THE HIGH OCTANE-LOW CARBON FUEL ALLIANCE

June 8, 2021

The Honorable Joseph Goffman
Acting Assistant Administrator
Office of Air and Radiation
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Assistant Administrator Goffman:

Thank you again for taking the time to meet with me and members of our High Octane Low Carbon (HOLC) Alliance on May 28. We appreciate your courtesy, candor, and willingness to listen to our concerns.

As we indicated on that call, the benefits of moving to HOLC fuels are clear and substantial with regard to their impact on greenhouse gas emissions – potentially reducing U.S. emissions by more than 100 million tons a year before 2030. But the purpose of this letter is to underscore the benefits to public health that are central to EPA's mission, with the strongest impact in dense urban communities, which is a focus of the administration's environmental justice concerns.

A 2021 assessment in the journal *Environmental Research*[1] concluded that the fossil-fuel component of $PM_{2.5}$ alone is responsible for more than 8 million premature deaths annually, amounting to nearly one-fifth of all global deaths. In other words, it is the leading cause of premature death from environmental pollution.

The smallest particles are the most dangerous to human health. As was noted in a 2019 report from the International Council on Clean Transportation, "Recommendations for Post-Euro 6 Standards for Light-Duty Vehicles in the European Union,"[2] the ability of inhaled particles to be captured within the human body, called the deposition efficiency, is a function of particle size. Vehicle exhaust, in particular that of gasoline direct injection (GDI) engines, contains copious amounts of particles in the size ranges with high deposition efficiency."

Indeed, a Chinese and American research team (including the late Nobel Prize winner, Mario Molina) reported last year: "Photooxidation of vehicular exhaust yields abundant [UFP] precursors, and organics, rather than sulfuric acid or base species, dominate formation of UFPs under urban conditions. Recognition of this source of UFPs is essential to assessing their impacts and developing mitigation policies. Our results imply that reduction of primary particles or removal of existing particles without simultaneously limiting organics from automobile emissions is ineffective and can even exacerbate this problem."[3]

[1] https://www.sciencedirect.com/science/article/abs/pii/S0013935121004870.
[2] https://theicct.org/sites/default/files/publications/Post_Euro6_standards_report_20191003.pdf.
[3] https://www.pnas.org/content/117/7/3427 *(emphasis added).*

Given the role of aromatic hydrocarbons in PM formation, and given the propensity of GDI engines to increase emissions of UFPs, EPA's strategies for regulating fine particle pollution in urban areas are doomed to failure unless they significantly reduce gasoline aromatics.

Compounding this problem, as noted in the attached letter from the technical director of the Urban Air Initiative, under the Fuels Regulatory Streamlining final rule (the "Streamlining Rule")[4] issued at the end of the Trump Administration, refineries no longer have to report aromatic levels. Instead, they are now required to submit only vapor pressure, sulfur, and benzene levels. At the same time, refineries are no longer required to use the Complex Model under the RFG program (approximately 30 percent of the national gasoline pool) to certify their gasoline, including the measurement of polycyclic organic matter – thus eliminating the only tool EPA has for limiting the most harmful emissions from vehicle exhaust.

As EPA acknowledged at a 2015 workshop it convened on UFPs, the agency's models are incapable of predicting, identifying, and controlling harmful emissions of secondary organic aerosol (SOA)-bound PAHs. In fact, it appears that EPA has been under-reporting these emissions for many years now, harming public health and the environment – notwithstanding the clear Congressional directive in the 1990 Clean Air Act Amendments, specifically Section 202(l) (which Congress reaffirmed in the 2005 Energy Policy Act). At the 2015 workshop EPA admitted that PAHs have a "synergetic" relationship with SOAs,[5] such that the PAHs weaponize the SOAs – amplifying, insulating, and preserving them for long-range transport. Yet, in the six years since this critical failure was revealed, EPA has done nothing to correct it, despite numerous pleas from concerned groups like ours.

In its 2007 MSAT Final Rule, EPA said it would be "compelled" to revisit Section 202(l) if "the science" showed a connection between gasoline aromatics and SOAs. That connection has now been demonstrated beyond a shadow of a doubt, yet the agency has failed to act. Instead, 15 years later, the Streamlining Rule is eliminating even the measurement of aromatics in refinery gasoline, with data only on benzene, despite the fact that non-benzene aromatics in gasoline convert to benzene, PAHs, and other toxics in the combustion process, since existing emissions control systems cannot capture them effectively.

Instead, the Office of Transportation and Air Quality (OTAQ) has failed to correct its substantial under-estimation of ethanol's superior octane and emissions properties and its ability to displace aromatics in the U.S. gasoline pool, despite having been urged to do so for many years.

This history offers you an opportunity to act. The agency's inaction to date is making U.S. urban areas dirtier, exposing millions of Americans – especially children and other vulnerable groups – to harmful air toxics on a 24/7 basis, with no means of escape, and causing thousands of premature deaths annually. The adverse health effects of this exposure will worsen unless gasoline aromatics levels are significantly reduced.

EPA is doing the right thing when it strives to meet President Biden's climate change objectives by reducing transportation sector carbon emissions. However, it would be negligent to

[4] 85 *Fed. Reg.* 78412 (Dec. 4, 2020).

[5] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5129264/pdf/ijerph-13-01054.pdf at 13.

implement carbon reduction strategies that in the near- to mid-term will substantially increase the most harmful mobile source air toxics emissions, especially when cost-effective mitigation strategies are available that would reduce both carbon emissions and air toxics simultaneously.

During our meeting, you suggested that proposing a higher-octane gasoline standard in the SAFE-2 Rule – in order to use HOLC E30 blends to displace carbon-intensive, carcinogenic aromatic compounds as Congress has required – would inject "new issues" into the rulemaking process. We respectfully, but strongly, disagree. Clean high octane fuels that enable greater fuel economy while reducing CO_2 could not be more relevant to this rule. In fact, the original GHG rule's legal justifications[6] invoked the 1990 Clean Air Act Amendments, the very law in which Congress banned leaded gasoline and directed EPA to replace high carbon, toxic aromatics with low carbon, safe, "clean octane" ethanol. The *Congressional Record* contains extensive legislative history showing that Congress wanted to avoid a repetition of the devastating health damage wreaked by poisonous leaded gasoline through the use of toxic gasoline aromatics.

In addition, the immediate predecessor to the SAFE-2 Rule now under reconsideration requested comment on how the "EPA could support the production and use of higher octane gasoline consistent with Title II of the Clean Air Act,"[7] which is of course where Section 202(l) resides. As we noted on our call, you should at the very least request comment on the role that HOLC fuels can play in attaining the objectives of the rule.

Under your leadership, OTAQ can redress the harm caused to public health by the failure to act on aromatics for the past 20 years. It is time for EPA to act as Congress intended and as Administrator Regan has pledged: "driven by science and the rule of law."

Sincerely,

Tom Daschle
Chair, High Octane Low Carbon Alliance

[6] 75 *Fed. Reg.* 25324 (May 7, 2010).
[7] 83 *Fed. Reg.* 42986, 43464 (Aug. 24, 2018).