and the other addressing either CO<sub>2</sub> emissions alone or CO<sub>2</sub> emissions in combination with another program that would address all non-CO<sub>2</sub> GHG emissions from vehicles) would actually promote “disharmonization” of current federal standards.

To the extent permissible under law, EPA and NHTSA standards have been aligned for the past eight years through each agencies’ consideration of its own statutory authority and through the promulgation of regulatory provisions having the same practical result – that a vehicle certified for compliance pursuant to GHG standards will also be able to meet CAFE requirements and vice-versa. This regulatory system has allowed important “off cycle” programs to exist, like air conditioning refrigerant credits, but also other emission credit mechanisms that are not measured by the standard two-cycle tailpipe test. Such credits do not impede harmonization of EPA and NHTSA standards, but in fact advance this goal by centralizing all requirements affecting vehicles within a combined rulemaking package.

It is instructive that the proposed rule does not cite any specific “problem” that it is trying to resolve with respect to past implementation of the EPA/NHTSA program stemming from a lack of “alignment” generally or the availability and use of MVAC refrigerant credits specifically. As noted above, such credits have been used by some OEMs and not others, implemented with respect to different MY vehicles and have helped “ease” the impact of other approaches that may require the use of more expensive technology. The proposed rule also concedes that full alignment is practically impossible to occur since 4% of the LDV fleet uses diesel and alternative fuels. In addition; other provisions exist in NHTSA regulations that EPA “has declined to adopt,

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<sup>20</sup> 83 Fed. Reg. at 43,197, nt. 380.

<sup>21</sup> *Id.*

such as minimum standards for domestic passenger cars and limits on credit transfers between regulated fleets.”<sup>22</sup>

Thus, since EPA and NHTSA lack the statutory ability to fully and completely align motor vehicle regulations that are based on two different statutory schemes, EPA and NHTSA should continue to coordinate on all the GHG standards that are required and focus on the net, practical result of their standard-setting. Continuation of a regulatory system where EPA GHG standards may be somewhat more stringent than NHTSA CAFE standards but retain important programs to incentivize the introduction of new refrigerants (without mandating same) allows for compliance with the statutory authority underlying of the propose rule while allowing more flexible compliance options.

#### **IV. Regulatory History of EPA/NHTSA Vehicle Rules Supports Maintaining Credits for New Refrigerants**

##### **A. 2008 ANPR identified potential for alternative refrigerants pursuant to the regulation of GHGs under the Clean Air Act**

Ten years ago, EPA observed that “[CAA] section 202 HFC emissions are the largest source of HFC emissions in the United States, that these emissions increased by 274% from 1995 to 2006, and that section 202 sources are also the largest source of emissions of high [global warming potential] gases (i.e., HFCs, PFCs or SF<sub>6</sub>) in the U.S.”<sup>23</sup> EPA assessed potential controls for HFC emissions from “seals, gaskets, hose permeation and even small failures in the containment deterioration, or more quickly through rapid component deterioration, vehicle accidents or during maintenance and end-of-life scrappage (especially when refrigerant capture and recycling programs are less efficient).”<sup>24</sup> Based on this and other analysis, EPA indicated that “A/C-related emissions account[ed] for 7.5% of the GHG emissions from cars and light trucks.”<sup>25</sup>

While the amount of HFCs emitted from MVACs each year is relatively small in comparison to emissions of CO<sub>2</sub>, EPA noted that the high global warming potential of HFC-134a, the most common HFC MVAC refrigerant, gave the air pollutant an outsized impact. At the time, EPA estimated that each ton of HFC-134a emitted to the atmosphere was the equivalent of 1,300 tons of CO<sub>2</sub>.<sup>26</sup> Currently, one ton HFC-134a is considered to be the equivalent of 1,430 tons of CO<sub>2</sub>.

Overall, EPA noted that emissions of HFCs from motor vehicles represented the second-highest amount of GHGs emitted from vehicles. Such emissions were 40 times larger than methane emissions from vehicles and over 2 times larger than N<sub>2</sub>O emissions.<sup>27</sup> As a result, EPA projected that an air conditioning refrigerant leakage standard could yield 50 million metric ton CO<sub>2</sub>-equivalent reductions in 2030, increasing to 70 million metric tons CO<sub>2</sub>-equivalent in 2040. These reductions would be additive to projected reductions from CO<sub>2</sub> of 300 to 400 million tons

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<sup>22</sup> *Id.*

<sup>23</sup> 73 Fed. Reg. 44,354, 44,431 (July 30, 2008).

<sup>24</sup> *Id.* at 44,448

<sup>25</sup> *Id.*

<sup>26</sup> *Id.* at 44,505.

<sup>27</sup> *Id.* at 44,431.

in 2040 projected to flow from the vehicle regulatory options considered<sup>28</sup> and represent the equivalent of taking 11.6 to 16.7 million cars off the road each year.<sup>29</sup>

## **B. 2009 Endangerment Finding included HFCs**

In 2009, EPA determined that the “relevant” greenhouse gas air pollutant from new motor vehicles and new motor vehicle engines was “the combined mix of six key directly-emitted, long-lived and well-mixed greenhouse gases . . . which together, constitute the root cause of human-induced climate change and the resulting impacts on public health and welfare.”<sup>30</sup> Specifically, EPA defined the scope and nature of the relevant air pollutant for the endangerment finding under CAA section 202 as CO<sub>2</sub>, methane, N<sub>2</sub>O, HFCs, perfluorocarbons (“PFCs”) and sulfur hexafluoride (“SF<sub>6</sub>”). The Administrator determined that these six GHGs shared common properties<sup>31</sup> and that “using the combined mix of these gases as the definition (versus an individual gas-by-gas approach) [was] consistent with the science, because risks and impacts associated greenhouse gas-induced climate change are not assessed on an individual gas approach.”<sup>32</sup>

HFCs were included within the “air pollutant” regulated by EPA from CAA section 202 sources since they were considered to be part of “well-mixed greenhouse gases . . . with common attributes.”<sup>33</sup> EPA further explained that “[g]rouping these six substances as one air pollutant is reasonable regardless of whether a contribution analysis is undertaken for CAA section 202(a) sources that emit one subset of the six substances (*e.g.*, carbon dioxide, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, but not PFCs and SF<sub>6</sub>), or for another category of sources that may emit another subset . . . In other words, it is not necessarily the source category being evaluated for contribution that determines the reasonableness of defining a group air pollutant based on the shared attributes of the group.”,

EPA also addressed arguments related to the scope of the finding as related to CAA section 202 sources and reductions in emissions that may occur from imposition of CAFE standards. Specifically, EPA indicated that:

The argument that the Administrator can look at that portion of emissions that will be reduced by any CAA section 202(a) standards, and even then only the reduction beyond those attributable to CAFE rules, finds no basis in the statutory language. The language in CAA section 202(a) requires that the Administrator set “standards applicable to the emission of any air pollutant from [new motor vehicles] which in [her] judgment cause, or contribute to, air pollution which [endangers].” It does not say set “standards applicable to the emission of any air pollutant from [new motor vehicles], if in [her] judgment

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<sup>28</sup> *Vehicle Tech. Supp. Docs.: Evaluating Potential GHG Reduction programs for Light Vehicles* at 6-7. EPA-HQ-OAR-2008-0318-0084. EPA evaluated both a 4% reduction per year in carbon dioxide in 2030 and 2040 and a “model-optimized” reduction in carbon dioxide for the same years. *Id.*

<sup>29</sup> A typical passenger vehicle emits about 4.6 metric tons of CO<sub>2</sub>/year.

<sup>30</sup> 74 Fed. Reg. 66,496, 66,516 (Dec. 15, 2009).

<sup>31</sup> *Id.* at 66,517.

<sup>32</sup> *Id.*

<sup>33</sup> 74 Fed. Reg. at 66,541.

the emissions of that air pollutant as reduced by that standard cause, or contribute to, air pollution which [endangers].”<sup>34</sup>

As EPA acknowledged, the 2009 Endangerment Finding triggered mandatory controls for light duty vehicles.<sup>35</sup> And EPA clearly stated that such standards are to be GHG standards, not a standard limited to a subset of greenhouse gases or an individual greenhouse gas such as CO<sub>2</sub>:

EPA’s mandatory legal duty to promulgate these emission standards derives from ‘a statutory obligation wholly independent of [the Department of Transportation’s] mandate to promote energy efficiency.’ *Massachusetts*, 549 U.S. at 532. Consequently, EPA has no discretion to decline to issue greenhouse standards under section 202(a) or to defer issuing such standards due to NHTSA’s regulatory authority to establish fuel economy standards.<sup>36</sup>

**C. 2010 Rule for MY 2012-2016 standards addressed HFCs and alternative refrigerants within coordinated and cost-effective regulatory program**

**i. 2010 Rule recognized need to address HFC emissions**

EPA addressed its mandatory duty to promulgate GHG standards in the 2010 final rule establishing new GHG standards for light duty vehicles in MYs 2012-2016.<sup>37</sup> This same rule relied on NHTSA’s Energy Policy and Conservation Act (“EPCA”) authority to establish CAFE standards. Pursuant to amendments made to EPCA by the Energy Independence and Security Act of 2007 (“EISA”),<sup>38</sup> NHTSA was under a mandatory duty to set separate standards for MY 2011-MY 2020 passenger cars and light trucks at levels high enough to ensure that these vehicles achieved 35 mpg not later than MY 2020.<sup>39</sup>

The final rule was jointly promulgated by EPA and NHTSA following close coordination of their efforts and consideration of each agency’s statutory authority and technical expertise. This approach was intended to result in a “harmonized and consistent national program” that was “designed such that compliance can be achieved with a single national vehicle fleet whose emissions and fuel economy performance improves each year from MY 2012 to 2016.”<sup>40</sup> Specifically, the agencies noted that “NHTSA and EPA worked together closely to develop regulatory approaches that are fundamentally the same.”<sup>41</sup>

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<sup>34</sup> *Id.* at 66,544.

<sup>35</sup> 83 Fed. Reg. at 43,227, citing *Coalition for Responsible Regulation*, 684 F.3d at 114; *Massachusetts v. EPA*, 549 U.S. at 532.

<sup>36</sup> *Id.*

<sup>37</sup> 75 Fed. Reg. 25,324 (May 7, 2010).

<sup>38</sup> Pub. L. 110-140.

<sup>39</sup> *Id.* at Title I, Subtitle A. amending 49 U.S.C. §32902. See also 75 Fed. Reg. at 25,555. It should be noted that NHTSA issued a final rule for MY 2011 CAFE standards in March 2009.

<sup>40</sup> *Jt. Tech. Supp. Doc.: Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy* at iv, EPA-HQ-OAR-2009-0472-11579.

<sup>41</sup> *Id.* at v.

As part of this coordinated effort, the Regulatory Impact Analysis (“RIA”) for the rule extensively analyzed the GHG impact from MVAC units.<sup>42</sup> In this analysis, the agencies projected technological approaches to controlling MVAC leakage rates (*e.g.*, improvements to seals and gaskets and hoses) could be incorporated by 66% of cars and 34% of trucks by 2016 resulting in significant reductions in vehicle GHG emissions.<sup>43</sup>

Achieving such emission reductions was viewed as an integral part of the overall effort to address emissions of GHGs from the vehicle fleet. EPA first observed that HFCs versus other GHGs (*e.g.*, CO<sub>2</sub>) were almost entirely anthropogenic in origin and increasing rapidly in the atmosphere.<sup>44</sup> The agency also noted the prevalence of HFC emissions sources within the LDV fleet indicating that in 2006, HFC emissions from mobile source categories equaled 56% of total U.S. HFC emissions, making it the largest category of U.S. HFC emissions.<sup>45</sup> Thus, EPA determined that regulations that allowed for generation of CO<sub>2</sub>e equivalent reductions through improvements to MVAC systems presented a “highly cost-effective way to achieve a portion of GHG emissions reductions under the EPA program.”<sup>46</sup>

Several supporting studies were placed in the docket regarding this conclusion from the Improved Mobile Air Conditioning Cooperative Research Program (“IMAC”). For example, one assessment indicated that a total of 52,250,000 pounds of aftermarket refrigerant was sold in 2004, which was “approximately 15.1 million pounds more than would have been required to fully charge an estimated 25,000,000 vehicles which were professionally serviced.”<sup>47</sup> Other evaluations indicated that the mean recovery rate of refrigerants at scrappage was about 17% of capacity.<sup>48</sup> Allowing credits for MVAC refrigerants (thereby providing the incentive to use new refrigerants) avoids impacts from the release of refrigerants through self-servicing of vehicles and the low recovery rates that have been experienced at scrappage.

## ii. EPA and NHTSA aligned standards to accommodate MVACs

The 2010 rule established the first “National Program” for new cars and light duty trucks, addressing not only EPA and NHTSA authority in this area but also separate standards promulgated by California and adopted by other states.<sup>49</sup> This final rule noted the close and direct relationship between “improving fuel economy and reducing CO<sub>2</sub> tailpipe emissions . . . [and the] single pool of technologies for addressing these twin problems, *i.e.*, those that reduce fuel consumption and thereby reduce CO<sub>2</sub> emissions as well.”<sup>50</sup>

In the joint rulemaking, EPA established GHG emission under the authority of the CAA and NHTSA promulgated CAFE standards under the Energy Policy and Conservation Act of 1975 as revised by the EISA. In the words of both agencies, the intention of the joint rulemaking was “to

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<sup>42</sup> Draft Regulatory Impact Analysis 2-2-2-39.

<sup>43</sup> *Id.* at 2-39. It should be noted that the RIA did not project the use of alternative refrigerants during the same period.

<sup>44</sup> 75 Fed. Reg. at 25,491.

<sup>45</sup> 75 Fed. Reg. at 25,398, nt. 155.

<sup>46</sup> *Id.* at 25,399.

<sup>47</sup> Develop HFC-134a Mass Balance for U.S. Mobile A/C? Market at 5.

<sup>48</sup> CARB survey data; End-of-Life Vehicles, at 1.

<sup>49</sup> 75 Fed. Reg. 25,324 (May 7, 2010).

<sup>50</sup> *Id.* at 25,327.

set forth a carefully coordinated and harmonized approach to implementing [the CAA and EPCA], in accordance with all substantive and procedural requirements imposed by law.”<sup>51</sup> Specifically, “the two agencies’ standards together comprise[d] the National Program.”<sup>52</sup>

Since EPA and NHTSA were implementing different statutes, enacted at different times for different reasons, there were several differences as between the regulations promulgated by each agency. This required the agencies to develop parallel, but separate and distinct regulatory regimes, including with respect to the credit mechanisms that would allow compliance with distinct CO<sub>2</sub> grams per mile (“CO<sub>2</sub> g/mile”) and miles per gallon (“mpg”) standards contained in the final rule.<sup>53</sup> As EPA and NHTSA noted:

[The agencies] developed the same or similar compliance flexibilities, to the extent allowed and appropriate under their respective statutes, such as averaging, banking, and trading of credits, and have harmonized the compliance testing and test protocols used for purposes of fleet average standards each agency is finalizing. Finally, under their respective statutes, each agency is called upon to exercise its judgment and determine standards that are an appropriate balance of various relevant statutory factors.<sup>54</sup>

As a result, the final rule establishing GHG and CAFE standards for Model Year 2012-2016 LDVs allowed for credits generated through the reduction in HFC emissions to be applicable (creditable) to the EPA CO<sub>2</sub> g/mile standard, but not with respect to the NHTSA mpg standard.<sup>55</sup> This resulted in a difference in the relative stringency of the EPA and NHTSA standards. Specifically, by MY 2016, EPA’s 250 g/mi CO<sub>2</sub> standard was equivalent to 35.5 mpg (if no A/C credit option was used) while NHTSA’s MY 2016 standard was 34.1 mpg.<sup>56</sup> In other words, EPA and NHTSA harmonized their CO<sub>2</sub> and mpg standards so that the same vehicle could comply with both standards while retaining an incentive for a reduction in HFC emissions.<sup>57</sup>

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<sup>51</sup> *Id.* at 25,328.

<sup>52</sup> *Id.* at 25,548.

<sup>53</sup> One area of difference involves enforcement of standards where NHTSA notifies a manufacture of non-compliance and allows for the use of surplus credits to resolve the noncompliance (versus the possibility of enforcement actions under the CAA). Under EPCA, the precise amount of civil penalties is specified (\$5.50 for each tenth of an mpg that a manufacturer falls short of the standard). NHTSA also lacks recall authority in the event of non-compliance, while EPA retains authority to void certificate of compliances that have been issued for a particular class or type of vehicle, including certificates for entire model years. As described by NHTSA, “under EPCA, there is no such thing as a noncompliant vehicle, only a non-compliant fleet.” *Id.* at 25,558.

<sup>54</sup> *Id.* at 25,328.

<sup>55</sup> NHTSA explained that EPCA did not allow for vehicle manufacturers to use air conditioning credits with respect to compliance with CAFE standards, although there was no prohibition with respect to such crediting with regard to light trucks. *Id.* at 25,330, n. 19.

<sup>56</sup> *Id.* at 25,330

<sup>57</sup> NHTSA declined to consider whether “the agency’s calculation authority under EPCA [could] be used to provide A/C credits.” *Id.* at 25,633-4. Instead, NHTSA promulgated final standards that did not account for HFC emissions on the basis that it believed standards not incorporating A/C credits were otherwise “economically practicable” and that A/C emission reductions were not related to the “core purpose of the CAFÉ standards under EPCA . . . to reduce fuel consumption.” *Id.* at 25,633. At the same time, NHTSA indicated that it did not mean “in any way, to deter manufacturers from employing A/C technologies to meet EPA’s standards, but simply to say that NHTSA’s Independent [sic] obligation to set maximum feasible CAFÉ standards to be met through the application

In this regard, both CO<sub>2</sub> and HFC standards were considered to be: (1) attribute-based and thus consistent with the form of the standard promulgated for both CO<sub>2</sub> g/mile and mpg standards; and (2) aggressive but achievable within the timeframe allowed for their implementation:

With respect to CO<sub>2</sub> and HFCs, EPA is adopting attribute-based light-duty car and truck standards that achieve large and important emissions reductions of GHGs. EPA has evaluated the technological feasibility of the standards, and the information and analysis performed by EPA indicates that the standards are feasible in the lead time provided. EPA and NHTSA have carefully evaluated the effectiveness of individual technologies as well as the interactions when technologies are combined . . . EPA and NHTSA carefully analyzed issues of adequacy of lead time in determining the level of the standards, and the agencies are convinced both the lead time is sufficient to meet the standards but that major further additions of technology across the fleet is not possible during these model years.<sup>58</sup>

EPA also noted that without action to address MVAC emissions, HFC emissions could *increase* from an estimated 5.1% of *direct* vehicle GHG emissions over time.<sup>59</sup> Therefore, EPA finalized two different credit mechanisms: a leakage reduction credit that would take into account the use of different technology and alternative refrigerants, and an efficiency improvement credit to account for the installation of hardware and controls to increase A/C system efficiency.<sup>60</sup>

#### **D. 2012 Rule included and reaffirmed regulatory approach to HFCs and alternative refrigerants**

In 2012, EPA and NHTSA set final standards for MY 2017 to MY 2025 LDVs (with respect to GHG CO<sub>2</sub> g/mile requirements) and MY 2017 to MY 2021 LDVs with respect to CAFE standards.<sup>61</sup> The final rule generally retained the MVAC credit structure utilized in the MY 2012-MY 2016 final rule, allowing a maximum of 18.8 grams/mile credit for cars and 24.4 grams/mile credit for light duty trucks.<sup>62</sup> In addition, however, the rule allowed manufacturers to generate fuel consumption improvement values for purposes of CAFE compliance (based on A/C efficiency and off-cycle technologies). The CAFE credits were based on increases in fuel efficiency resulting from increasing the load on an engine by an MVAC system. As explained in the final rule:

Under EPCA, EPA has authority to adopt procedures to measure fuel economy and to calculate CAFE compliance values. Under this authority, EPA is

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of tailpipe technologies alone must be fulfilled, while recognizing the flexibilities offer in another regulatory program.” *Id.* at nt. 710.

<sup>58</sup> *Id.* at 25,403-4. Such a relative increase could occur as a result of two factors: (a) an increase of LDV vehicles; and (b) a corresponding decrease in CO<sub>2</sub> emissions per vehicle.

<sup>59</sup> *Id.* at 25,425. EPA also estimated that indirect emissions due to the load of an A/C unit on a vehicle engine represented approximately 3.9% of light duty GHG emissions. *Id.*

<sup>60</sup> See 40 C.F.R. §86.165-12 with respect to air conditioning test procedures to measure efficiency gains, §86.166-12 for methods to calculate emissions due to air conditioning leakage; §86-1865-12(k)(5) with regard to crediting available for reductions achieved.

<sup>61</sup> 77 Fed. Reg. 66,624 (Oct. 15, 2012).

<sup>62</sup> *Id.* at 62,649.

establishing that manufacturers can generate fuel consumption improvement values for purposes of CAFE compliance based on air conditioning system efficiency for cars and trucks. An increase in a vehicle CAFE grams-per-mile value would be allowed up to a maximum based on 0.000563 gallon/mile for cars and on 0.000810 gallon/mile for trucks. This is equivalent to the A/C efficiency CO<sub>2</sub> credit allowed by EPA under the GHG program.<sup>63</sup>

Thus, unlike the MY 2012-MY 2016 rule, MVAC credits were incorporated into CAFE standards and resulting NHTSA standards were adjusted upward to account for the credits. Similar to the MY 2012-MY 2016 rule, NHTSA did not incorporate or adjust the stringency of its mpg standards to account for the use of A/C systems that reduced leakage of refrigerant or used new, alternative refrigerants on the basis that “those changes do not generally affect fuel economy.”<sup>64</sup> EPA did, however, adjust the stringency of CO<sub>2</sub> tailpipe standards to account for A/C credits based on technological improvements to MVAC systems, which it projected would be widely used within affected vehicle fleets.<sup>65</sup>

Similar to the MY 2012-MY 2016 standards, both agencies made it clear that A/C credits were consistent with a harmonized national program. “[I]n reality auto companies will build a single fleet of vehicles to comply with both the CAFE and GHG standards, and the only significant real-world difference in program costs is limited to the hydrofluorocarbon (HFC) reductions expected under the GHG standards, which EPA estimates at \$68/vehicle cost.”<sup>66</sup>

Since EPA anticipated that CO<sub>2</sub>-equivalent emission reductions from A/C improvements would continue, EPA adjusted stringency of 2-cycle tailpipe CO<sub>2</sub> standards to account for widespread penetration of A/C credits.<sup>67</sup> EPA estimated that total-phase-in of alternative refrigerants would be completed by MY 2021.<sup>68</sup> This projection, however, was based on the expectation that manufacturers would change over to alternative refrigerants “at the time of complete vehicle redesign, which occurs about every 5 years.”<sup>69</sup> EPA indicated, however, that “it is not certain how widespread the transition to alternative refrigerants will be in the U.S., nor how quickly that transition will occur in the absence of requirements or strong incentives.”<sup>70</sup>

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<sup>63</sup> *Id.*

<sup>64</sup> *Id.*

<sup>65</sup> *Id.* at 62,720.

<sup>66</sup> *Id.* at 62,666.

<sup>67</sup> *Id.* at 62,270.

<sup>68</sup> *Id.* at 62,779, 62,806. We would note that current estimates of the per-vehicle cost to achieve HFC reductions average less than \$35.

<sup>69</sup> *Id.* at 62,806.

<sup>70</sup> *Id.* at 62,810. It should be noted that one subsequent regulatory program to transition from HFC-134a in MVACs was promulgated in 2015, but later successfully challenged in the D.C. Circuit. *Mexichem Fluor, Inc. v. EPA*, D.C. Cir. No. 15-1328. Pursuant to a mandate which issued on August 8, 2017, this rule was vacated and remanded to EPA.

## V. EPA Has Mandatory Duty to Address HFCs and Other GHGs in Current Rulemaking

EPA and NHTSA are proposing to set LDV standards that “only apply to fuel economy and CO<sub>2</sub>.”<sup>71</sup> EPA is proposing to “exclude air conditioning refrigerants and leakage, and nitrous oxide and methane GHGs from average performance calculations after model years 2021.”<sup>72</sup> Thus, the proposed rule would effectively reduce current LDV CO<sub>2</sub> g/mile standards by 13.8 g/mile equivalent for passenger cars and 17.2 g/mi equivalent for light trucks.<sup>73</sup> Most of this reduction is due to the exclusion of emissions from MVACs.<sup>74</sup> In addition to excluding non-CO<sub>2</sub> GHG emissions from calculation of the required LDV emission standard, the proposed rule also “flat lines” target CO<sub>2</sub> g/mile standards for all years 2020 and later.<sup>75</sup> Thus, at bottom, under the proposed regulatory text, EPA is proposing to regulate CO<sub>2</sub> and CO<sub>2</sub> only for the foreseeable future.<sup>76</sup>

EPA lacks legal authority to finalize a rule that only regulates CO<sub>2</sub> from LDVs. While NHTSA may have authority to base its fuel economy standard solely on the measure of CO<sub>2</sub> tailpipe emissions, a final rule that amends current EPA regulations to impose a “CO<sub>2</sub> only” standard impermissibly ignores directly applicable Supreme Court and D.C. Circuit precedents. Those precedents apply in several ways, including with respect to the lack of a reasoned explanation for changing LDV standards that have been in place for eight years. Nor do EPA and NHTSA address the substantial investments that have been made by private industry on the basis of two final joint rulemakings that were based on “harmonizing” all federal and state regulations in this area.

### A. Any final rule must address all GHGs emitted from LDVs.

That EPA has a mandatory duty to address GHGs from LDVs is well established. EPA determined in 2009 that six GHGs, including HFCs, endanger public health and the environment, in accordance with the Supreme Court’s decision in *Massachusetts v. EPA*.<sup>77</sup> Specifically, EPA defined “the ‘air pollutant’ referred to in CAA section 202(a) to be the mix of six long-lived and directly-emitted greenhouse gases: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>).”<sup>78</sup>

In *Massachusetts v. EPA*, EPA argued that it could not regulate CO<sub>2</sub> from motor vehicles because doing so would require it to tighten mileage standards. The Supreme Court flatly rejected this argument holding that while the Department of Transportation (“DOT”) sets mileage standards this fact “in no way licenses EPA to shirk its environmental responsibilities.

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<sup>71</sup> 83 Fed. Reg. at 43,191.

<sup>72</sup> *Id.* at 43,193, nt. 366.

<sup>73</sup> *Id.* at 43,194.

<sup>74</sup> EPA is also proposing to discontinue “counting” methane emission and N<sub>2</sub>O emissions as part of the existing CO<sub>2</sub> g/mile standards. Based on current regulations, these emissions would represent about 3-4 g/mile of an OEM’s overall required level of CO<sub>2</sub> emissions. *Id.* at 429.

<sup>75</sup> Proposed 40 C.F.R. §86.1818-12.

<sup>76</sup> *Id.* at (2)(i)(A)-(C); (3)(i)(A)-(D). The proposed regulatory text reflects the parameters described in Alternative 1.

<sup>77</sup> 74 Fed. Reg. 66,496 (Dec. 15, 2009).

<sup>78</sup> *Id.* at 66,497.

EPA has been charged with protecting the public’s ‘health’ and ‘welfare.’ 42 U.S.C. 7521(a)(1), a statutory obligation wholly independent of DOT’s mandate to promote energy efficiency.”<sup>79</sup>

In the proposed rule, EPA acknowledges this legal history, indicating that as a result of the endangerment finding and EPA’s definition of “air pollution” as including six different GHGs “section 202 requires EPA to issue standards applicable to emissions of *that air pollutant*.”<sup>80</sup> The problem is, having admitted that such a mandatory duty exists, EPA does not propose any action which would fulfill this duty. *None of the Alternatives under consideration by the agencies* (Alternatives 1-8)<sup>81</sup> address HFCs (or other non-CO<sub>2</sub> GHGs) or would provide any control or incentive program relative to HFCs past MY 2020. In addition, the proposed regulatory text prohibits converting N<sub>2</sub>O and methane emissions into a carbon equivalent metric after 2020.<sup>82</sup>

**i. EPA and NHTSA misrepresent the scope of the Endangerment Finding**

In providing the analytical underpinnings of the proposed rule, NHTSA and EPA misstate the scope of EPA’s endangerment finding. Specifically, the agencies indicate that:

EPA, having found that CO<sub>2</sub> endangers public health and welfare, [citing 74 Fed. Reg. 66,496, 66,518 (December 15, 2009)] must set CO<sub>2</sub> emissions standards for passenger cars and light trucks under section 202(a) of the Clean Air Act (CAA) (42 U.S.C. 7521(a)), and under its authority to measure passenger car and passenger car fleet fuel economy pursuant to EPCA.<sup>83</sup>

But EPA did not make a finding that CO<sub>2</sub>, standing alone, endangers public health and welfare. EPA determined in 2009 that “greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare.”<sup>84</sup> And in the same determination, EPA defined the “‘air pollution’ referred to in CAA section 202(a) to be the mix of six long-lived and directly-emitted greenhouse gases.”<sup>85</sup>

In *Massachusetts v. EPA*, the Supreme Court also did not reference a mandatory duty to set CO<sub>2</sub> standards; it explicitly referenced EPA’s duty with respect to GHGs:

Because greenhouse gases fit well within the Clean Air Act’s capacious definition of ‘air pollutant’ we hold that EPA has statutory authority to regulate the emission of such gases from new motor vehicles.

If EPA makes a finding of endangerment, the Clean Air Act requires the agency to regulate emissions of the deleterious pollutant from new motor

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<sup>79</sup> 127 S. Ct. 1438, 1462 (2007).

<sup>80</sup> 83 Fed. Reg. at 43,228 (emphasis added).

<sup>81</sup> 83 Fed. Reg. at 43,119-43,206.

<sup>82</sup> Proposed regulatory text at 40 C.F.R. §85.525(b)(iii).

<sup>83</sup> Preliminary Regulatory Impact Analysis at 5.

<sup>84</sup> 74 Fed. Reg. 66,497.

<sup>85</sup> *Id.*

vehicles . . . Under the clear terms of the Clean Air Act, EPA can avoid taking further action only if it determines that greenhouse gases do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion whether they do.<sup>86</sup>

To the extent that EPA and NHTSA are asserting a policy prerogative to “align” the agencies’ standards with respect to the emission of CO<sub>2</sub> from LDVs, the agencies may have latitude to do so, if such action has a reasonable basis. But the agencies cannot rewrite the 2009 Endangerment Determination in a proposed rule, nor represent that EPA’s only duty to address GHGs from LDVs is with respect to CO<sub>2</sub> emissions.

**ii. EPA has no discretion to set “CO<sub>2</sub> only” standards**

After *Massachusetts v. EPA*, multiple challenges were brought against EPA’s endangerment finding and CAA section 202(a) rules in the D.C. Circuit, including that EPA had discretion to not regulate GHGs from mobile sources on the basis of NHTSA’s authority to regulate fuel economy. But the D.C. Circuit held that “[t]he plain text of Section 202(a)(1) . . . negates Industry Petitioners’ contention that EPA had discretion to defer the Tailpipe Rule on the basis of NHTSA’s authority to regulate fuel economy.”<sup>87</sup>

EPA likewise cannot ignore HFC emissions from LDVs in the current rulemaking on the basis that the final rule will regulate CO<sub>2</sub>. Instead, EPA must consider HFCs as part of the GHG air pollutant being regulated. As explained by the D.C. Circuit:

The Supreme Court’s decision in *Massachusetts v. EPA* compels this interpretation of Section 202(a)(1). “If EPA makes a finding of endangerment, the Clean Air Act requires the [a]gency to regulate emissions of the deleterious pollutant from new motor vehicles.” 549 U.S. at 533 . . . In the Endangerment Finding, EPA determined that motor-vehicle emissions contribute to greenhouse gas emissions that, in turn, endanger the public health and welfare; the agency therefore was in no position to “avoid taking further action,” *id.*, by deferring promulgation of the Tailpipe Rule. Given the non-discretionary duty in Section 202(a)(1) and the limited flexibility available under Section 202(a)(2), which this court has held relates only to the motor-vehicle industry, *see infra* Part III.C, EPA had no statutory basis on which it could “ground [any] reasons for” further inaction, *Massachusetts v. EPA*, 549 U.S. at 535.<sup>88</sup>

EPA can point to no legal authority – and the proposed rule contains citation to none -- which allows the agency to not consider the regulation of HFCs and other non-CO<sub>2</sub> GHGs in this rulemaking. (In fact, in contrast to the preceding 2010 and 2012 rules and many other CAA rulemakings, the proposed rule contains *no* specific discussion of EPA’s and NHTSA’s legal authority; there is no stand-alone section that describes the scope of each agency’s authority). Simply promulgating a g CO<sub>2</sub>/mile standard (which would exclude consideration of HFCs, N<sub>2</sub>O

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<sup>86</sup> 127 S.Ct. at 1460 (2007).

<sup>87</sup> *Coalition for Responsible Regulation v. EPA*, F.3d 307 (2012).

<sup>88</sup> *Id.* at 330-331.

and methane after 2020) in order to obtain mathematical equivalence with NHTSA’s mpg standards does not provide a new statutory basis on which EPA can rely. Instead, the opposite is true: EPA has a mandatory duty under the CAA to consider the “air pollutant” from motor vehicles when exercising its CAA section 202 statutory authority which is not addressed within any of the proposed regulatory alternatives.

## **B. EPA cannot defer consideration to another rulemaking**

EPA indicates that it *may* undertake a separate rulemaking to address non-CO<sub>2</sub> emissions. EPA states it may “consider whether it is appropriate to initiate a new rulemaking to regulate [HFCs, N<sub>2</sub>O and methane] independently.”<sup>89</sup> EPA further states this new rulemaking “could include an effective date that would result in no lapse in regulation.” But EPA has not proposed, nor is it soliciting comment on such a rulemaking. Instead, the proposed rule indicates that EPA may move forward in a separate proceeding *only after it issues a final rule* based on this proposed rule.<sup>90</sup> EPA’s lack of clarity with respect to this further action provides no assurance that EPA will take action to meet its obligation to consider the non-CO<sub>2</sub> “air pollutant” from motor vehicles.

The highly tenuous and uncertain nature of this subsequent regulatory proceeding is highlighted by the fact that EPA states it will “publish an analysis of this alternative approach in a memo to the docket for this rulemaking.”<sup>91</sup> But EPA has not placed an analysis of an alternative approach in the docket. And it appears that the agency has no intention of conducting the analysis during the time period for public comment.<sup>92</sup> The statutory and technical basis for the alternative approach is essentially unknown.

As referenced *supra*, both EPA and NHTSA have acknowledged the multiyear design cycles used by OEMs and have otherwise accounted for this industry practice within their modeling. NHTSA has specifically indicated that:

Based on historical observations and refresh/redesign schedule forecasts, careful consideration to redesign cycles for each manufacturer and each vehicle is important. Simply assuming every vehicle is redesigned by 2021 and by 2025 is not appropriate, as this would misrepresent both the likely timing of redesigns and the likely time between the redesigns in most cases.<sup>93</sup>

Thus, deferring consideration of this issue would be inherently disruptive to manufacturers who have either planned to use and/or generate MVAC credits in future MYs coinciding with their design cycles.

Even if EPA were to concurrently propose and finalize a separate regulation affecting non-CO<sub>2</sub> emissions from LDVs, it is entirely unclear from the proposed rule how such a separate standard

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<sup>89</sup> 83 Fed. Reg. at 43,194.

<sup>90</sup> EPA states that “*If the agency moves forward with its proposal to eliminate these factors, EPA would consider whether it is appropriate to initiate a new rulemaking to regulate these programs independently . . .*” pdf at 429 (emphasis added).

<sup>91</sup> *Id.*

Telephone call with EPA, October 10, 2019.

<sup>93</sup> *Id.* at 43,015.

would apply or how compliance with this new standard would (or would not) be considered with regard to the g/mile CO<sub>2</sub> standard addressed in this rulemaking or how such a separate standard would impact OEM design cycles which have already been in progress for years.

Similarly, while NHTSA describes how that agency considers the energy efficiency impact of vehicles operating A/C systems, NHTSA does not analyze or take into consideration the emissions of HFCs or other non-CO<sub>2</sub> GHGs. While NHTSA allows vehicle manufacturers to generate credits “for improved A/C systems under EPA’s GHG program and receive a fuel consumption improvement value (FCIV) equal to the value of the benefit not captured on the 2-cycle test under NHTSA’s CAFE program,”<sup>94</sup> this credit does not include any consideration of the use of non-HFC refrigerants. And the credit itself is subject to a regulatory cap of 5.7 g/mile for cars and trucks through MY 2016 and 5.0 g/mile for cars and 7.2 g/mile for trucks for later MY vehicles.<sup>95</sup>

EPA and NHTSA’s failure to consider non-CO<sub>2</sub> GHGs in proposing alternatives for LDV standards in MY 2021 and later is clear error. And this error is manifest in that neither agency examines other alternatives to the “harmonization” of standards for MY 2022-2025 aside from its preferred CO<sub>2</sub> metric. As evidenced by NHTSA adoption of A/C crediting related to equipment in the 2012 rule (versus no crediting the 2010 rule) it is possible that the agencies could take other steps that would maintain EPA’s current standards for non-CO<sub>2</sub> emissions while bringing the CAFE and CAA programs into closer alignment. But there is no discussion of such steps or alternatives.

EPA also does not discuss or provide a rational explanation for the agency’s proposal to abandon eight years of regulating all GHGs emitted from LDVs following the agency’s determination of the GHG “air pollutant.” And NHTSA does not discuss why it cannot continue to implement a program that focuses on CO<sub>2</sub> and A/C efficiency and still maintain the harmonized approach that it has implemented under its EPCA authority since 2012. While EPA and NHTSA can adopt perspectives and implement policies that are different from those followed in the past, neither agency has unbounded discretion in this area. Instead, each agency was required to provide “a more detailed justification” for the changes where, as here, implementation of the previous policy has “engendered serious reliance interests that must be taken into account.” *FCC v. Fox Television Stations*, 556 U.S. 502, 515 (April 28, 2009), citing *Smiley v. Citibank* (South Dakota), N.A., 517 U.S. 735 (1996).

The potential consideration of such issues in a different rulemaking proceeding by one agency does not alleviate the burden on the agencies to provide a rational basis for the elimination of the current credit mechanism for HFCs and the current alignment of the EPA and NHTSA programs affecting LDVs. “[A]n agency changing its course by rescinding a rule is obligated to supply a reasoned analysis for the change beyond that which may be required when an agency does not act in the first instance.” *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 42 (1983). But the proposed rule is devoid of such analysis or explanation.

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<sup>94</sup> *Id.* at 43,052.

<sup>95</sup> *Id.* at 43,053.

Indeed, the “proposal is entirely *de novo*, based on an entirely new analysis reflecting the best and most up-to-date information available to the agencies at the time of this rulemaking.”<sup>96</sup> As discussed further below in Sections V.C.iii and VI.A, the modeling basis for determining the level of the proposed standards shifted from using EPA’s OMEGA model to NHTSA’s non-peer reviewed VOLPE model.<sup>97</sup> This shift in the underlying analytical basis for a rulemaking makes the absence of a reasoned analysis even more vital if the agencies determine to proceed with an alternative other than maintaining current EPA standards and finalizing NHTSA’s augural standards.<sup>98</sup>

**C. A Final Rule that does not address all GHGs cannot be justified on the basis of harmonization**

**i. Harmonization is not statutory requirement or goal.**

In 2010, EPA and NHTSA “set forth a carefully coordinated and harmonized approach to implementing [the CAA and EPCA], in accordance with all substantive and procedural requirements imposed by law.”<sup>99</sup> In the final rule establishing standards for MY 2012 to 2016, both EPA and NHTSA represented that:

[T]o the extent allowed by law, the agencies have harmonized many elements of program design, such as the form of the standard (the footprint-based attribute curves), and the definitions used for cars and trucks. They have developed the same or similar compliance flexibilities, to the extent allowed and appropriate under their respective statutes, such as averaging, banking, and trading of credits, and have harmonized the compliance testing and test protocol used for purposes of the fleet average standards each agency is finalizing. Finally, under their respective statutes, each agency is called upon to exercise its judgment and determine standards that are an appropriate balance of various relevant statutory factors. Given the common technical issues before each agency, the similarity of the factors each agency is to consider and balance, and the authority of each agency to take into consideration the standards of the other agency, both EPA and NHTSA are establishing standards that result in a harmonized National Program.<sup>100</sup>

The need to “harmonize” EPA and NHTSA’s program is not statutory. In the 2010 rule, EPA and NHTSA cited the “National Fuel Efficiency Policy” as the basis for establishing “consistent, harmonized, and streamlined requirements that would reduce GHG emissions and improve fuel economy for all new cars and light-duty trucks sold in the United States.”<sup>101</sup> The 2012 rule was designed to “build[ ] on the success of the first phase of the National Program for . . . model years 2012-2016.”<sup>102</sup> At the time, EPA and NHTSA noted that it was “[t]he two agencies’ standards

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<sup>96</sup> *Id.* at 42,987. (emphasis in text).

<sup>97</sup> *Id.* at 43,000.

<sup>98</sup> 49 U.S.C. §531.5

<sup>99</sup> 75 Fed. Reg. at 25,328.

<sup>100</sup> 75 Fed. Reg. at 25,328.

<sup>101</sup> *Id.* at 25,326.

<sup>102</sup> 77 Fed. Reg. at 62,626.

together than comprise the National Program.”<sup>103</sup> In other words, it was a melding of the two agencies’ statutory obligations, not a deference to either NHTSA’s or EPA’s statutory authority which provided the basis for the harmonized National Program.

Neither CAA section 202(a) (40 U.S.C. §7521(a)) or EPCA authority relied on in the proposed rule (49 U.S.C §§32902-3) have been amended since the 2012 final rule. Thus, the agencies cannot claim any new statutory basis under which one agency’s authority and prerogatives (*e.g.*, to set fuel economy standards) displaces another agency’s authority (*e.g.*, to set vehicle emission standards that are protective of human health and welfare). Instead, the proposed rule and the Alternatives presented are clearly based on the interests of making EPCA authority determinative of the scope of EPA’s CAA authority; the Alternatives propose that EPA’s current GHG standards should be substantially amended in order to yield to the scope of NHTSA’s available authority under EPCA, all in support of the vague and unsupported goal of EPA and the CAA “harmonizing with the CAFE program.”<sup>104</sup>

**ii. EPA and NHTSA have not demonstrated need for further harmonization regarding MVAC refrigerants**

EPA is proposing to “exclude air conditioning refrigerants and leakage . . . from average performance calculations after model year 2020”<sup>105</sup> as well as to end current credits that facilitate compliance with this standard. But it is abundantly clear such action is not required as a practical matter since NHTSA and EPA have already taken steps under current standards to achieve harmonization with respect to such standards and credits. These past efforts are reflected within the Preliminary Regulatory Impact Analysis for the proposed rule:

Since EPA established its GHG program for light duty vehicles, NHTSA and EPA sought to harmonize their respective standards, despite separate statutory authorities limiting what the agencies could and could not consider. For example, for MYs 2012-2016, NHTSA was unable to consider improvement manufacturers made to passenger car A/C efficiency in calculating compliance. At that time, NHTSA stated that the agency’s statutory authority did not allow NHTSA to provide test procedure flexibilities that would account for A/C system and off-cycle fuel economy improvements. Thus, NHTSA calculated its standards in a way that allowed manufacturers to comply with the CAFE standards using 2-cycle procedures alone.

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[Starting with MY 2017], NHTSA considered off-cycle technologies and A/C efficiency improvements when assessing compliance with the CAFE program. Accounting for off-cycle technologies and A/C efficiency improvements to NHTSA’s program, the agency was able to harmonize with EPA, which began accounting for these features in earlier GHG regulations.<sup>106</sup>

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<sup>103</sup> *Id.* at 62,628 (emphasis added).

<sup>104</sup> 83 Fed. Reg. at 42,988.

<sup>105</sup> *Id.* at 43,193, nt. 366.

<sup>106</sup> Regulatory Impact Analysis at 1587.

To be clear, the above-referenced information from the Preliminary RIA references A/C technologies and efficiency programs and does not encompass emission reductions due to the use of alternative refrigerants (leakage). But what it does demonstrate is that: (a) EPA and NHTSA have already taken steps to harmonize standards in the area of MVACs; and (b) the concept of “harmonization” is a two-way street. Steps can be taken by both agencies – as they have through the 2010 and 2012 final rules – to align vehicle standards with NHTSA’s and EPA’s statutory authorities. Any perceived need to harmonize regulations does not *in and of itself* provide a rationale for eliminating currently available credit mechanisms for refrigerants or point the agencies in any particular direction regarding which way to harmonize EPA and NHTSA standards. And in no circumstance can policy prerogatives trump black letter law requirements of the CAA and EPCA.

**iii. NHTSA has responsibility to consider EPA standards as a whole**

Under EPCA, when “deciding maximum feasible average fuel economy . . . [NHTSA] shall consider technological feasibility, economic practicability, *the effect of other motor vehicle standards of the Government on fuel economy*, and the need of the United States to conserve energy.”<sup>107</sup> EPA standards for MY 2021 through MY 2025 are now in effect and therefore NHTSA must affirmatively consider the effect of the existing EPA *standards*, not the effect of individual elements of the EPA standards, such as the control of CO<sub>2</sub>.

The need to consider EPA GHG standards is even more evident in a situation where, as here, NHTSA does not have enforceable standards for MY 2021 and later MYs. In the 2012 rulemaking, NHTSA issued “augural” standards based on a lack of authority to set standards beyond five years duration.<sup>108</sup> But these standards are non-binding and have no legal effect, as evidenced by NHTSA’s implementation of a “de novo” review. Conversely, EPCA directs NHTSA to consider the effect of EPA’s LDV standards when determining the basis for its own standards, *e.g.*, the “maximum feasible average fuel economy” that is available. NHTSA appears to have not completed this task.

Instead, NHTSA examined MY 2016 vehicle model offerings and used the CAFE model to add technology to this base fleet.<sup>109</sup> The CAFE model “is the primary tool used by [NHTSA] to evaluate potential CAFE stringency levels by applying technologies incrementally to each manufacturer’s fleet until the requirements under consideration are met . . . [t]he model uses estimates of the effectiveness of specific technologies for a representative vehicle in each vehicle class, and arranges technologies in decision trees defining logical progressions from lower to higher levels of cost, complexity, development requirements and/or implementation challenges.”<sup>110</sup>

NHTSA fails to explain how the CAFE simulation tool, designed to assess “requirements under consideration” takes into account EPA’s standards when determining various alternatives and

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<sup>107</sup> 49 U.S.C. §32902(f) (emphasis added).

<sup>108</sup> *Id.* at (b)(3)(B).

<sup>109</sup> 83 Fed. Reg. at 42,994.

<sup>110</sup> *A Detailed Vehicle Simulation Process to Support CAFE Standards*, Argonne Nat’l Lab., March 22, 2018 at 21. EPA-HQ-OAR-2018-0283-0033.

indeed, NHTSA did not do so. Current EPA standards were only represented as a base case, “no action” alternative and an “updated” no action alternative; EPA standards were not considered with respect to any regulatory alternative which the agencies are considering or within the “preferred alternative” that the agencies selected.

From what can be discerned from the proposed rule, when constructing alternatives to current standards the agencies excluded any consideration of non-CO<sub>2</sub> emissions (such as the consideration of HFCs in relation to their carbon equivalency) on the basis that such GHGs are not measured through CO<sub>2</sub> tailpipe tests and thus are “not relevant to the CAFE program.”<sup>111</sup> But there is no discussion within the proposed rule as to why the agencies would exclude from consideration governmental standards which are required, pursuant to CAA section 202(a), to address “air pollution” from mobile sources. NHTSA is charged with assessing “the effect of other motor standards . . . on fuel economy” but the Agency focused solely on other CAFE standards, not other possible EPA standards.

When addressing its statutory obligation to examine “other motor vehicle standards of the Government” NHTSA cannot conduct such a one-sided, cursory review. The fact that the agencies considered no other level of stringency with respect to current form of EPA standards is a fundamental fault in the analysis underlying the proposed alternatives. No assessment was done as to whether such standards could be made less stringent in order to avoid the various issues identified (*e.g.*, changes in technology since the 2012 final rule, costs to consumers, the effect of “diminishing returns,” a changed petroleum market and other factors).<sup>112</sup> This is plainly arbitrary and capricious.

## **VI. EPA and NHTSA Do Not Provide a Reasoned Explanation for Not Addressing GHGs Other than CO<sub>2</sub>**

EPA provides no discussion of why the proposed alternative standards are appropriate and reasonable under the CAA in view of the agency’s 2009 finding that the emissions of six GHGs in combination, not CO<sub>2</sub> alone, may “reasonably be anticipated” to endanger both public health and public welfare.<sup>113</sup> Instead, EPA’s discussion of the basis for the proposed CAA standards in Section V.B.1.- B.2. of the preamble is problematic, to say the least. While discussing the historical basis of its previous standards (based on the regulation of four GHGs over 14 model years, from MY 2012 to MY 2025) EPA ignores the fact that it is proposing to alter these standards by concentrating solely on one GHG. There is no “reasoned explanation” as to why EPA is abandoning the regulatory system that it has implemented for the past eight years. Providing a sufficient rationale for changing the position of an agency is not optional, but rather mandated by the Supreme Court in *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29 (1983) (“*State Farm*”).

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<sup>111</sup> In the RIA for the proposed rule, this bias towards CAFE standards is stated bluntly. In ----, ” Notably, however, manufacturers cannot claim CAFE-related benefits for reducing A/C leakage or switching to an A/C refrigerant with a lower global warming potential, because while these improvements reduce GHGs consistent with the purpose of the CAA, they generally do not relate to fuel economy and thus are not relevant to the CAFE program. RTC at 1586, nt. 967.

<sup>112</sup> 83 Fed. Reg. at 42,990-94.

<sup>113</sup> 74 Fed. Reg. at 66,497.

In ignoring non-CO<sub>2</sub> GHGs, EPA and NHTSA have also “entirely fail[ed] to consider an important aspect of the problem,” Specifically, EPA asserts that Alternative 1, which does not address HFCs or any non-CO<sub>2</sub> GHG, “represents the most appropriate standard for model years 2021 and beyond . . .”<sup>114</sup> But EPA does not provide any explanation as to how it considered the effect of not controlling HFCs, N<sub>2</sub>O and methane in determining Alternative 1 to be the “most appropriate” standard under its CAA authority.

**A. EPA impermissibly considered non-statutory factors**

What rationale EPA does provide for determining that Alternative 1 provides the “most appropriate standards” is, for the most part, a brief discussion of statutory and non-statutory factors that EPA has claimed to consider in reaching its decision to abandon its former rule in favor of Alternative 1. But nowhere in this discussion does EPA provide an explanation as to why, in 2018, it is not required to address the air pollutant subject to regulation under CAA section 202(a) when it has consistently regulated this air pollutant from 2012 to 2018.

EPA does not have authority to defer to NHTSA’s statutory criteria, or to do so without a fulsome explanation of why such deference is appropriate now when it was not appropriate in the past. But in promoting Alternative 1 as the main proposal, EPA appears to have done just that. Moreover, as demonstrated below, EPA has not addressed all of the statutory factors that it must address in a CAA section 202(a) rulemaking, while at the same time it has considered different and additional non-statutory factors. Again, there is no explanation provided for this fundamental change in EPA’s approach to LDV GHG standards.

A list of factors that EPA states it <i>must</i> consider when setting standards under CAA section 202(a) <sup>115</sup>	A list of factors that EPA actually <i>did</i> consider when proposing Alternative 1 as the “most appropriate” standard under CAA section 202(a) <sup>116</sup>
Technology effectiveness of approaches to controlling GHGs <sup>117</sup>	Technology effectiveness of approaches to controlling CO <sub>2</sub> and improving fuel economy <sup>118</sup>
Cost (per vehicle, per manufacturer, per consumer)	Cost (per vehicle, per manufacturer, per consumer)

<sup>114</sup> 83 Fed. Reg. at 43,229.

<sup>115</sup> EPA lists these statutory factors and relevant considerations. 83 Fed. Reg. at 43,227-8.

<sup>116</sup> 83 Fed. Reg. at 43,229-32.

<sup>117</sup> EPA states flatly that it has “no discretion to decline to issue greenhouse gas standards under section 202(a) or to defer issuing such standards due to NHTSA’s regulatory authority to establish fuel economy standards.” *Id.* at 43,227.

<sup>118</sup> “For today’s proposal, EPA takes note of the analysis of the potential penetration into the future vehicle fleet of a wide range of technologies that both reduce CO<sub>2</sub> and improve fuel economy.” *Id.* at 43,229.

	Consideration of consumer choice as reflected by projected level of hybridization and associated vehicle costs <sup>119</sup>
Lead time necessary to implement technology	EPA considered “wide range of potential emission standards” and determined that existing standards as a whole were “too stringent” <sup>120</sup> EPA did not consider whether allowing additional lead time would address the deficiency.
Feasibility and Practicability of Standards	After considering statutory and non-statutory factors, EPA asserted that MY 2020 standards were “an appropriate approach under section 202(a)” <sup>121</sup>
Impacts of potential standards on emissions reductions of both GHGs and non-GHGs	Impacts of vehicle CO <sub>2</sub> emissions on lifetime of vehicles produced from 1979 to 2029 <sup>122</sup>
Impacts of standards on oil conservation and energy security <sup>123</sup>	The preliminary regulatory impact analysis reviewed anticipated <i>increase</i> in U.S. fuel and petroleum demand; considered that increase could result in transfer within economy when consideration given to increased U.S. production. <sup>124</sup>
Impact of standards on fuel savings by consumers	Impact of standards on fuel savings by consumers <sup>125</sup>
Impacts of standards on auto industry	Impacts of standards on auto industry

<sup>119</sup> *Id.* at 43,230.

<sup>120</sup> *Id.* at 43,231.

<sup>121</sup> *Id.* at 43,232.

<sup>122</sup> *Id.* at 43,230. The analysis estimated annual GHG emissions “under the CO<sub>2</sub> standards defined by each regulatory alternative . . .” *Id.* nt. 477.

<sup>123</sup> *Id.* at 43,227.

<sup>124</sup> Preliminary Regulatory Impact Analysis at 1076. A change in petroleum prices is expected to range from \$0.074 to \$0.258 in 2025. *Id.* at 1081.

<sup>125</sup> Defined with respect of consumer willingness to pay over 30 months. *Id.* at 7.

Impact on safety	Impact on safety <sup>126</sup>
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While EPA may consider the full range of *impacts* from the regulatory decisions that it makes, it is limited in the number of factors that it may consider in *setting* regulatory standards. Fundamentally, EPA cannot “weigh” non-statutory factors as against statutory factors when deciding how it will exercise its legal authority over mobile source emissions. But this is exactly what it appears to have done in selecting Alternative 1 as the most appropriate CAA section 202(a) standard.

In the proposed rule, EPA disclaims any need to consider the “greatest degree of emission reduction achievable” on the basis that this is not an explicit criterion in CAA 202(a)(1).<sup>127</sup> This statutory observation is correct, but this criterion is explicit in CAA section 202(a)(3) regarding standards for heavy-duty vehicles. What EPA does not explain is how it can assess factors with no statutory basis in the CAA when setting standards, yet take issue with reference to a criterion contained in the CAA for a different class of vehicles.

Overall, the Administrator in advancing Alternative 1 as the preferred alternative indicates that he gave “particular consideration to the high projected costs of the standards and impact of the standards on vehicle safety.”<sup>128</sup> But there is no analysis as to how EPA balanced such considerations as against other statutory factors he was required to assess, nor why additional emissions from LDVs for the foreseeable future constitute an acceptable trade-off. Instead, NHTSA and EPA used the CAFE model which was explicitly *constrained by limits on NHTSA’s and not EPA’s statutory authority*.<sup>129</sup> Even if EPA has discretion in this area, and it may not, EPA must explain why any statutory factors may have been outweighed by other factors stemming from the limits on NHTSA’s authority.

**B. EPA and NHTSA provide no evidence of “market distortion” resulting from current MVAC credit program**

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<sup>126</sup> It should be noted that the safety analysis was performed differently for the 2010 and 2012 rules and the proposed rule. The proposed rule examined the increase in fatalities due to several reasons, such as increased vehicle prices resulting in delayed turnover of the vehicle fleet to newer, safer vehicles, increased fatalities due to the rebound effect, and passenger car mass reduction. 83 Fed. Reg. at 43,107, 43, 139, 43,143.

<sup>127</sup> The proposed rule argues that EPA is not required to set technology-forcing standards on the basis that statutory language requiring the “greatest reduction” only applies to heavy-duty vehicles and not light duty vehicles. 83 Fed. Reg. at 43,229, n. 476. This same section, however, requires EPA in setting heavy duty standards to give “appropriate consideration” to safety, a factor which EPA *does* consider in setting a CO<sub>2</sub>-only standard. EPA does not explain why it would adopt a different approach as between vehicles that are regulated under the CAA while at the same time consider a factor which is not explicit within LDV standards. This is not to argue against the consideration of safety in setting LDV standards, only to observe that EPA is inconsistent in its rationale for what factors it will or will not consider in setting LDV standards.

<sup>128</sup> *Id.* at 43,231.

<sup>129</sup> For example, NHTSA is prevented from considering the use of credits in setting standards or considering the production of alternatively fuel vehicles. *Id.* at 43,212.

In the beginning of the lengthy preamble for this proposed rule it is claimed that “compliance flexibilities . . . [i]f poorly constructed . . . may create significant potential for market distortion. . .”<sup>130</sup> MVAC credits for new refrigerants are not specifically identified in the preamble’s brief discussion of market distortions, but if such credits are considered to be a compliance flexibility, they must be considered distinct from other credit mechanisms that have been employed with respect to GHG standards and fuel economy measures.

First, reductions in GHGs from the use of refrigerants other than HFC-134a are highly cost-effective. EPA estimated in 2012 that the average per-vehicle cost impact in MY 2025 from air conditioning refrigerant substitution would be \$68,<sup>131</sup> making MVAC refrigerant credits among the cheapest emission reductions the Agency estimated could be achieved by new motor vehicles. (And the cost of substituting refrigerants has only decreased since that time, with the per-vehicle cost now averaging less than \$35 for conversion to HFC-1234yf). Second, it is important to remember that flexibilities and credits that NHTSA could not consider under its EISA (such as MVAC refrigerant credits) were *not included* within the stringency of the resulting CAFE standards, thus resulting in no “distortion” of that program. Third, the credits available for refrigerants are not open-ended, they are specifically capped at 13.8 and 17.2 g/mile for car and trucks, respectively.<sup>132</sup> And there is no additional adjustment allowed to such credits on the basis of any impact of refrigerants on efficiency.<sup>133</sup>

Finally, and perhaps most significantly for the purposes of examining any market distortion, the calculation of MVAC refrigerant credits is roughly equivalent to the difference in stringency of the final GHG standards on a carbon-equivalent basis.<sup>134</sup> Thus, rather than remove a market distortion that provides “unjustified” incentives, the MVAC refrigerant program is a highly efficient means of both pursuing reductions in GHG emissions while retaining maximum flexibility for those who must comply with the standards. It is distinctly different in form and substance from credit “multipliers” and other measures that may be intended to provide substantial incentives for the introduction of specific technologies, conceivably to the detriment of others.

EPA and NHTSA have provided no consideration of these factors in the proposed rule, nor have they articulated precisely how market distortion occurs with respect to the current MVAC refrigerant credits. The lack of such an explanation could be viewed as especially critical when the change being proposed – elimination of credits for MVAC refrigerants – removes one of the lowest cost compliance options available to regulated entities at the same time the Administrator is giving “particular consideration to the high projected costs of the standards.”<sup>135</sup>

Given that the automotive industry operates on a nearly seven-year design cycle and all previous EPA statements since 2010 have reinforced the viability of the MVAC refrigerant credits, the

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<sup>130</sup> *Id.* at 43,441.

<sup>131</sup> 77 Fed. Reg. at 62,667.

<sup>132</sup> *Id.* at 62,649, nt. 83

<sup>133</sup> *Id.* at 622,725.

<sup>134</sup> The credits were based on leakage; credits for use of alternative refrigerants were calculated to be twice that achieved through the maximum feasible leak prevention rate plus 9%. See September 2009 Draft Regulatory Impact Analysis for 2010 proposed rule at 2-8-2-9.

<sup>135</sup> 83 Fed. Reg. at 43,231.

sudden withdrawal of these credits without justification would actually create, rather than resolve, a significant market distortion, disadvantaging those OEMs which have already used or made significant plans to use these credits in their vehicle production and stranding investments made by chemical manufacturers, OEMs and others through the entire automotive value chain.

## **VII. OEMs, Refrigerant Suppliers and Other Vendors Have Relied on Credit System**

The Center for Automotive Research reported in 2017 that the Vehicle Platform Lifecycle currently averages approximately 6.7 years.<sup>136</sup> This means that OEMs and their suppliers are already working on the replacement platform for current vehicle offerings nearly 7 years before their introduction. This design cycle must necessarily account for all the equipment and performance requirements of a vehicle, including those imposed by regulation. Since technology options that are necessary for compliance have already been incorporated into design plans for vehicles years before their commercial production, any sudden change in regulatory structure creates turmoil not only for automakers but also for the suppliers who are asked to develop products and technologies to support of future vehicle designs.

As a case in point, automakers approached DuPont Fluorochemicals (now part of Chemours) years ago to request that we install production capacity in North America to support their compliance with CAFE and GHG standards. For chemical manufacturers, it takes several years to develop the basic data for chemical plant design and another 2-3 years to construct and start up a plant. Similarly, other suppliers to the automotive industry (*e.g.*, air conditioning system suppliers, hose manufacturers, lubricant suppliers) undertook development programs years ago to develop solutions to support automaker requests with regard to low GWP refrigerants and the ability to use such refrigerants as a compliance option. All of these actions relied on the ability to generate credits for compliance with standards that addressed MVAC refrigerants, an ability which had been reinforced by EPA statements on numerous occasions since 2010.

## **VIII. Considering Refrigerants in Setting Standards or Providing Credits Does Not Result in “Disharmonized” Program**

In *Massachusetts v. EPA*, the Supreme Court plainly stated that both EPA and NHTSA could administer their statutory responsibilities, while avoiding inconsistency. EPA’s decision to reconsider its previous, 2017 Mid-Term Evaluation of GHG emission standards and to make a new determination regarding such standards does not change this fact.<sup>137</sup> In two previous rulemakings, EPA and NHTSA have avoided inconsistency; both the 2010 and 2012 rules established a National Program for LDV GHG standards. Nothing in the administrative record disputes this history or cites to specific instances where the implementation of MY 2012-2020 standards has resulted in administrative difficulty in implementing the two programs.

EPA and NHTSA have also not identified any reason why controlling HFCs, N<sub>2</sub>O, CH<sub>4</sub> and/or providing emission credits related to these pollutants is incompatible with controlling fuel economy through the emission of CO<sub>2</sub> in the NHTSA program. Previous rules successfully accounted for the differential in stringency between the CO<sub>2</sub> g/mile standards and CAFE mpg

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<sup>136</sup> See <https://www.cargroup.org/automotive-product-development-cycles-and-the-need-for-balance-with-the-regulatory-environment/>

<sup>137</sup> 83 Fed. Reg. 16,077(Apr. 13, 2018).

standards while maintaining a basic alignment of the two different standards and imposing no additional burden on NHTSA and a minimal burden on regulated parties (balanced by the flexibility allowed by the credit system). While it is true that EPA standards have been somewhat more stringent when compared to NHTSA regulations when measured against a mpg metric; the opposite is also true, NHTSA standards are less stringent when compared with EPA's CO<sub>2</sub> g/mile standards. Thus, finalizing any of the eight alternative standards will increase the "disharmonization" of the MY 2021-2025 standards as compared with the functioning of current program.

EPA and NHTSA recently issued what it described as a "correction" notice for the proposed rule.<sup>138</sup> In this notice, the agencies recalculated emission standards that would apply in MY 2021 and later model years. For passenger automobiles with a footprint of less than or equal to 41 square feet, a 182 g/mile standard will apply in MY 2021 versus a 166 g/mile standard in the proposed rule.<sup>139</sup> This represents an increase in level of the standard (*i.e.*, a *decrease in the stringency* of MY 2021 and later MY standards) of approximately 9.1%. A similar adjustment is made for larger automobiles with a footprint over 56 square feet (*i.e.*, an increase in level of the MY 2021 (and later MY) standard of 18 g/mile, or approximately a 9.3% decrease in stringency). Other adjustments, all the same direction and of same relative magnitude, are proposed to be implemented with respect to different sized automobiles and light duty trucks.

This change in the proposed rule has several impacts. First, since the proposed MY 2021 standards are effective not only for that MY, but for MY 2022, MY 2023, MY 2024 and MY 2025, the decrease in stringency in EPA's existing standards will only grow over time. For example, imposing 182 g/mile standard for passenger automobiles less than or equal to 41 square feet in MY 2025 represents an increase in the current standard of 51 g/mile, or a decrease in stringency of approximately 28%. Again, similar calculations can be made for all other sizes of automobiles and light trucks that will be subject to a final rule.

EPA and NHTSA claim that these changes in the stringency of EPA's existing standards are "clerical corrections"<sup>140</sup> In fact, the changes impose a standard for MY 2021 and later years that was not contained in the proposed rule's regulatory text. But in addition to this flaw, decreasing the stringency of EPA's current standards further exacerbates the issues created by proposing to disallow credits to be generated for MVAC refrigerants after MY 2020. In essence, by decreasing the stringency standards and, at the same time, "excluding credits for direct A/C emissions" the value of currently banked credits is diminished. Companies that have generated credits through "early" and continuing adoption of new MVAC refrigerants will find their investments devalued.

More broadly, the proposal to substantially revise the credit market upsets the expectations of those who have brought alternative refrigerants to market and who have designed and manufactured new MVAC equipment and supplies. Actions taken to comply with the current regulatory structure date back many years and plans to comply with the existing standards span many years into the future. All of these actions were based on the reasonable expectations of

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<sup>138</sup> 83 Fed. Reg. 53,204 (Oct. 22, 2018).

<sup>139</sup> 83 Fed. Reg. 43,494, Table 1.

<sup>140</sup> 83 Fed. Reg. at 53,204.

how MVAC credits could be generated and used. These plans and expectations will now be upset without any discernable “benefit” with regard to the harmonization of the program. From an implementation standpoint, OEMs will still need to comply with separate NHTSA and EPA LDV programs contained in separate titles of the Code of Federal Regulations and subject to different enforcement mechanisms. The only “change” will be that all market participants will now be highly uncertain as to how HFCs will be addressed in the future, how previously generated credits may or may not be used, and how their long-term investments in new technology and refrigerants will or will not be realized.

## **IX. Conclusion**

EPA failed to meet its statutory duty to consider and promulgate standards for the GHGs that are currently controlled under the CAA. EPA cannot redefine the “air pollutant” emitted from LDVs to be CO<sub>2</sub> rather than the mix of six greenhouse gases that was the subject of its 2009 endangerment determination and all subsequent regulations affecting LDVs. And, even if EPA had such authority, the agency failed to explain why it is proposing to fundamentally change the scope of its current LDV regulations, why previous determinations of such standards in 2010 and 2012 are no longer applicable in MY 2021 or later MYs and how the proposed standards further the policy goal of “harmonization” better than EPA and NHTSA standards that have been successfully implemented over the last eight years.

Given the breadth of such statutory and procedural flaws, EPA and NHTSA should only promulgate an alternative to the current program if it includes a mechanism to address MVAC refrigerants. The most efficient way to do this would be through retention of the current credit system for refrigerants which allows regulated parties the ability to flexibly comply with LDV standards, specifically credits available to address “leakage” of refrigerants including credit for use of low-GWP refrigerants.

As detailed at the beginning of these comments, Chemours has invested nearly \$1 billion in research, testing and production facilities to develop and market new MVAC refrigerants on the basis of clear regulatory standards which contemplate a transition to low-GWP refrigerants. These investments were driven both by an increase in required GHG reductions over time and a credit system which allowed OEMs to flexibly meet such standards according to their own business plans and when changes to A/C systems were most appropriate for each make and model of their fleet.

A wide variety of other vendors and suppliers to the OEMs have also invested resources and developed technology to efficiently use a new generation of MVAC refrigerants. Given the scope and breadth of such investments and the multiyear planning cycles used in automotive industry, EPA and NHTSA cannot justify regulatory changes on the basis undefined “market distortion.” Instead, the opposite is true. Abruptly terminating MVAC refrigerant credits threatens to strand investment and create near-term market disruptions that undermine the U.S. manufacturing base.

Finally, there is simply no proof that existing MY 2021-2025 standards resulted in a “disharmonized” system of EPA and NHTSA regulation. Rather, what experience shows is that the current, coordinated program has allowed a single vehicle to meet both EPA and NHTSA

standards nationwide. While EPA and NHTSA can and should consider whether the stringency of current standards needs to be revised, there is no need and there is no explanation for imposing what, at best, would be dual systems for regulating the same vehicle based on CO<sub>2</sub> and other GHGs.