

Sent: Thursday, April 19, 2018 4:11 PM
To: VW_Mitigation_Plan
Subject: Comments on the Proposed VW Mitigation Plan

Thank you for developing a mitigation plan in the effort to turn VW's emissions deception into a plus for the environment and thank you for offering the opportunity to comment. I believe that the State has attempted to develop a good faith plan for improving air quality with the funds from the settlement. However, I think that the plan is very seriously flawed. The funds are to be expended on the replacement (or retrofitting) of buses that use diesel fuel with buses that use propane. Burning propane in the buses may indeed reduce emissions of PM 2.5, NOx, CO2 and black carbon locally. However, one of the fundamental lessons of the environmental movement that many of us thought we had learned over the past 40 years is that shifting local environmental burdens to another locality or medium is not actually a net benefit to the environment. In addition, Delaware's proposed plan doubles down on the mistake by using this high profile program to teach the opposite of that lesson to everyone who pays any attention to the program.

Basic principles of sustainability dictate that a life cycle analysis be performed on the proposed plan. A life cycle analysis considers the costs and benefits throughout the entire cycle. Once we began examining sustainability decisions more holistically, environmental experts began revising our approach to analyses like the one that this plan is based on. A broader analysis of this decision to switch to propane should lead to questioning the source of the propane. Propane comes from either natural gas or oil extraction. While propane burns cleaner than diesel at the engine, its generation through oil and gas exploration and refinement is absolutely exorbitant from an environmental standpoint. Exploration and development of oil and gas entails drilling, fracturing and processing to remove water and brine and separate the hydrocarbons. Every step of this process releases GHGs and other pollutants to the environment, exacerbating the problem of climate change. This plan is merely exchanging local PM2.5 and NOx locally for methane and CO2 releases at the points of extraction, processing and transport. Once the exploration and drilling is completed, the gas or oil must be transported by truck, tanker and/or pipeline. Each of these steps involves burning fossil fuels that release more GHG and NOx via engines or compressor stations. Having worked in the gas patch, I will tell you first-hand that the exploration and development of fossil fuels is a dirty business, with spills of hydrocarbons, leaking pits and tanks of drilling fluids and frac fluids, fugitive air emissions from valves and joints at compressor stations and pipelines that rival the volumes of gas that actually go to market (this is well documented in EPA's voluntary fugitive emissions reduction program).

Aside from the pure sustainability analysis of the decision to substitute propane for diesel, there is the absolutely wrongheaded decision to continue to invest in fossil fuels. The funds from VW's mistake is an epic windfall that presents the opportunity to make a paradigm shift. We must, for the sake of the Earth, the climate and our future on this planet, seize the opportunity to for once choose another way, a sustainable way. Instead of shifting to propane, for God's sake, choose sustainably-generated electric. We could add windmills and PV panels to bus parking lots and school rooftops and use those to recharge batteries instead continuing the folly of the past. DNREC may be thinking that there are not enough funds to replace all the buses with electric engines and that battery technology is not yet advanced to

the point where we can convert the entire fleet to a sustainable model, so it would be better to make an incremental shift through a bridge fuel. THAT IS WRONG. Small shifts toward sustainable operations produce a multiplied effect. Buying solar panels and windmills helps to reduce the cost of production so that they become more economically viable and their use can spread. Similarly, purchasing a system that uses batteries helps to provide funds for more efficient battery technology research, which helps to drive the technological advances that will help us convert to a sustainable energy mode. In addition, if the State were to use this project as a well-publicized example of its commitment to a sustainable model, others would follow. If you build it, they will come.

Another alternative that would help propel us in the right direction is the construction of bicycle highways, like in Norway. This would accomplish not only GHG emissions reductions, but also improved health for bike commuters. In a State where health insurance expenses and obesity are increasingly taxing our revenues, this confers an economic benefit that the State can ill afford to squander on a backwards fossil fuel investment. Another alternative would be to purchase an adaptive traffic signal system, like the City of Los Angeles. Have you ever noticed that you have to stop for every traffic light on a stretch of road and that the lights are longer in Delaware than other states? The reason you have to stop so frequently is that traffic engineers intentionally set the timing of the lights up to make motorists stop because they believed that this prevented them from building up speed. Meanwhile, our cars sit at idle, wasting precious fuel, despite the fact that the lights exacerbate our congestion to the point where we couldn't speed even if we wanted to! The Centre for Economics and Business research estimates that US commuters lost \$124 billion in 2013 due to the cost of fuel, the value of time wasted in traffic and the increased cost of doing business. Why not invest in a smart traffic system that not only reduces emissions, but also confers economic benefits and saves our citizens time? We could all use a little more of that.

Please reconsider this backward notion of investing in fossil fuels for school buses and do something progressive instead. There are lots of options that are more effective in reducing air pollution, confer additional social and economic benefits and put Delaware on path of leading in the right direction instead of sinking our money in archaic, dirty, 20th Century fossil fuels. Thank you.

Judy Jordan