



# Broad-Based Coalition Petitions EPA for New Nationwide Ultra-Low-NOx **On-Road Heavy-Duty Truck Engine Standard**

by Sam Atwood, Henry Hogo, Barbara Baird, Shahrzod Hanizavareh, and Veera Tyagi

Last June, Southern California's South Coast Air Quality Management District (SCAQMD), in conjunction with 18 other local and state air quality agencies across the nation, submitted petitions to the U.S. Environmental Protection Agency (EPA) to adopt a more stringent nationwide on-road heavy-duty engine standard for oxides of nitrogen (NOx) emissions.

**On-road heavy-duty truck emissions represent significant contributors** to the ozone air pollution problem in Southern California and in many other areas throughout the nation. In June 2016, SCAQMD, in conjunction with the Bay Area Air Quality Management District (BAAQMD), Sacramento Metropolitan Air Quality Management District (SMAQMD), and 16 other local and state air quality agencies across the nation submitted a petition to EPA to adopt a more stringent nationwide on-road heavy-duty engine standard for NO<sub>x</sub> emissions. In addition, Central California's San Joaquin Valley Air Pollution Control District submitted a separate petition requesting that EPA establish a nationwide standard.

The petitions call for a standard that is ten times cleaner than the current limit in order to assist nonattainment areas in meeting current and future National Ambient Air Quality Standards (NAAQS) for ozone.<sup>1</sup>

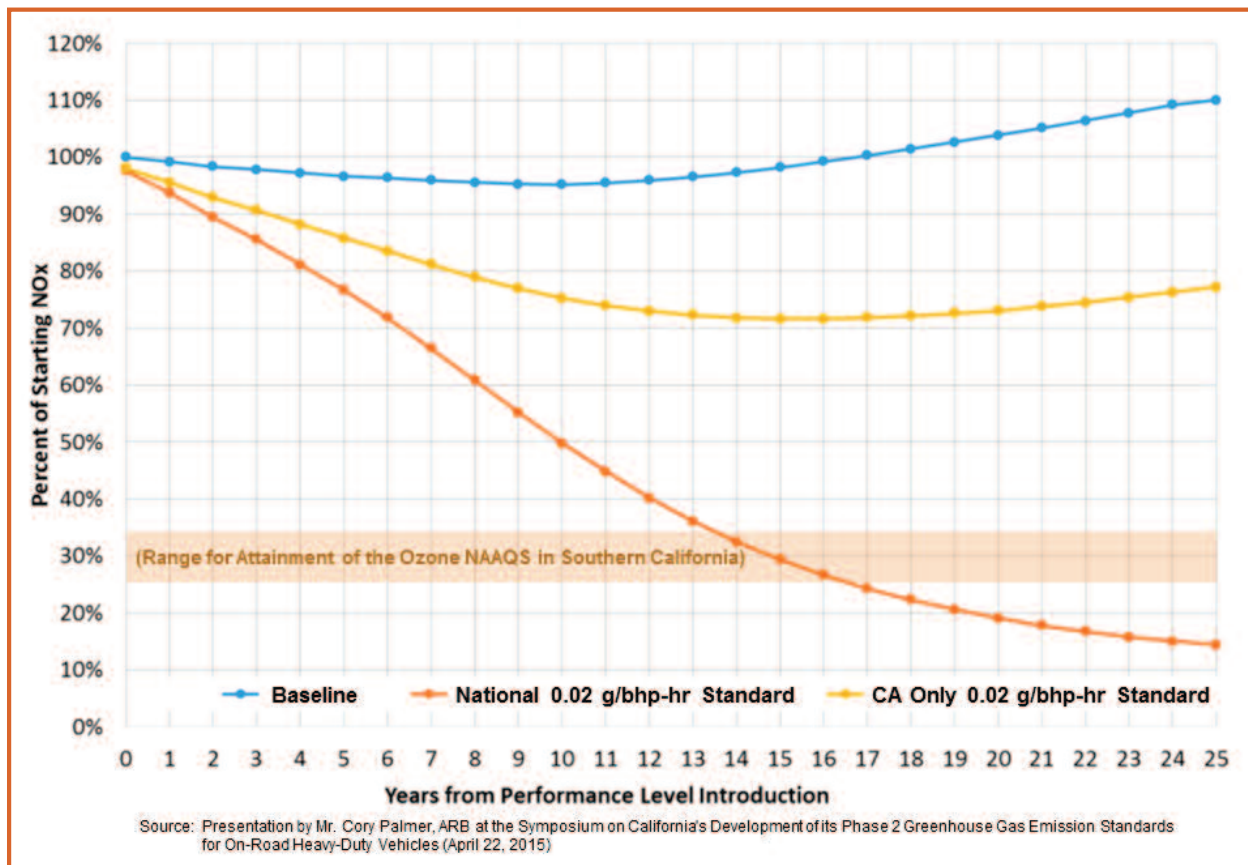
In spring 2016, the SCAQMD, National Association of Clean Air Agencies (NACAA), Northeast States for Coordinated Air Use Management (NESCAUM), and Manufacturers of Emissions Control Association (MECA) started discussing the development of the petition recognizing that a nationwide ultra-low-NO<sub>x</sub> engine standard will benefit many current and

potential future nonattainment regions given the expected challenges in ensuring long-term attainment of the ozone NAAQS.

NACAA gathered support and potential co-signatories to the petition through its state and local air agency members. NESCAUM reached out to its eight northeast state members to gather support for the petition, while SCAQMD worked with BAAQMD, SMAQMD, and the California Air Pollution Control Officers Association (CAPCOA) to gather support among the 35 local air districts in California. The efforts resulted in ten states and local air agencies signing on to the petition initially and another five state and local air agencies, one transportation agency, CAPCOA, and one environmental organization joining the petition as of November 2016. In addition, the petitioners received letters of support from a broad set of stakeholders and one joint letter from various non-governmental organizations in support of a low-NO<sub>x</sub> standard.<sup>2</sup>

### Why Is a Nationwide Standard Needed?

In the discussions with NACAA and NESCAUM, NESCAUM indicated that a large number of heavy-duty trucks operating in the northeast states are registered outside of their member states' jurisdiction.<sup>3,4</sup> NACAA indicated that many of its



**Figure 1.** Emissions analysis of a new California-only low-NO<sub>x</sub> engine standard vs. a new national low-NO<sub>x</sub> engine standard.  
Source: California Air Resources Board, 2015.





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members are concerned that given EPA's recent promulgation of new ozone NAAQS that are more protective of public health, there is a need for significantly lower national heavy-duty NOx standards beyond the current 2010 on-road heavy-duty NOx exhaust emission standards to ensure attainment of the NAAQS.<sup>5</sup>

Southern California is home to a robust goods movement economy and the largest marine port complex in North America. More than 40 percent of containerized goods imported from Asia flow through the region's ports, and their cargo volumes are expected to double by 2035.<sup>6</sup> This is one of the reasons why heavy-duty trucks are the number one contributor to NOx emissions in the region and why a lower heavy-duty NOx standard is important to the SCAQMD.

Under the U.S. Clean Air Act, individual states or political subdivisions are preempted from adopting mobile vehicle or engine exhaust emission standards.<sup>7</sup> However, California has a unique authority to adopt motor vehicle emission standards since such standards were adopted prior to March 30, 1966<sup>8</sup> and must submit a waiver request to the U.S. EPA Administrator for approval.<sup>9</sup> The California Air Resources Board (CARB) is proposing adoption of an ultra-low-NOx engine emission standard (the specific level will be established as part of the rulemaking process) for trucks sold in California.<sup>10</sup> However, over half of the nearly 950,000 trucks traveling across the state are registered outside of California<sup>11</sup> and will not be subject to CARB's rule. As shown in Figure 1, CARB projects that if California adopts an ultra-low NOx engine emissions standard but EPA fails to do so, NOx emissions from trucks will decline only by about 30 percent 14 years after such a standard is adopted. If EPA adopts the standard, truck emissions in the state will decline by about 70 percent during the same timeframe.<sup>12</sup>

A national standard would create a "level playing field" of uniform regulation across all 50 states. EPA estimates that 241 counties in 33 states across the country currently violate the 70-parts per billion (ppb) ozone standard.<sup>13</sup> A tighter nationwide engine standard will help many regions across the country, including California.

### Ultra-Low NOx Heavy-Duty Engines Are Technically Feasible

An 8.9-liter, ultra-low-NOx heavy-duty engine suitable for waste-hauling trucks and transit buses has been certified by CARB at 0.02 grams/brake-horsepower-hour (g/bhp-hr) and is already in commercial use. Larger size natural gas engines suitable for Class 8 over-the-road trucks meeting the 0.02 g/bhp-hr level are being developed<sup>14</sup> and are expected to be commercialized in the 2017 timeframe.

In addition to natural gas-powered heavy-duty engines, ongoing research sponsored by CARB and conducted by Southwest Research Institute with MECA is investigating the potential of diesel-powered engines achieving the ultra-low-NOx level with existing after-treatment technologies.<sup>15</sup> In its testimony to EPA, MECA commented that emission control technologies exist to achieve significantly lower NOx emission levels.<sup>16</sup>

### EPA Reaction

The technology needed for ultra-low-NOx trucks is easily within reach and EPA should move forward in developing a nationwide on-road heavy-duty ultra-low-NOx engine standard. Without such a standard, the South Coast region and many other areas across the nation will face an extremely difficult task in achieving the ozone NAAQS by their applicable attainment dates.

On October 25, 2016, EPA finalized its Phase II Greenhouse Gas Emissions rule,<sup>17</sup> in which EPA acknowledged the petition and the need for further NOx reductions, and EPA committed to meeting with stakeholders to discuss opportunities for further reducing NOx emissions from on-highway heavy-duty engines.<sup>18</sup> On December 20, 2016, EPA released a response memo to the petitioners, concluding that it would “initiate the work necessary to issue a Notice of Proposed Rulemaking for a new on-highway heavy-duty NOx program with the intention of proposing standards that could begin in model-year 2024 (a major engine and vehicle standards implementation milestone year in the heavy-duty phase 2 greenhouse gas program), consistent with the lead-time requirements of the U.S. Clean Air Act.”<sup>19</sup>

The collaborative effort between NACAA, NESCAUM, MECA, and the petitioners and supporters is truly unprecedented. Indeed, in order to meet increasingly stringent NAAQS in the coming years, these kinds of collaborations between air quality agencies, industry and environmental groups and EPA itself will be increasingly necessary. All affected areas have a common air quality challenge and a common goal of attaining health-based standards. The positive response to this collaborative effort from EPA shows that it is the beginning of even broader partnerships that can benefit air quality in all 50 states. **em**

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## References

1. The co-petitioners include Akron Regional Air Quality Management District of Akron, Ohio; Arizona Pima County Department of Environmental Quality; Bay Area Air Quality Management District; California Air Pollution Control Officers Association; Connecticut Department of Energy and Environmental Protection; Delaware Department of Energy and Environmental Protection; Nevada Washoe County Health District; New Hampshire Department of Environmental Services; New York City Department of Environmental Protection; Puget Sound Clean Air Agency; and Washington State Department of Ecology. Subsequent to the initial petition submittal, Coalition for Clean Air; Massachusetts Department of Environmental Protection; New York State Department of Environmental Conservation; Rhode Island Department of Environmental Management; Sacramento Metropolitan Air Quality Management District; San Bernardino Associated Governments; and Vermont Department of Environmental Conservation joined as signatories to the petition. A copy of the petition can be viewed at: <http://www.aqmd.gov/docs/default-source/default-document-library/news-docs/nox-petition-to-epa-june-2016.pdf?Status=Temp&sfvrsn=2>.
2. Letters of support were received from BYD Heavy Industries, California Air Resources Board, California Council on Environmental and Economic Balance, Placer County Air Pollution Control District, Port of Long Beach, Port of Los Angeles, Southern California Edison, and Southern California Gas Company. A joint letter signed by Allergy and Asthma Network, Alliance of Nurses for Healthy Environments, American Lung Association, American Public Health Association, American Thoracic Society, National Environmental Health Association, Healthcare Without Harm, National Association of City and County Health Officials, and Physicians for Social Responsibility, supported a ultra-low-NOx emissions standard.
3. Personal communications with Paul Miller and Matt Solomon, NESCAUM (June 2016).
4. See also information provided by Connecticut Department of Energy and Environmental Protection, New Hampshire Department of Environmental Services, and New York City in the Petition: <http://www.aqmd.gov/docs/default-source/default-document-library/news-docs/nox-petition-to-epa-june-2016.pdf?Status=Temp&sfvrsn=2>; pp. 18–20.
5. National Association of Clean Air Agency Comment Letter to U.S. EPA on the Phase 2 Greenhouse Gas Emissions Standards for Medium- and Heavy-Duty Engine and Vehicles (September 29, 2015).
6. Port of Long Beach Board of Harbor Commissioners Meeting, January 25, 2015 (Agenda Item. 1R).
7. 42 U.S.C. §7543(a).
8. 42 U.S.C. §7543(b).
9. *Ibid.*
10. California Air Resources Board Public Workshop to Discuss Potential Changes to the Heavy-Duty Engine and Vehicle Emission Standards, Test Procedures, Warranty, and Other Related Heavy-Duty Programs. Diamond Bar, CA (November 3, 2016): <https://www.arb.ca.gov/msprog/hdlownox/hdlownox.htm>.
11. California Air Resources Board Staff Report: Initial Statement of Reasons for Proposed Rulemaking: Proposed Regulation for In-Use On-Road Diesel Vehicles (October 2008); Table III-1, p. 19.
12. Presentation by Mr. Cory Palmer, CARB, at the Symposium on California’s Development of its Phase 2 Greenhouse Gas Emissions Standards for On-Road Medium- and Heavy-Duty Vehicles (April 22, 2015).
13. Congressional Research Service, Ozone Air Quality Standards: EPA’s 2015 Revisions (January 25, 2016); Figure 2.
14. See <http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2015/2015-nov5-004.pdf?sfvrsn=7>.
15. California Air Resources Board Draft Technology Assessment: Lower NOx Heavy-Duty Diesel Engines; p. V-1 (September 29, 2015): [https://www.arb.ca.gov/msprog/tech/techreport/diesel\\_tech\\_report.pdf](https://www.arb.ca.gov/msprog/tech/techreport/diesel_tech_report.pdf).
16. Statement of the Manufacturers of Emission Controls Association on the U.S. Environmental Protection Agency’s Proposed Rulemaking on Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2; p. 7 (September 25, 2015): [http://www.meca.org/attachments/2674/MECA\\_comments\\_on\\_EPA\\_Phase\\_2\\_HD\\_GHG\\_092515\\_final.pdf](http://www.meca.org/attachments/2674/MECA_comments_on_EPA_Phase_2_HD_GHG_092515_final.pdf).
17. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, 81 *Fed. Reg.* 206; 73478-74274 (October 25, 2016).
18. *Ibid.* at 73522c2.
19. U.S. Environmental Protection Agency (EPA) Correspondence to Southern California’s South Coast Air Quality Management District (SCAQMD), December 20, 2016. See <https://www.epa.gov/regulations-emissions-vehicles-and-engines/petitions-revised-nox-standards-highway-heavy-duty>.