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July 6, 2020

Honorable Andrew R. Wheeler
Administrator
U.S. Environmental Protection Agency
Mail Code 1101A
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

RE: Cleaner Truck Initiative; Advanced Notice of Proposed Rulemaking;
Docket ID No. EPA-HQ-OAR-2019-0055

Dear Administrator Wheeler:

The Midwest Ozone Group (MOG) is pleased to take this opportunity to supplement the comments it filed on February 20, 2020 with respect to the U.S. Environmental Protection Agency (EPA) initiative to establish new emission standards for oxides of nitrogen (NOx) and other pollutants for highway heavy-duty engines.¹

MOG is an affiliation of companies and associations that draws upon its collective resources to seek solutions to the development of legally and technically sound air quality programs.² MOG's primary efforts are to work with policy makers in evaluating air quality policies by encouraging the use of sound science. MOG has been actively engaged in a variety of issues and initiatives related to the development and implementation of air quality policy, including the development of transport rules, NAAQS standards, nonattainment designations, petitions under Sections 126, 176A and 184(c) of the Clean Air Act ("Act"), NAAQS implementation guidance, the development of Good Neighbor state implementation plans (SIPs) and related regional haze and climate change issues. MOG Members and Participants own and operate numerous stationary sources that are affected by residual air quality concerns that could be addressed by the mobile source initiative set forth in the ANPR. MOG seeks the development of technically and legally sound air pollution rules and actions that may impact on their facilities, their employees, their contractors, and the consumers of their products.

¹ These comments were prepared with the technical assistance of Alpine Geophysics, LLC.

² The members of and participants in the Midwest Ozone Group include: American Electric Power, American Forest & Paper Association, American Wood Council, Ameren, Alcoa, Appalachian Region Independent Power Producers Association (ARIPPA), ArcelorMittal, Associated Electric Cooperative, Big Rivers Electric Corp., Citizens Energy Group, Council of Industrial Boiler Owners (CIBO), Duke Energy, East Kentucky Power Cooperative, ExxonMobil, FirstEnergy, Indiana Energy Association, Indiana Utility Group, LGE / KU, Marathon Petroleum, National Lime Association, Ohio Utility Group, Olympus Power, and City Water, Light and Power (Springfield IL).

MOG's initial comments on the CTI ANPR offered support for the EPA initiative under Section 202(a)(1) of the Act including the results of air quality modeling data available at the time which demonstrated the significant contribution of mobile sources to ozone concentration at various monitors in the East. That data confirmed the significant role that mobile sources play in determining the quality of our air and the importance of EPA's Cleaner Truck Initiative.

Since the time of the filing of those initial comments, MOG has undertaken new air quality modeling that directly assesses how the implementation of a CTI 90% NO_x emission reduction scenario is likely to improve air quality in the continental United States. These supplemental comments will review this new air quality modeling which demonstrates that implementation of the CTI with 90% NO_x emission reduction from heavy duty trucks will allow all air quality monitors east of the Rockies to attain and maintain the 70 ppb 2015 ozone NAAQS.

1. SELECTION OF 90% REDUCTION SCENARIO.

In November 2018 EPA announced that it would pursue the CTI to update NO_x emissions standards for heavy-duty on-road trucks. On January 6, 2020, EPA published an Advance Notice of Proposed Rule (ANPR; 85 Fed. Reg. 3306) soliciting pre-proposal comments on the CTI. In the following statement, the ANPR specifically solicited comments on the merit of reducing NO_x emissions by as much as 90 percent:

"Based on available information, it is clear that application of the diesel technologies discussed in Sections III.A.1 should enable emission reductions of at least 50 percent compared to current standards over the FTP and RMC cycles. Some estimates suggest that emission reductions of 90 percent may be achievable across the heavy-duty engine market by model year 2027. We request information that would help us determine the appropriate levels of any new emission standards for the FTP and RMC cycles."

Based on the technical work of Manufacturers of Emission Controls Association (MECA), it is estimated that a 90% reduction in NO_x emissions from these mobile sources (to a rate of 0.02 g/bhp-hr) is both technically feasible and cost effective adding about \$1,500 to \$2,050 to the cost of a MY 2027 Class 8 truck. See "STATEMENT OF THE MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION ON THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S ADVANCED NOTICE OF PROPOSED RULEMAKING: CONTROL OF AIR POLLUTION FROM NEW MOTOR VEHICLES: HEAVY-DUTY ENGINE STANDARDS" February 20, 2020, EPA-HQ-OAR-2019-0055-0365. According to MECA's estimate of a cost benefit of \$1,000-\$5,000 per ton of NO_x reduced is cost effective relative to most remaining stationary controls.

The objective of MOG's further assessment of the CTI as set forth in these comments (including the MOVES inventory completed by Oak Leaf Environmental, Inc. at the request of MECA and the related air quality modeling performed by Alpine Geophysics, LLC at the request of MOG), is to respond to EPA's request for comment in the ANPR as to the merits of reducing by 90% NO_x emissions from heavy-duty trucks.

2. EMISSION INVENTORY DEVELOPMENT

Through the sponsorship of MECA, Oak Leaf Environmental Inc. (Oak Leaf) completed a 48-state emissions impact analysis of a possible CTI scenario that would result from EPA aligning their final CTI rule to the 90% NO_x emission reduction levels as proposed by the California Air Resources Board (CARB) and implemented and phased-in through fleet turnover assumed in MOVES through 2035. This Oak Leaf technical support document is attached to these comments and identified as Exhibit A. The report is also available on the MOG web site.³ The basis for the CTI scenario was the most recent information – available at project commencement – from CARB (September 26, 2019 workshop proposal) with the understanding that EPA and CARB are working on a nationally uniform regulatory framework.

The foundation of the evaluation was the EPA inventory projection for 2028⁴. The “2035 Base Case” inventory was developed to include an on-road fleet projection to 2035 with no change in the underlying regulatory context. The “2035 Control Case” inventory was developed to include both the 2035 fleet projection and the impacts of the proposed CTI on on-road vehicle emissions. Accordingly, the emissions impacts of the CTI are defined by the difference between the 2035 Control Case and 2035 Base Case inventories.

The modeled year of 2035 was chosen to allow as much phase-in of low NO_x trucks meeting the future modeled CTI emission limits while still providing adequate confidence from the air quality perspective. Given that the new truck regulations begin implementation in 2024 and heavy-duty trucks last 20-30 years on the road, the 2035 timeframe represents an intermediate level of CTI truck penetration. It is expected that further NO_x reductions will be realized beyond the 2035 modeled year as the heavy-duty truck fleet continues to turn over to the cleanest technology vehicles.

Figure 1 presents the relative, annual NO_x benefit of the potential CTI scenario in 2035 at a county-level resolution. The percent benefit is estimated as a reduction in the total on-road NO_x inventory (both light and heavy-duty vehicles). The range in benefit, by county, is between 4 and 60 percent.

³ Modeling Inventory of Potential Heavy-Duty Cleaner Trucks Initiative Scenario Final Report, Prepared By: Jeremy G. Heiken Oak Leaf Environmental, Inc, June 2020 (http://www.midwestozonogroup.com/files/OakLeaf_Report_June_2020.pdf); Appendix A - National & State CTI Scenario Summary (http://www.midwestozonogroup.com/files/Appendix_A_-_National_State_CTI_Scenario_Summary.xlsx); Appendix B - National & State Activity Summary (http://www.midwestozonogroup.com/files/Appendix_B_-_National_State_Activity_Summary.xlsx).

⁴ <https://www.epa.gov/air-emissions-modeling/2016v1-platform>

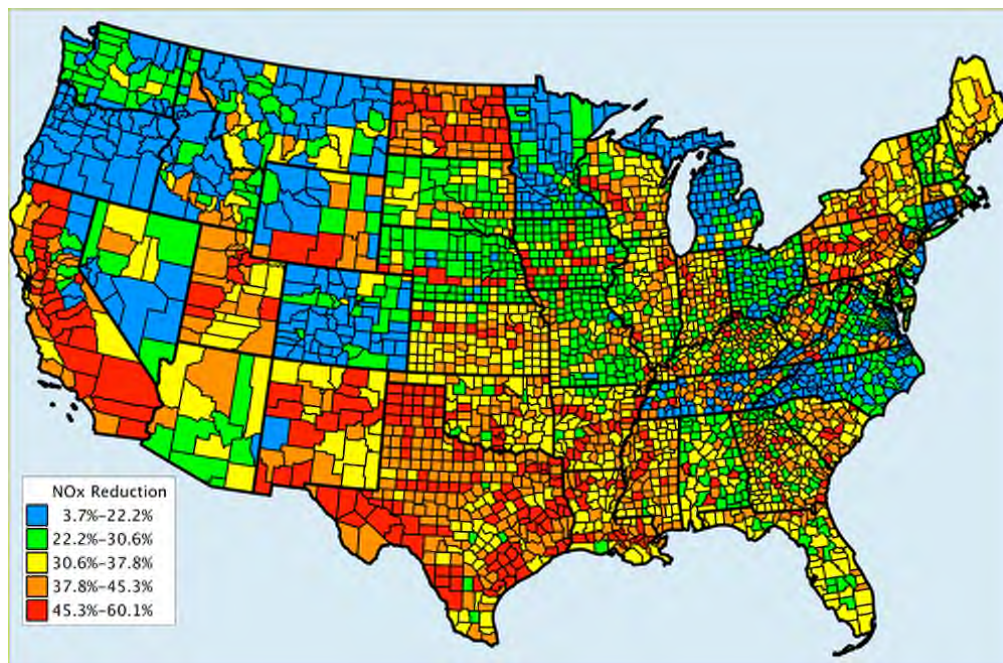


Figure 1. Annual NOx Benefit (Percent Reduction in On-Road Inventory) in 2035

3. AIR QUALITY MODELING

Working with this 2035 scenario, Alpine Geophysics, LLC (Alpine) through the sponsorship of MOG, merged the onroad emissions data with a 2028 “base case” modeling simulation already completed. The Technical Support Document related to Alpine’s 2028 “base case” is attached and identified as Exhibit B and is available on the MOG web site.⁵

Alpine then ran photochemical grid modeling (PGM) to generate future CTI scenario concentrations of ozone and PM_{2.5}. This modeling of the CTI scenario is described in a Technical Support Document that is attached to these comments and identified as Exhibit C and is available on the MOG web site.⁶

Together, this work assesses how the change in mobile source emissions between the 2028 base case and the CTI scenario would change the ozone and PM_{2.5} ambient air quality projections at receptors in the continental United States.

As illustrated in Figure 2, the modeled 2028 base year 8-hour ozone design values were found to be above the 70 ppb NAAQS in the states of California, Utah, Colorado, Texas and Connecticut.

⁵ Air Quality Modeling Technical Support Document for 12km Modeling of EPA 2028fh Base Case Technical Support Document Prepared by: Alpine Geophysics, LLC, May 2020

(http://midwestozonegroup.com/files/Alpine_12km_Modeling_TSD_2028fh_May_2020_.pdf)

⁶ Cleaner Trucks Initiative Scenario Modeling Using EPA 2028fh Modeling Platform Technical Support Document Prepared by: Alpine Geophysics, LLC, June 2020 (http://www.midwestozonegroup.com/files/Alpine_Geophysics_-_CTI_Scenario_Modeling_TSD_-_June_2020.pdf)

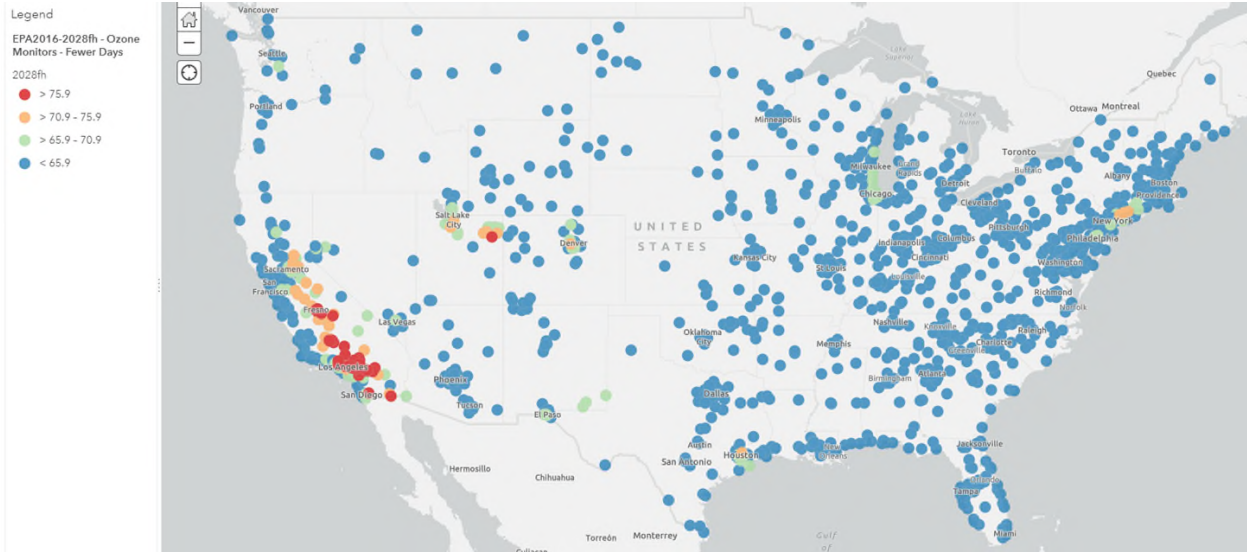


Figure 2. 2028 Base Case – Ozone Design Values (ppb)

As shown in Figure 3, applying the 90% NO_x emission reduction CTI scenario to the 2028 base year eliminates ozone nonattainment everywhere east of the Rockies and in Denver and leaves only the states of California and Utah with 70 ppb 2015 ozone NAAQS nonattainment areas. Multiple monitors in California and in Salt Lake County, Utah also show modeled attainment with the CTI strategy.

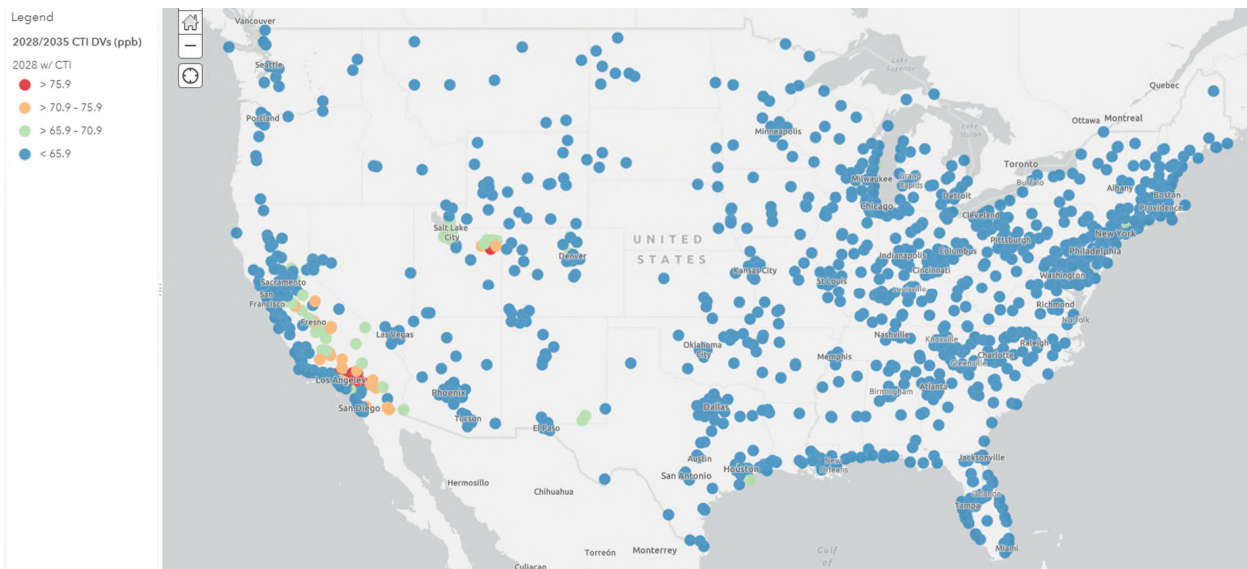


Figure 3. Calculated MDA8 Ozone Design Values (ppb) resulting from CTI strategy run.

As shown in Figure 4, the greatest ozone impact of the strategy is seen in urban areas and along highway corridors with reductions of up to 6.5 ppb seen in the west (San Bernardino) and 4.9 ppb seen in the east (Atlanta).

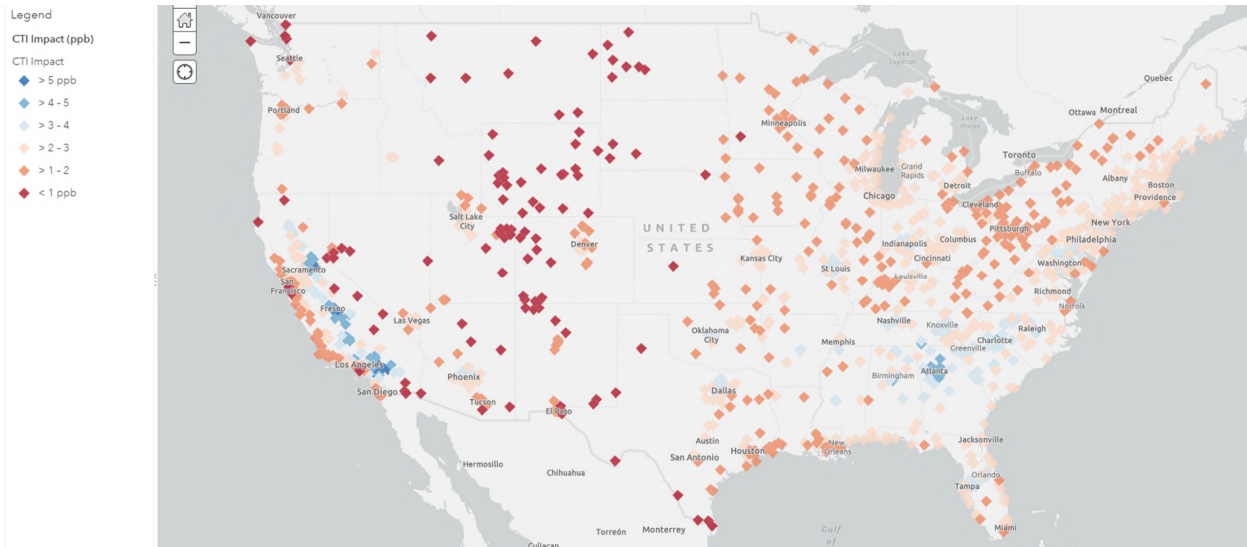


Figure 4. Calculated change in Ozone Design Values (ppb) resulting from CTI strategy run.

The CTI strategy impacts on the annual $PM_{2.5}$ design value nationwide are shown in Figure 5 with modeled attainment changes occurring at monitors in Madera, San Joaquin, and Stanislaus counties in California. The greatest annual $PM_{2.5}$ impacts are reductions of $0.64 \mu g/m^3$ (4.1%) seen in the west (Kern County, CA) and $0.21 \mu g/m^3$ (2.3%) reduction in the east (Chicago).

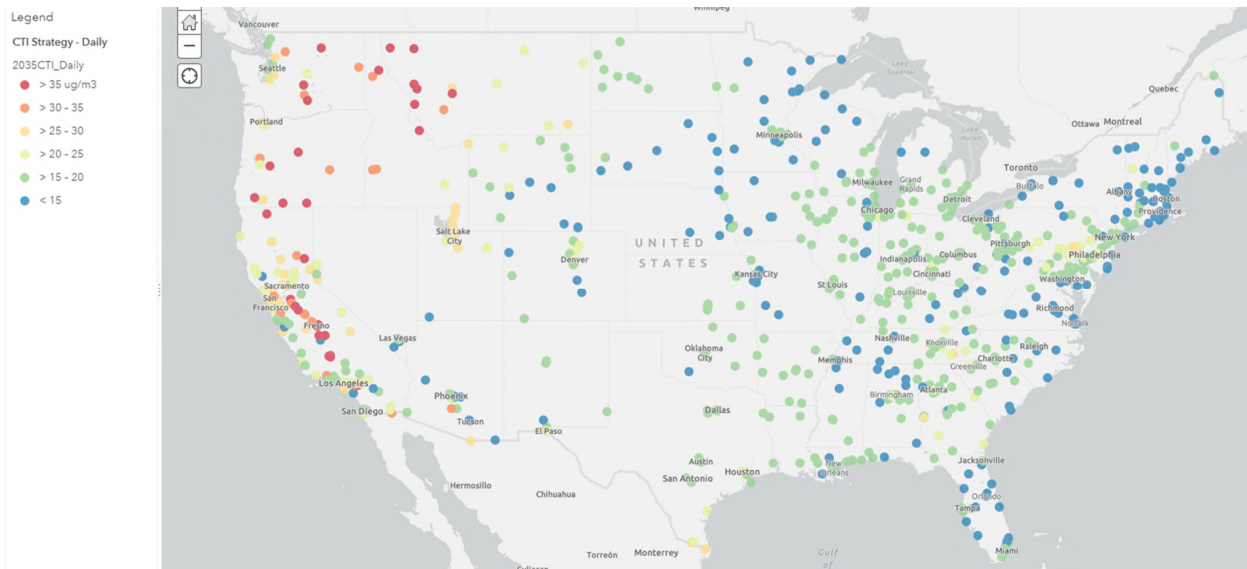


Figure 5. Annual $PM_{2.5}$ DVs ($\mu g/m^3$)

From a daily (24-hour) $PM_{2.5}$ perspective, Figure 6 shows daily $PM_{2.5}$ design values nationwide. As with the annual $PM_{2.5}$ modeling, areas shown to move to modeled attainment as a result of the CTI strategy include Madera, Merced, and San Joaquin counties in California. The greatest daily $PM_{2.5}$ impacts are reductions of $4.5 \mu g/m^3$ (9.8%) seen in the west (Tulare County, CA) and $0.9 \mu g/m^3$ (4.5%) reduction in the east (Chicago).

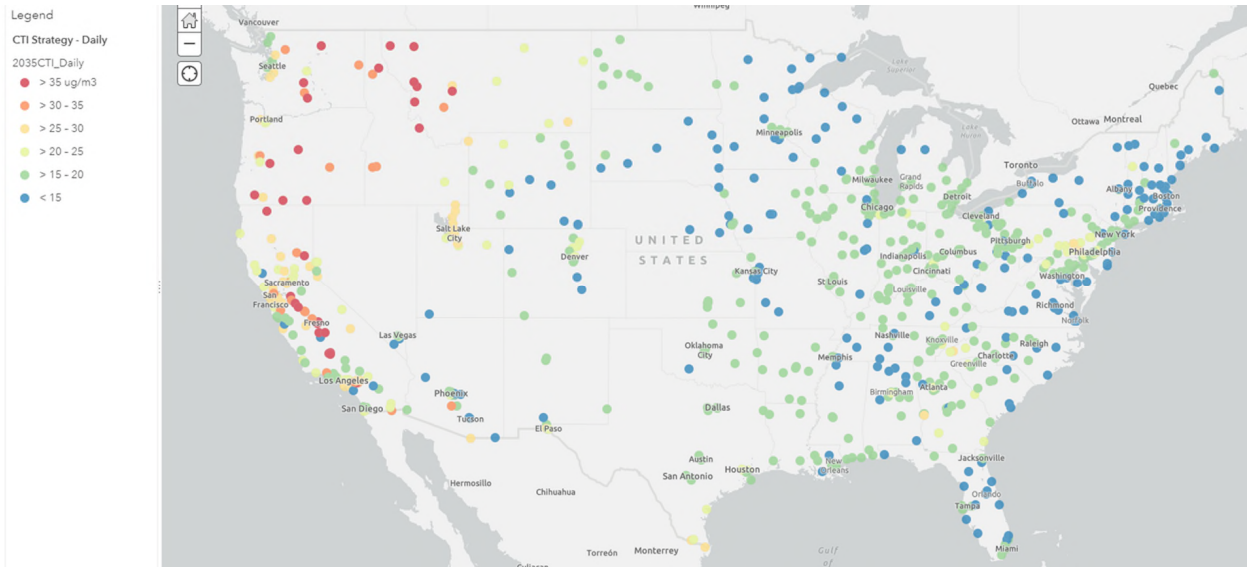


Figure 6. Daily PM_{2.5} DVs (µg/m³)

CONCLUSION

Given the technical availability and cost effectiveness of achieving a 90% reduction of NO_x emissions from heavy duty trucks by 2035 as established by MECA and given the remarkable improvement in air quality as demonstrated by the Alpine modeling, MOG urges that EPA continue to advance its CTI initiative by calling for a 90% reduction in NO_x emissions from heavy duty trucks by 2027.

Very truly yours,

/s/ David M. Flannery

David M. Flannery
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Midwest Ozone Group

cc: Anne Idsal
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