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Comments from the  
American Lung Association  
on the  
Policy Assessment for the review of the  
Primary National Ambient Air Quality Standards  
for Nitrogen Dioxide  
(External Review Draft-September 2016)

Submitted by

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Thank you for the opportunity to provide comments on the Policy Assessment.

The American Lung Association has worked to save lives by improving lung health and preventing lung disease, through research, education and advocacy for more than 110 years. We have actively sought to have the national ambient air quality standards for all criteria pollutants regularly reviewed by the U.S. Environmental Protection Agency to ensure that they remain up-to-date with current research and provide the protection that the Clean Air Act requires.

We appreciate the careful consideration and detailed discussion of the combined impacts of diverse exposures to nitrogen oxides. We appreciate the intention that EPA states that they seek to identify the level of nitrogen dioxide and other oxides of nitrogen that are requisite to protect public health with an adequate margin of safety, as the Clean Air Act requires the Agency to do. It is complicated to isolate the impacts of one pollutant that is so completely compounded with other pollutants in some of the most common exposures.

However, such challenges are not new. In fact, they are exactly why the Clean Air Act states how EPA is to set the standard when such questions still remain: EPA should add a margin of safety to protect public health. Unfortunately, in this assessment, the emphasis on identifying what is “requisite” seems to overwhelm and obscure the requirement for a “margin of safety.” EPA should not make such critical decisions without recognizing and addressing that required margin of safety.

Given the complex chemistry in the mixture of emissions from tailpipes and other near-road sources, one can understand the focus on the review by Brown of the multiple chamber studies with only one pollutant to consider. These studies show that nitrogen dioxide harmed 70 percent of the people with asthma who were exposed to concentrations of NO<sub>2</sub> reaching 100 ppb for one-hour. As it happens 100 ppb was the lowest level examined in these chamber studies.

We find it hard to imagine that had the testing not ended at that level, a significant percentage of asthma patients would have been registered similar harm at levels below 100 ppb had they been exposed to those levels. Even if the impact is not directly linear, the population affected would likely be substantial.

We also had considerable concerns about the discussion on the exposure to NO<sub>2</sub> that might be sufficient to cause new onset asthma. The Assessment cited evidence that linked new onset asthma to both year-round exposure and repeated peak exposure. Five of the six studies cited found new onset asthma in cities where the annual design values were below 53 ppb (Carlsten et al.: 2011; Clougherty et al., 2007; Clark et al., 2010; McConnell

et al., 2010; Nishimura et al., 2013). However, the Assessment assigned the cause to the hourly exposures which in some cases exceeded 100 ppb, and to unmonitored near-road exposures, arguing that high levels were probably experienced on a repeated basis.

Current near road monitoring shows some design values as over 100 ppb, so the older near-road levels would likely have been even higher. But the Assessment dismisses the evidence that the annual levels might also be a problem even at the levels below 53 ppb. Most people would be experiencing the annual levels, and many likely experience both near road and annual averages. Clark et al. (2010) for example found that lower levels of both annual and hourly NO<sub>x</sub> below the standard were associated with increased risk of new onset asthma. However despite concluding that this was a “relatively precise and statistically significant association,” this evidence was written off because it used only central site monitoring. Dismissing annual levels assigns full blame to the hourly levels above 100 ppb in spite of the evidence in multiple studies that found statistically significant risk for asthma onset where annual levels were below 53 ppb.

In summary, we are concerned for two chief factors:

- a) the absence of a requisite margin of safety that recognizes the likelihood that hourly levels below 100 ppb will cause direct harm to a significant percentage of people with asthma; and
- b) the interpretation that new onset asthma can be blamed primarily or solely on the failure to meet the existing hourly standard.

The American Lung Association urges the CASAC and EPA to reconsider those assumptions and recommend stronger annual and hourly standards to incorporate the requisite margin of safety.

