

June 30, 2017

To: Minnesota Pollution Control Agency

Re: Volkswagen settlement: Beneficiary Mitigation Plan comments

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We, the undersigned, members of the Minnesota Senate and House of Representatives, submit these comments to the Minnesota Pollution Control Agency (PCA) as input to Minnesota's Beneficiary Mitigation Plan that will govern the agency's spending of funds the state will receive from the Volkswagen settlement to reduce emissions of nitrogen oxides (NO<sub>x</sub>).

Obviously, each of the ten emission reduction activities listed in the settlement decree as eligible for funding will reduce NO<sub>x</sub> emissions. PCA's challenge is to allocate these funds wisely, effectively and fairly by maximizing the benefits that will result from emissions reductions. The efficacy of this spending program will be determined not only by what combination of emissions reduction activities and funding levels are chosen, but also, more importantly, **where** those reductions take place, as we discuss below.

NO<sub>x</sub> emissions affect human health via three pathways. First, nitrogen dioxide (NO<sub>2</sub>) emissions promote the development of asthma and aggravate symptoms for those who suffer from asthma, and increase susceptibility to respiratory infections in general. Second, NO<sub>2</sub> reacts with airborne ammonia to form solid particles of ammonium nitrate. These tiny particulates, generically referred to as PM<sub>2.5</sub> (particulate matter less than 2.5 microns in diameter) pose severe health risks because they penetrate the deep recesses of the lungs, where they can cause chronic respiratory disease and impaired lung function. Finally, when NO<sub>x</sub> emissions combine with airborne volatile organic compounds (VOCs) in the presence of sunlight, ozone is created, a chemical whose inhalation inflames the lining of the lungs, reduces their ability to ward off infection, and can cause asthma, emphysema, and bronchitis.

Our recommendations regarding principles the agency should follow in developing its Beneficiary Mitigation Plan for spending settlement funds are as follows:

- **Emissions reductions should be targeted to areas exposed to the greatest the health risks posed by NOx emissions from diesel exhaust.** In its June 1, 2017, presentation at the Technical Stakeholders meeting, PCA included a map showing the health risks from diesel exhaust across the state, measuring the extent to which concentrations of diesel air pollutants exceed health benchmarks. (MPCA, *Volkswagen settlement: Impacts on Minnesota*, Slide #28) The map indicates that the highest risks are present throughout both Hennepin and Ramsey counties, where pollution concentrations are at least 10 times higher than health benchmarks. Significant risks also exist in the cities of Winona, Rochester, Owatonna, Mankato, St. Cloud, Moorhead, Duluth, Virginia and Hibbing. Clearly, it is urban residents whose health is most at risk from these pollutants, and reduction activities focused in those areas will result in the greatest health benefits.
- **Maximize benefits within cities by concentrating emissions reductions in areas containing significant proportions of populations that are particularly sensitive to NOx emissions.** This is an opportunity to remedy in direct fashion the disproportionate share of negative environmental consequences that some communities face as a result of cumulative exposure to pollution.

The agency's own analyses recognize that the respiratory impacts summarized above do not affect all people equally. The 2015 report, *Life and Breath: How air pollution affects public health in the Twin Cities*, authored by the agency and the Minnesota Department of Health, states:

The groups most affected by air pollution are people of color, elderly residents, children with uncontrolled asthma, and people living in poverty. Vulnerable populations may experience more health effects because these populations already have higher rates of heart and lung conditions. They experience more hospitalizations, emergency-room visits for asthma, and death related to air pollution.

The report estimated that the rate of admissions of Twin Cities children aged 0 to 17 to hospital emergency rooms by for asthma attributed to PM<sub>2.5</sub> pollution was 395 percent higher if those children lived in zip codes in which the proportion of people of color was 50 percent or higher, compared with zip codes where that ratio was below 25 percent. Admission rates for children from zip codes where the poverty rate exceeded 40 percent was 410 percent higher than admission rates for children living in zip codes where the poverty rate was below 20 percent. The comparable figures for emergency room visits for asthma attributed to ozone pollution were 274 percent and 365 percent, respectively.

The report also estimated rates of death attributed to these air pollutants for Twin Cities residents over 65 years of age. Death rates attributed to PM<sub>2.5</sub> levels were 33 percent higher in zip codes in which people of color constituted a majority of the population compared with zip codes where their presence was below 25 percent, and 45 percent higher for seniors living in zip codes where the poverty rate exceeded 40 percent. With respect to ozone pollution, death rates were 37 percent and 51 percent higher, respectively.

Clearly, reducing NO<sub>x</sub> levels in these areas containing a high proportion of what the study terms “vulnerable populations” will produce a higher level of health benefits than equivalent reductions achieved in other parts of the state.

These health benefits also result in significant economic savings in health-related costs. PCA estimates that the annual costs related to PM<sub>2.5</sub> and ozone pollution levels in the Twin Cities – taking into account mortality, hospital admissions, emergency room visits, work days lost, aggravated respiratory symptoms, and non-fatal heart attacks – amount to more than \$18.2 billion. (David Bael, *MPCA Analysis: Total Public Health Burden Attributable to Current PM<sub>2.5</sub> and Ozone in Minnesota, Summary of Results*, Table 6, [www.pca.state.mn.us/sites/default/files/leg-13sy1-12.pdf](http://www.pca.state.mn.us/sites/default/files/leg-13sy1-12.pdf)) Targeting NO<sub>x</sub> reductions to areas harboring vulnerable populations will reduce health costs.

This Minnesota evidence is supported by a recent national study of Medicare beneficiaries that found that blacks have a risk of death from exposure to PM<sub>2.5</sub> that is three times higher than that

of the overall population. (Qian Di et. al., “Air pollution and mortality in the Medicare population,” *New England Journal of Medicine*, Vol. 376, no. 26 (June 29, 2017), pp. 2513-2522.)

- **Target the most cost-effective mitigation activities, those that achieve the highest amount of NO<sub>x</sub> emissions reductions achieved per dollar spent.** The agency can make such calculations based on applications filed with it seeking financial assistance under the federal Diesel Emissions Reduction Act (DERA) and from other sources.
- **Take into account all factors affecting actual NO<sub>x</sub> exposure levels.** Topographical conditions may also play a role in aggravating the health impacts of NO<sub>x</sub> emissions. For example, emissions released in a valley that prevents them from being dissipated by winds increases the population’s exposure level.
- **Emissions reductions should be permanent, to the extent possible.**
- **Spend the maximum amount allowed under the settlement, 15 percent, on public charging stations for electric vehicles.** This is the one approved expenditure that allows states to jump-start the future. Increasing the number of public charging stations is a necessary precursor to accelerating the deployment of electric vehicles, which will result in steadily increasing emission reductions of several air pollutants – SO<sub>2</sub>, VOCs, CO<sub>2</sub>, and several other toxic substances, in addition to NO<sub>x</sub> -- as renewable fuels continue to replace fossil fuels as generators of electricity. We note that this recommendation is the one the agency has received most frequently from commenters as of May 30, being mentioned in 38 percent of the comments received by that date. (MPCA, “Volkswagen settlement: What we’ve heard,” [www.pca.state.mn.us/air/Volkswagen-settlement-what-weve-heard](http://www.pca.state.mn.us/air/Volkswagen-settlement-what-weve-heard))

We believe that developing a Beneficiary Mitigation Plan based on these principles will maximize the environmental, health, and economic benefits Minnesota will derive from its share of Volkswagen settlement funds.

Thank you for your attention to this important issue.



Fue Lee  
State Representative



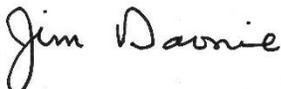
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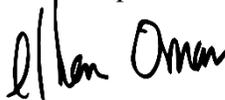
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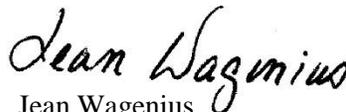
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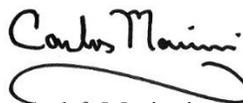
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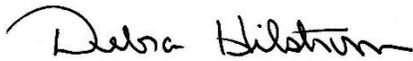
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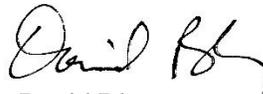
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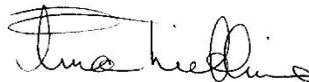
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