Insight

First Round of the "Clean Trucks Plan": Assessing the EPA's Proposed Heavy-Duty Vehicle Pollution Standards

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EXECUTIVE SUMMARY

- The Environmental Protection Agency recently released the first part of its "Clean Trucks Plan," a proposed rule that would establish tighter standards on various emissions produced by heavy-duty vehicles beginning with model year 2027.
- While the proposal does include modest adjustments to greenhouse gas emissions standards, the regulatory proposal remains primarily focused on "criteria pollutants" such as nitrous oxide, ozone, and particulate matter instead of climate policy.
- The proposed rule provides a wide range of potential cost and benefits estimates, but with cost estimates pushing $30 billion, this action would be the most economically significant rulemaking thus far in 2022.

INTRODUCTION

Last August, the Environmental Protection Agency (EPA) announced its "Clean Trucks Plan" as a result of President Biden's Executive Order 14,037 entitled "Strengthening American Leadership in Clean Cars and Trucks." This past week, EPA officially put the Clean Trucks Plan into motion by releasing the first piece of the plan: a proposed rule that would update emissions standards for "criteria pollutants" (including nitrous oxides, particulate matter, hydrocarbons, and carbon monoxide) emanating from heavy-duty vehicles (HDV), such as trucks or buses. These pollutants are not the focus of climate policy, although the proposal also makes modest adjustments to previous regulations regarding HDV greenhouse gas (GHG) emissions standards. Regardless of this focus, the proposed action currently ranks as the most costly rulemaking of 2022 thus far and portends even more expansive regulatory activity coming down the line.

PRIMARY IMPACTS

A key component of EPA's proposal is that the agency is putting forward two different options under primary consideration. Both begin in covering model year (MY) 2027 and later vehicles, but "Option 1" both sets more stringent emissions levels at the outset *and* further tightens such standards beginning with MY 2031 vehicles. As one would expect, EPA estimates that the more rigorous set of standards from Option 1 would lead to greater pollutant reductions than Option 2:

Table 5: Projected Heavy--Duty Emission Reductions in 2045 from the Proposed Options 1 and 2 Standards

Pollutant	Percent Reduction in Highway Heavy-duty Emissions	
	Proposed Option 1	Proposed Option 2
NO_X	61	47
Primary $PM_{2.5}$	26	24
VOC	21	20
CO	17	16

In examining the overall cost-benefit analysis, however, there is a curious development in that the agency expects the more aggressive option (Option 1) to yield lower costs:

Table IX-1 Annual Value, Present Value and Equivalent Annualized Value of Costs, Benefits and Net Benefits of the Proposed Option 1 and Option 2 (billions, 2017$)[a,b]

		Proposed Option 1		Proposed Option 2	
		3% Discount	7% Discount	3% Discount	7% Discount
2045	Benefits	$12 - $33	$10 - $30	$9.1 - $26	$8.2 - $23
	Costs	$2.3	$2.3	$2.9	$2.9
	Net Benefits	$9.2 - $31	$8.1 - $28	$6.2 - $23	$5.3 - $21
Present Value	Benefits	$88 - $250	$52 - $150	$71 - $200	$41 - $120
	Costs	$27	$19	$30	$21
	Net Benefits	$61 - $220	$33 - $130	$41 - $170	$21 - $96
Equivalent Annualized Value	Benefits	$6.0 - $17	$4.7 - $13	$5.0 - $14	$4.0 - $11
	Costs	$1.9	$1.9	$2.1	$2.0
	Net Benefits	$4.1 - $15	$2.9 - $12	$2.9 - $12	$2.0 - $9.3

[a] All benefits estimates are rounded to two significant figures; numbers may not sum due to independent rounding. The range of benefits (and net benefits) in this table are two separate estimates and do not represent lower- and upper-bound estimates, though they do reflect a grouping of estimates that yield more and less conservative benefits totals. The costs and benefits in 2045 are presented in annual terms and are not discounted. However, all benefits in the table reflect a 3 percent and 7 percent discount rate used to account for cessation lag in the valuation of avoided premature deaths associated with long-term exposure.

[b] The benefits associated with the standards presented here do not include the full complement of health, environmental, and climate-related benefits that, if quantified and monetized, would increase the total monetized benefits.

Per the rulemaking's analysis, this is because:

> The higher projected costs of the proposed Option 2 relative to the proposed Option 1 result from our expectation that the shorter useful life and emission warranty periods of the proposed Option 2 compared to proposed Option 1 in MY 2031 and later would lead to higher emission control system repair costs for proposed Option 2 than the proposed Option 1 (i.e., shorter emissions warranty periods result in higher emission repair costs in proposed Option 2).

As the following graph illustrates, EPA's contention here is that while the upfront technology costs will be higher for Option 1, the modifications made under that option will result in lesser operating costs going forward than if vehicles simply maintained Option 2-level technology:

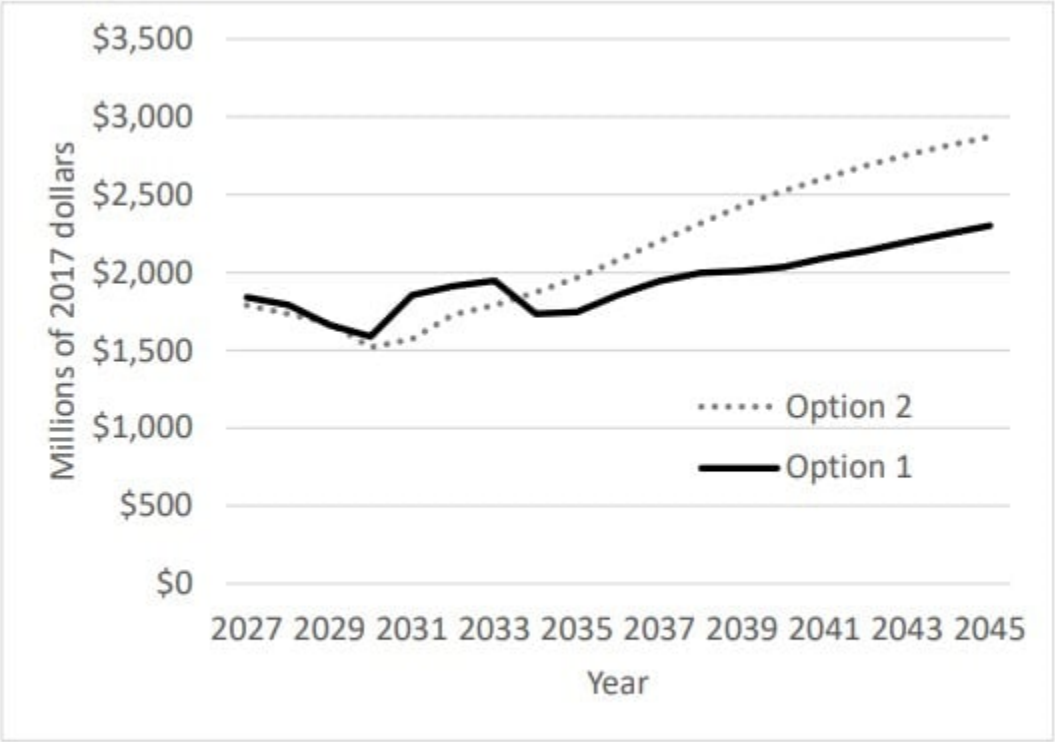

Figure V-3 Technology and Operating Costs for proposed Options 1 and 2 (Millions of 2017 dollars)

CLIMATE IMPACTS

The proposed second – and clearly lesser – component comes in its section on "Targeted Updates to the Phase 2 Heavy-Duty Greenhouse Gas Emissions Program." EPA expects the second phase of its Clean Trucks Plan to focus more heavily on GHG emissions reduction. In this proposal, however, EPA does plan to make limited changes to its MY 2027 standards (last set by a 2016 rule). Driven primarily by changes in assumptions due to the increased uptake of electric heavy-duty vehicles in particular subsectors in recent years, EPA is proposing "to adjust HD GHG Phase 2 vehicle CO2 emission standards … of school buses, transit buses, delivery trucks, and short-haul tractors and by lowering the applicable CO2 emission standards for these vehicle types in MY 2027 accordingly."

As EPA explains, these changes will be relatively modest in overall scope. The agency estimates that they would lead to the reduction of 222,000 metric tons of carbon dioxide in 2027 – a mere 0.7 percent decrease from a no-action baseline. Furthermore, EPA expects the technology costs to total $98 million for affected manufacturers. For comparison, the agency cites the $5.2 billion in technology costs from the 2016 rule. The real shifts on this front will come in the second half of the Clean Trucks Plan. According to the most recent Biden Administration regulatory agenda, however, a proposed rule focused on that is still more than a year away.

CONCLUSION

The end of 2021 saw the costliest rule on record: EPA's latest GHG Standards for Light-Duty Vehicles. The EPA's first round of its Clean Trucks Plan is far and away the administration's most significant rulemaking thus

far in the new year. While it is not necessarily as focused on climate change as some of the current administration's recent rhetoric and actions, it marks another step toward a decidedly more assertive EPA than under the preceding administration. Additionally, it is apparently only the first step in a broader regulatory plan for heavy-duty vehicles.