



Competitive Enterprise Institute

Free Markets and Limited Government

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National Highway Traffic Safety Administration (NHTSA)
Environmental Protection Agency (EPA)

By electronic delivery to: a-and-r-docket@epa.gov

Re: Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, Docket ID No. NHTSA–2010–0079 and/or EPA–HQ–OAR–2010–0162

Contact Information:

Name: Marlo Lewis, Ph.D.

Organization: Competitive Enterprise Institute

Address: 1899 L Street NW, 12th Floor, Washington, D.C. 20036

Tel.: 202-669-6693

Email: mlewis@cei.org

On behalf of the Competitive Enterprise Institute (CEI), a non-profit public policy group specializing in regulatory issues, I respectfully submit this comment letter on EPA and NHTSA's proposed rule, *Greenhouse Gas Emissions Standards and Fuel Efficiency standards for Medium- and Heavy-Duty Engines and Vehicles*.¹

This comment letter develops the following points:

1. Although the ostensible purpose of the rule is to reduce greenhouse gas emissions and oil imports, the overwhelming lion's share of the claimed benefits – fuel savings for truckers – have nothing to do with either climate change or energy security.
2. EPA and NHTSA provide no solid evidence that the trucking industry's alleged "under-investment" in fuel-saving technology is due to market failure. In fact, two of the agencies' five "potential hypotheses" suggest that truckers are simply behaving like prudent buyers.
3. EPA and NHTSA ignore a more credible and obvious explanation of lagging heavy-truck fuel economy. EPA's diesel-engine emission standards, both by directly reducing the fuel efficiency of diesel engines, and by crowding out fuel economy-related R&D investment

and consumer spending, created the problem the agencies now seek more power over industry to solve.

I. The proposed rule's climate and energy security benefits are miniscule at best and completely unverifiable.

The proposed standards, which phase in during model-years 2014–2018, apply to three types of heavy duty (HD) vehicles: (1) “combination tractors” (semi-trucks), (2) large pickups and vans, and (3) “vocational trucks” (a wide-ranging assortment of trucks and buses). The agencies estimate that the technologies needed to comply with the proposed standards will cost \$7.7 billion but that the rule will generate \$27 billion or \$41 billion in net benefits (depending on whether future benefits are discounted at 7% or 3%).²

Although the ostensible objective of the rule is to reduce greenhouse gas (GHG) emissions and oil imports, *the overwhelming lion's share of the claimed benefits – fuel savings for truckers – has nothing to do with either climate change or energy security.* For example, based on the unverifiable assumption that each ton of carbon dioxide (CO₂) emitted has a “social cost” of \$22-\$46, the agencies attribute only \$2.3 billion — about 6% — of the rule's net benefits in 2030 to its CO₂ reductions and climate impact.³

The agencies' press release crows that the standards will reduce GHG emissions by 250 million metric tons (mmt) and save 500 million barrels of oil over the lives of vehicles manufactured during the program's first five years (2014-2018).⁴ Such tiny changes can have no detectable effect on the alleged perils of either global warming⁵ or oil import dependence.⁶

Let's put those numbers in perspective. The agencies consider 10 years to be the “useful life” of medium- and heavy-truck engines.⁷ U.S. emissions topped 7,000 mmt in 2008,⁸ so cumulative U.S. emissions over a 10-year period are likely to be at least 70,000 mmt. Cutting HD vehicle emissions by 250 mmt would reduce total U.S. emissions by a mere 0.7%. The climate change “benefit,” if any, would exist only on paper. There would be no discernible evidence of it in the real world.

EPA's calculations implicitly confirm this. By 2100, the proposed GHG standards are estimated to reduce atmospheric CO₂ concentration by 0.732 parts per million, which in turn is estimated to avert 0.002-0.004°C of global warming and 0.012-0.048 centimeters of sea-level rise.⁹ Such changes would be too small for scientists to distinguish from the “noise” of natural climate variability.

NHTSA estimates that its fuel economy standards will reduce oil imports by 0.177 million barrels per day (bpd) in 2020 — about 65 million barrels lower than the baseline projection for that year.¹⁰ The U.S. imported 4,267 million barrels in 2009,¹¹ so the rule would avoid the equivalent of about 1.5% of current oil imports. Note that oil demand and imports may fluctuate by substantially more than that from year-to-year. For example, from 2008 to 2009, U.S. oil imports declined by 460 million barrels. Has this fluctuation materially weakened Al Qaeda, the Iranian Mullahs, or the Taliban? The rule's national security benefit is undetectable and symbolic

– even if one accepts the premise that oil import dependence is an important measure of national security.

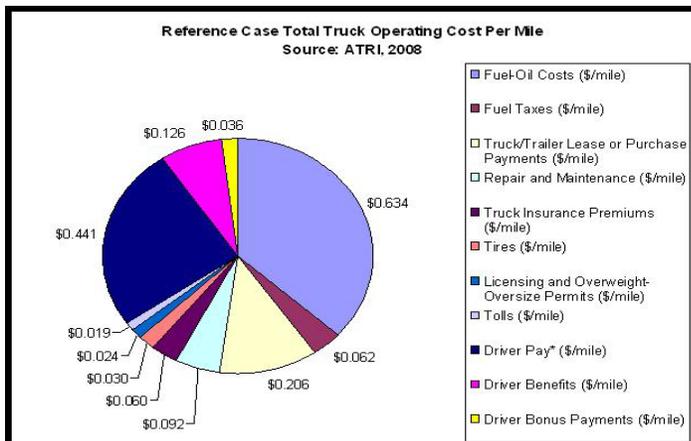
In reality, the relationship between energy security and oil import dependence is a lot less straightforward than conventional wisdom suggests. Net oil imports account for well over half of current U.S. petroleum consumption. The proposed rule will not get us even close to where things stood in 1973, when oil imports accounted for 35% of U.S. consumption.¹² A few simple questions should help put things in perspective: Was 1973 a good year for peace in the Middle East?¹³ Was it a time when OPEC was a shy and retiring actor on the world stage?¹⁴ Was it an innocent age that knew not hijackings, bombings, and the rise of international terror organizations?¹⁵ No, no, and no. The notion that EPA and NHTSA can make America safer by engineering a downtick in U.S. petroleum imports defies history and logic.

In terms of its stated rationales (mitigate climate change and enhance U.S. energy security), the proposed GHG/fuel economy rule is an empty suit.

II. The proposed rule implies that truckers, like children, are incapable of discerning and/or pursuing their own best interest.

If the proposed rule will have no detectable effect on climate change or national security, what is the point? The new standards will save truckers a bundle of money, EPA and NHTSA contend. According to their calculations, the rule will compel industry to invest \$7.7 billion in fuel-saving technologies,¹⁶ which will cut fuel consumption by 500 million barrels, which will save truckers \$28 billion (assuming a 7% discount rate) or \$42 billion (assuming a 3% discount rate). In the agencies' words, "the application of fuel-saving technologies in response to the proposed standards would, on average, yield private returns to truck owners of 140% to 420%."¹⁷

Now, this should immediately raise a red flag. Trucking companies are in business to make money. As the agencies acknowledge, "Unlike in the light-duty vehicle market, the vast majority of vehicles in the medium- and heavy-duty truck market are purchased and operated by businesses with narrow profit margins, and for which fuel costs represent a substantial operating expense."¹⁸ Indeed, for many truckers, fuel is the single biggest operating expense.¹⁹



Clearly, nobody has a keener incentive to reduce fuel expenditures and make cost-effective investments in fuel-saving technology than people who haul freight for a living. If every dollar invested to improve fuel economy yields returns of 140% to 420%, why aren't truckers already making those investments? If the agencies' recommended package of fuel-saving technologies is such a great bargain, why do truckers need a regulation compelling them to buy it? The proposed rule implies that truckers, like children, are incapable of discerning and/or pursuing their own best interest.

III. The agencies' "potential hypotheses" neither demonstrate market failure nor persuasively explain the "paradox" of "under-investment."

EPA and NHTSA don't put things that way, of course. They offer five "potential hypotheses" drawn from economics literature to explain why trucking companies "under-invest" in fuel economy.²⁰ None of these explanations provides solid evidence of "market failure." In fact, some suggest that truckers are just behaving like prudent buyers. Let's look at each in turn.

(1) Inadequate or Unreliable Information in the Original Sales Market. One possible reason for the supposed under-investment is that fuel-economy information available in the heavy-duty (HD) sales market is "inadequate or unreliable." Quoting the National Academy of Sciences, EPA and NHTSA report that "Reliable, peer-reviewed data on fuel saving performance is available only for a few technologies in a few applications." Okay, then how do EPA and NHTSA know that investing in fuel economy will yield returns of 140% to 420%? And if EPA and NHTSA know this despite the dearth of reliable, peer-reviewed data, how come the industry with a bottom-line interest in such information doesn't know? The agencies do not address these obvious inconsistencies in their explanation.

EPA boasts that its SmartWay program provides "information on fuel-efficient, low-carbon technologies and operational practices to help accelerate their deployment." The program is a partnership between EPA and the freight goods industry, which includes "large, national trucking fleets." One might suppose that with all the information EPA is providing, semi-truck owners would exhibit the smallest gap between actual investment in fuel economy and what the agencies consider optimal. Yet that's where the gap appears to be largest. EPA and NHTSA estimate that mandating fuel-economy improvements will save semi-truck owners 18 times as much as vocational truck owners and nearly 30 times as much as HD pickup and van owners.²¹ Those with the most information are furthest away from the promised bonanza awaiting those who attain the proposed fuel-economy standards.

In short, the hypothesis fails to explain companies' alleged under-investment in fuel economy.

(2) Inadequate or Unreliable Information in the Secondary Resale Market. The agencies hypothesize that "the resale market may not reward the addition of fuel-saving technology to vehicles adequately to ensure their original purchase by new truck buyers," the main reason, again, being a presumed lack of "reliable information about the fuel economy that potential purchasers of used trucks will experience." This is odd. Would EPA and NHTSA say that

the resale market does not reward the addition of technologies that enhance vehicle safety, performance, comfort, and amenities? That would obviously be incorrect, because people are willing to pay more for a better vehicle, whether it's new or used.

Maybe fuel-saving technology doesn't add much to the price of used vehicles because its money-saving potential is unproven or over-rated.

(3) Split Incentives in the Medium- and Heavy-Duty Truck Industry. According to this hypothesis, the trucking industry under-invests in fuel economy because truck owners and operators face different incentives. Fuel purchases are made by operators, who have “strong incentives to economize on its use.” In contrast, owners may place a higher priority on capital investment that “improves vehicles' durability or reduces their maintenance costs.” That may be so. Still, it would not necessarily follow that owners under-invest in fuel economy.

There are tradeoffs — opportunity costs — in every investment decision. Whether it is smart to invest more or less in fuel economy relative to vehicle durability or any other competing interest depends on each firm's unique circumstances. EPA and NHTSA are in no position to divine an appropriate tradeoff for the industry as a whole, because the right tradeoff varies from firm to firm, and within each firm at different times.

Besides, just because truck operators make the actual fuel purchases does not mean that owners ignore fuel costs. An owner (or CEO of a publicly traded company) may delegate many purchasing decisions for many things to other people. He is nonetheless responsible for the firm's bottom line. The tradeoffs he makes between fuel economy and other investments inevitably show up in the bottom line.

(4) Uncertainty about Future Cost Savings. Another possible reason companies don't adopt fuel-saving technology as fast as EPA and NHTSA deem appropriate is “uncertainty about future fuel prices or truck maintenance costs.” The agencies explain:

When purchasers have less than perfect foresight about future operating expenses, they may implicitly discount future savings in those costs due to uncertainty about potential returns from investments that reduce future costs. In contrast, the immediate costs of the fuel-saving or maintenance-reducing technologies are certain and immediate, and thus not subject to discounting.²²

Exactly! The costs of investment in fuel-saving technology are certain and immediate. In contrast, the payoff depends on unknown quantities — the future price of gasoline and, perhaps more importantly, the “lifetime, expected use, and reliability of the vehicle.”²³ Companies are just being prudent when they invest less in fuel economy than they would *if EPA and NHTSA were guaranteeing a 420% return!* As the agencies acknowledge, the proposed rule “requires purchasers to assume a greater level of risk than they would in its absence, even if the future fuel savings predicted by a risk-neutral calculation actually materialize.”²⁴

(5) Adjustment and Transactions Costs. The agencies opine that “truck owners and fleets may like to see how a new technology works in the field, when applied to their specific

operations, before they adopt it.” Yes! Companies want real — road-tested — information about alternative investments. They’ll listen to what EPA and NHTSA have to say, but very likely take the agencies’ assessments with a grain of salt. After all, and meaning no disrespect, EPA and NHTSA are stakeholders, not honest brokers. Each has an organizational interest in exaggerating the benefits and understating the risks²⁵ of fuel-economy mandates, because the agencies’ control over the private sector grows each time they promulgate a new standard or tighten an existing one. There is also more than a dollop of green ideology in the now decades-old fuel-economy campaign, and ideology is not usually a sound basis for making business decisions.

All of which is to say, the market is not failing when businesses choose to be guided by real-world results rather than by agency forecasts.

To their credit, the agencies acknowledge that “there may be no market failure” in the risk-aversion induced by adjustment and transition costs, which, unlike the promised payoffs from fuel-economy investments, “are typically immediate and undiscounted.”²⁶

IV. Alternative hypothesis: Truckers’ under-investment in fuel saving technology is a consequence of EPA’s ever-tightening diesel engine emission standards.

As noted, trucking industry profit-margins are thin and fuel is the single biggest operating expense. Consequently, truckers, especially those who haul freight long distances in “combination tractors” (semis), have a strong incentive to purchase vehicles incorporating cost-effective improvements in fuel economy. Hence manufacturers should also have a strong incentive to produce such vehicles. *Yet the average fuel economy of semis declined by 1.2% annually over the past decade*, according to the Department of Energy’s *Transportation Energy Data Book*.²⁷ How can this be?

To some extent truckers may just be behaving like prudent buyers, as discussed above. Before incurring the certain and immediate costs of the agency-approved fuel-efficiency technologies, they want to see results – how much fuel is actually saved and what are the long-term effects on truck reliability and maintenance costs.

But considerable evidence suggests another, complementary explanation: EPA’s emission-control standards for diesel trucks caused the very problem – stagnant or even declining fuel economy — that the agencies now propose to solve with more rules.

What led me to this hypothesis was none other than EPA’s year 2000 *Regulatory Impact Analysis* of its diesel-truck emission-control program.²⁸ The RIA estimated that:

1. Engine manufacturers would have to spend \$385 million on R&D over five years to comply with EPA’s increasingly stringent particulate matter (PM) and nitrogen oxide (NO_x) emission standards.
2. Each of 11 major engine manufacturers would need to spend \$7 million annually to deploy a “team of more than 21 engineers and 28 technicians to carry out advanced engine research.”

3. The requisite emission-control technologies would add as much as \$7,000 to the cost of a new vehicle in model year 2007.
4. The PM filter would reduce engine fuel efficiency by 1%.

The implications are obvious. Thanks to EPA's emission standards, over a five-year period, 539 engineers and technicians would spend all or much of their time developing emission-control technology rather than fuel-saving technology. Engine manufacturers would have \$385 million less to spend for R&D of fuel-saving technology. Truckers would have \$7,000 less per vehicle to spend on rigs with better fuel economy. Slow or non-existent improvement in heavy-truck fuel economy could thus be an *opportunity cost* of EPA's PM and NO_x regulations.

EPA's year 2000 RIA forecast that the 1% fuel-efficiency decline due to the PM filter would be "more than offset" by fuel-efficiency gains from other emission-control technologies.²⁹ However, this *don't worry, be happy* assurance is not very reassuring. An RIA, after all, is a form of self-evaluation, a report card in which an agency grades itself. Grade inflation cannot be ruled out.

Reports by the Government Accountability Office (GAO) and NERA Economic Consulting, as well as other information summarized below, suggest that EPA's regulations, both directly and via their market impacts, held back heavy-truck fuel economy.

Diesel emission standards penalize fuel efficiency: What GAO found

Despite its bland title, *Air Pollution: EPA Could Take Additional Steps to Help Maximize the Benefits of the 2007 Diesel Emission Standards*,³⁰ GAO's March 2004 report leaves little doubt that EPA regulations and enforcement actions hindered manufacturers from making and truckers from buying vehicles with better fuel efficiency.

EPA has been implementing progressively tougher diesel emission standards since 1984. Because of widespread concern that EPA-approved emission-control technologies impaired both fuel economy and engine reliability, engine manufacturers sold and installed devices that "bypass, defeat, or render inoperative" an engine's emission control system. "These devices altered the engines' fuel injection timing and, while this improved fuel economy, it also increased nitrogen oxide emissions by two to three times the existing regulatory limits," GAO comments.³¹

Although illegal under the Clean Air Act, selling and installing "defeat devices" was a pervasive practice. From 1987 to 1998, seven of the nation's largest engine manufacturers, accounting for almost 90% of the U.S. heavy-duty diesel engine market, sold 1.3 million trucks equipped with defeat devices.³² To create such a big market for unlawful devices, the EPA-approved emission-control systems must have imposed a significant penalty on truck engine fuel efficiency and/or reliability.

Rather than question the wisdom of its emission standards, EPA in 1998 launched what it called "the largest Clean Air Act enforcement action in history" against the manufacturers. The case was settled via consent decrees under which the seven manufacturers agreed to "(1) pay civil

penalties of about \$83 million, the largest civil penalty for an environmental violation as of that date; and (2) collectively invest \$109.5 million towards research and development and other projects to lower nitrogen oxide emissions.”³³ The total tab may have been much bigger. “The manufacturers also agreed to collectively spend \$850 million or more to produce significantly cleaner engines by October 1, 2002.”³⁴

In short, at EPA’s behest, industry may have spent nearly \$1 billion in the early 2000s on penalties and R&D related to emission-control technology. How could that not crowd out significant investment in R&D of fuel-saving technology? How could it not divert significant engineering talent from fuel-economy innovation to emission-control innovation?

Lower fuel economy, a booming market for unlawful defeat devices, and smaller-than-forecast emission reductions were the unintended consequences of EPA’s diesel-truck emission standards during the 1980s and 1990s. EPA’s enforcement action had additional unintended consequences.

The consent decrees compelled the manufacturers “to accelerate by 15 months the schedule for meeting new, more stringent engine standards to October 2002 instead of the original mandatory date of 2004.”³⁵ Truckers responded with a strategy known as “pre-buying” — purchasing new vehicles with older emission-control technology before the new emission standards kick in. Companies did this for three main reasons: (1) trucks equipped with older engines cost several thousand dollars less than trucks with the new emission-control technologies; (2) the new technologies had not been adequately road-tested to determine their effects on truck durability and maintenance; and, (3) the technologies were expected to reduce fuel economy.

The requirement to comply 15 months early with 2004 emission standards was the most disruptive aspect of EPA’s enforcement action. According to GAO, “Trucking companies maintain they need 18 to 24 months to road test an engine’s reliability in all weather and operating conditions and to develop their future purchasing plans.”³⁶ The consent decrees did not allow time for adequate road-testing of the new technologies, and many truckers experienced engine problems:

For example, one company reported that roughly one-half of its 140 new heavy-duty engines experienced an engine valve failure prior to 50,000 miles. In addition, these officials noted that roughly 20 percent of their heavy-duty vehicles with the new engines are out of service at any given time due to maintenance concerns, compared to 5 percent for the remainder of their fleet. Several of these officials expressed a concern that some companies may have difficulty absorbing increased costs from such maintenance problems.³⁷

In the months preceding the October 2002 deadline, demand for new vehicles with older technology surged. Roughly 19,000 to 24,000 (20%-26%) of the 93,000 large semis (Class 8 trucks) produced during April to September 2002 were “pre-buys.”³⁸ Conversely, sales of compliant vehicles after the deadline were much lower than EPA had projected. Data for the first 13 of the 15 months “show that about 148,000 fully or partially compliant heavy-duty diesel engines are on the road, compared to EPA’s estimate of 233,000 such compliant engines for the entire 15-month time frame.”³⁹

Similarly, whereas EPA estimated that the consent decrees would require truckers to adjust the computers on 865,000 older trucks to reduce NO_x emissions (a procedure known as “reflashing”), GAO found that, “As of September 2003, almost 60,000 trucks had been reflashed under the consent decrees’ mandatory program and another 43,000 under the voluntary incentive programs, about 12 percent of EPA’s projected total.”⁴⁰

GAO’s March 2004 report cautions that even larger market disruptions, pre-buying, and gaps between forecast and actual emission reductions could result from EPA’s “2007 Rule” — the rule EPA finalized in January 2001 that specifies diesel-truck emission standards through model year 2007:

In addition, because the technologies needed to meet the 2007 standards are much more advanced than those associated with prior upgrades, the trucking companies are concerned that the new engines will cost much more *and decrease fuel efficiency much more than EPA predicted in 2000 when it was developing the standards*. Consequently, according to representatives of 9 of the 10 trucking companies we contacted, companies most likely will once again decide to buy trucks before the deadline, but in larger numbers than they did in response to the consent decrees. This could again disrupt markets and postpone needed emissions reductions.⁴¹

Once again, a key industry concern was the potentially adverse effect of tougher emission-control requirements on fuel economy:

Because the technology to meet the 2007 standard is more advanced than prior upgrades, some trucking companies are concerned that the new engines will cost more and decrease fuel efficiency more than EPA has predicted. Consequently, according to representatives of nine of the ten trucking companies we contacted, companies will likely once again pre-buy trucks, potentially disrupting markets and postponing needed emissions reductions.⁴²

Specifically, trucking industry representatives opined that the 2007 standards would reduce fuel efficiency by 3-5%. That’s a scary prospect for an industry where fuel is the single biggest operating expense and profit margins can be as low as 2 cents per dollar earned:

In addition, these officials are concerned that the 2007 trucks will experience another 3 to 5 percent loss in fuel economy—added to the 3 to 5 percent loss resulting from the consent decrees—that could increase their companies’ fuel costs by millions of dollars per year. Even minor increases in business costs can have adverse effects in the trucking industry, according to trucking industry officials we contacted, because these companies’ profit margins are very narrow—sometimes only 2 cents per dollar earned. The officials claim that the highly competitive nature of the trucking business precludes companies from passing such significant cost increases to their customers.⁴³

In short, industry representatives estimated *the 2007 Rule combined with the consent decree could lower heavy-truck fuel economy by as much as 10%*. And that’s just the potential direct effect of emission-control systems on the fuel efficiency of diesel engines.

If we also factor in the opportunity costs of EPA's emission standards program — foregone investment in fuel-saving technology R&D, foregone purchases of more fuel-efficient trucks — *it is entirely plausible that EPA's regulatory and enforcement actions account for all of the 1.2 % decline in heavy-truck fuel economy during 1998-2008.* Were it not for truckers' use of regulatory avoidance strategies — installing defeat devices in the 1990s, pre-buying older engines, and low-buying new engines in the 2000s — heavy-truck fuel economy would likely have declined even faster.

Road-Tested Results: What NERA found

NERA's November 2008 report⁴⁴ examines customer behavior in response to EPA's 2007 Rule and the implications of EPA's 2010 NO_x standard. It confirms in spades that EPA's diesel-emissions program imposes a significant opportunity cost on truckers. NERA found that EPA's 2007 Rule increased the unit cost of a Class 8 truck by \$7,000 between the 2006 and 2007 model years.⁴⁵ That additional expense is money truckers could not spend to purchase vehicles with better fuel economy.

In addition, NERA estimated that EPA's 2010 NO_x standard would increase the cost of a Class 8 truck by another \$7,000-\$10,000.⁴⁶

In line with GAO's expectations, NERA found that truckers engaged in massive pre-buying as the 2007 Rule phased in. In 2005-2006, truckers purchased about 120,000 more trucks with older engines than EPA had forecast, and in 2007-2008, they purchased about 183,000 fewer trucks with new engines than EPA had forecast.⁴⁷ Consequently, the 2007 rule also produced smaller environmental benefits than EPA had forecast.

Additional evidence for the alternative hypothesis

In April 2007, Robert Guy Matthews reported in the *Wall Street Journal* that new trucks compliant with EPA diesel emission standards “got worse mileage” than older trucks.⁴⁸ The fuel-economy penalty was affecting company bottom lines:

Previous-generation trucks average about nine or 10 miles to each gallon of diesel fuel. New engines designed to meet the more-stringent federal mandate on truck exhaust get about one mile less to the gallon. That may not seem like much, but it all adds up for large fleet owners that operate trucks crisscrossing the country.

“For every additional mile-per-gallon lost, it costs us about \$10 million in [total annual] fuel costs” said YRC Worldwide Chief Executive Bill Zollars. YRC is one of the largest transportation providers in the country, operating a fleet of 20,000 trucks. . . .

Freightliner LLC, the largest heavy-duty truck maker in North America, confirmed that some loss of fuel economy was inevitable for engines to comply with the new standards. Certain parts of the engine must run at a higher temperature to burn off pollutants, and that requires more fuel.

In March 2010, Kevin Jones, a reporter for *The Trucker* magazine, interviewed Daimler Trucks North America President and CEO Martin Daum at the Louisville, Ky. Mid-America Trucking Show.⁴⁹ Daum told Jones that EPA's emission standards added \$20,000 to the cost of an 18-wheeler over the previous six years. That's a substantial chunk of change truckers don't have to spend on vehicles with better fuel economy. It's more than three times the estimated cost of the technology upgrades that trucks will have install to comply with the proposed GHG/fuel economy rule.⁵⁰

Daum drew a distinction between "push innovations" (changes compelled by regulation) and "pull innovations" (changes driven by market demand). This speaks to the manufacturers' side of the opportunity cost problem. To comply with EPA rules, manufacturers must spend large sums and deploy hundreds of engineers to develop emission-control technologies rather than fuel-saving technologies. "Push innovations" crowd out "pull innovations."

V. Conclusion

Not once in EPA and NHTSA's 300-page proposal do the agencies acknowledge the longstanding trade-off between making diesel engines cleaner and making them more fuel efficient. They discuss five "potential hypotheses" to explain industry's alleged "under-investment" in fuel-saving technology without ever wondering whether the *regulatory environment* in which truckers operate might have something to do with it.

The evidence that EPA's diesel-truck emission standards impair fuel efficiency and impose significant opportunity costs on both manufacturers and truckers is substantial. The evidence suggests that lagging heavy-truck fuel economy is not an example of market failure but of regulation-induced *government failure*.

Maybe it would unreasonable to expect an agency to stand up and take the blame for the very problem it seeks more power over industry to solve. However, given the administration's high-profile commitment to regulatory "transparency," EPA and NHTSA should have at least addressed the issue. They have not done so.

¹ Environmental Protection Agency, National Highway Traffic Safety Administration, *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*, November 30, 2010, 75 FR 74152-74456; hereafter cited as GHG/Fuel Economy Rule.

² GHG/Fuel Economy Rule, p. 74167.

³ GHG/Fuel Economy Rule, p. 74323.

⁴ EPA, "DOT, EPA Propose the Nation's First Greenhouse Gas and Fuel Efficiency Standards for Trucks and Busses A Win for the environment, economy and energy efficiency," October 25, 2010, <http://yosemite.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/9b3706622f4ac560852577c7005ea140!OpenDocument>.

⁵ Indur Goklany, "Trapped between the Falling Sky and the Rising Seas: the Imagined Terrors of the Impacts of Climate Change," Social Science Research Network, December 13, 2009, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1548711.

⁶ Jerry Taylor and Peter Van Doren, *The Energy Security Obsession*, Georgetown Journal of Law and Public Policy, Summer 2008, Vol. 6, No. 2, http://www.cato.org/pubs/articles/taylor_vandoren_energy_security_obsession.pdf.

⁷ GHG/Fuel Economy Rule, p. 74179.

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- ⁸ Energy Information Administration, Emissions of Greenhouse Gases Report, Report #: DOE/EIA-0573 (2008), <http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html>.
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- ¹⁰ GHG/Fuel Economy Rule, p. 74325.
- ¹¹ Energy Information Administration, U.S. Imports by Country, http://www.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mbb1_a.htm.
- ¹² Rand Corporation, Imported Oil and U.S. National Security, 2009, p. 7, http://www.rand.org/pubs/monographs/2009/RAND_MG838.pdf.
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- ¹⁶ GHG/Fuel Economy Rule, p. 74169.
- ¹⁷ GHG/Fuel Economy Rule, p. 74303.
- ¹⁸ GHG/Fuel Economy Rule, p. 74303.
- ¹⁹ PA-NHTSA, *Draft Regulatory Impact Analysis: Proposed Rulemaking to Establish Greenhouse Gas Emission Standards and Fuel Economy Standards for Medium- and Heavy-Duty Engines and Vehicles*, Figure 9-1, p. 9-4, <http://www.epa.gov/otaq/climate/regulations/420d10901.pdf>.
- ²⁰ GHG/Fuel Economy Rule, pp. 74304-74307.
- ²¹ GHG/Fuel Economy Rule, pp. 74315-74316.
- ²² GHG/Fuel Economy Rule, p. 74306.
- ²³ GHG/Fuel Economy Rule, p. 74306.
- ²⁴ GHG/Fuel Economy Rule, p. 74306.
- ²⁵ Sam Kazman, "First, Do No Harm to Motorists: Six Reasons Not to Raise CAFE Standards," Competitive Enterprise Institute, On Point No. 114, June 12, 2007, <http://cei.org/pdf/5967.pdf>.
- ²⁶ GHG/Fuel Economy Rule, p. 74306.
- ²⁷ Department of Transportation, Transportation Energy Data Book, Edition 29, June 30, 2010, p. 5-2, http://www-cta.ornl.gov/data/tebd29/Edition29_Chapter05.pdf.
- ²⁸ EPA, *Regulatory Impact Analysis, Heavy Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*, Chapter V: Economic Impact, 2000, (hereafter EPA, 2000 RIA) <http://www.epa.gov/otaq/highway-diesel/regs/ria-v.pdf>.
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- ³⁰ Government Accounting Office, *Air Pollution: EPA Could Take Additional Steps to Help Maximize the Benefits of the 2007 Diesel Emission Standards* (hereafter GAO), <http://www.globalwarming.org/wp-content/uploads/2010/12/gao-epa-diesel-truck-emission-standards-2004.pdf>.
- ³¹ GAO, p. 11.
- ³² GAO, p. 1.
- ³³ GAO, pp. 11-12.
- ³⁴ GAO, p. 12.
- ³⁵ GAO, p. 1.
- ³⁶ GAO, p. 6.
- ³⁷ GAO, p. 20.
- ³⁸ GAO, p. 19.
- ³⁹ GAO, p. 23.
- ⁴⁰ GAO, p. 24.
- ⁴¹ GAO, P. 7 (emphasis added).
- ⁴² GAO, p. 25.
- ⁴³ GAO, p. 33.
- ⁴⁴ David Harrison and Mark Lebel, *Customer Behavior in Response to the 2007 Heavy-Duty Engine Standards: Implications for the 2010 NO_x Standard*, NERA Economic Consulting, November 14, 2008 (hereafter NERA), http://www.ooida.com/MediaCenter/Press_Releases/PDFs/NERA_2010_NOx_Standard_Report.pdf.

⁴⁵ NERA, p. 13.

⁴⁶ NERA, p. 3.

⁴⁷ NERA, p. 13.

⁴⁸ Robert Guy Matthews, "Trucking Firms Bemoan Stricter Emission Rules," *Wall Street Journal*, April 24, 2007, [http://online.wsj.com/article/SB117737647290679826.html?mod=rss_whats_news_us_business&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed:+wsj/xml/rss/3_7014+\(WSJ.com:+US+Business\)](http://online.wsj.com/article/SB117737647290679826.html?mod=rss_whats_news_us_business&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed:+wsj/xml/rss/3_7014+(WSJ.com:+US+Business)).

⁴⁹ Kevin Jones, "Daum: Double-digit mpg achievable, not affordable – yet," *TheTrucker.Com*, March 26, 2010, <http://www.thetrucker.com/News/Stories/2010/3/26/DaumDouble-digitmpgachievablenotaffordable%E2%80%94yet.aspx>.

⁵⁰ GHG/Fuel Economy Standard, p. 74169.