



December 15, 2017

Brett Rude
Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

Re: PPGA's comments regarding State of Washington's proposed mitigation plan

The Pacific Propane Gas Association (PPGA) appreciates the opportunity to provide comments regarding the State of Washington's proposed mitigation plan. Upon review of the proposed mitigation plan the PPGA has significant concerns regarding the over focus on electrification in the proposed plan. Specifically, the complete focus on electrification may result in the State not being able to stretch the settlement money to the fullest extent possible. The PPGA strongly supports electrification where appropriate and believes that electrification will continue to play a key role in Washington becoming a greener state.

The PPGA believes that the mitigation plan should attempt to get the best "bang-for-the-buck" with settlement dollars being used to remove as many polluting vehicles from the road as possible. Focusing too much on electrification will likely result in a lesser number of polluting vehicles being removed from the road. It will limit much of the benefits of the settlement dollars to suburban and urban areas while not directing dollars to the rest of Washington.

The mitigation plan leaves behind much of the state of Washington despite its desire to focus on transit buses. The PPGA supports the component of the mitigation plan focusing on transit buses but is disappointed there is no emphasis on replacing school buses. Some of the funds recommended for transit bus replacement should be prioritized for school bus replacement. Diesel school buses are high pollutant vehicles that carry Washington's most vulnerable population—young school children. School buses carry children from every corner of the state of Washington and of every economic class. School buses are a tremendous way to stretch settlement dollars to the fullest extent possible while providing significant reductions in NO_x emissions. The PPGA believes that the mitigation plan should be updated to reflect the desire to reduce children's exposure to harmful NO_x emissions by making the replacement of diesel school buses a priority.

The PPGA believes that a stronger commitment to removing diesel school buses from the road will help Washington residents in all areas of the state and of all backgrounds. Additionally, a focus on school buses will reduce significant NO_x exposure to a high-risk population—school children. If the mitigation plan is updated to reflect the desire to remove highly polluting school buses from the roads to be replaced by newer, cleaner, school buses the PPGA believes that settlement dollars should be made available to all types of newer school buses whether they be propane, clean diesel or electric. The facts back up the case that propane school buses are the most cost-effective solution to reduce NO_x emissions from school buses so funds should be made open to all options not just electric school buses.

Bang for the Buck

The use of settlement funds should maintain the focus on offsetting the excess Volkswagen NO_x emissions. Here, the data is clear that propane is an effective way of decreasing emissions especially when it comes to school buses. This is not only true when comparing the older, eligible diesel engines with modern propane engines, but also when comparing propane engines to the best, modern diesel platform. For Type C school buses, diesel engines emit 18 percent more NO_x than comparable propane models¹. And according to the California Air Resources Board (CARB) certification data, the NO_x savings by choosing the best-in-class propane engine can be as high as 81 percent².

This “bang-for-the-buck” goes further when factoring in other bus ownership costs. For maintenance, a school district can expect to save \$2,000-\$2,500 per bus per year. This is due to propane buses requiring fewer fluids and filters to keep running. And for price, wholesale propane falls between the price of oil and natural gas, the two sources of the fuel. This makes propane price competitive with the conventional fuels. For comparison, according to the most recent Clean Cities data, the price of propane is almost 50 cents-per-gallon cheaper than diesel³. This figure does not take into account the savings that occur from individual propane marketers negotiating favorable pricing with fleet managers.

It’s also important to look at what the marketplace already offers for NO_x reduction. For example, the Volkswagen funds are available for electric forklifts. The PPGA would discourage you from focusing on these. Although, the temptation is there to replace diesel equipment with electric equipment the PPGA believes that in the long run this equipment will be phased out by cleaner, cheaper, alternatives like propane and electricity on its own. Using mitigation funds on this type of replacement will only reduce the amount of true NO_x reduction that can be achieved with settlement dollars.

Finally, if the plan is updated to focus on replacing old diesel school buses, as proposed by the PPGA, the plan should not pick winners and losers when it comes to selection of the newer type of buses. Currently, a propane powered school bus has the purchase price of \$95,000 and can reduce NO_x emissions by 537 lbs. This is a cost of \$177 per pound of NO_x reduction. Comparably, a new clean diesel school bus costs \$90,000 but reduces emissions by only 331 lbs. for a cost per pound reduction of \$272. Although, cleaner an electric school bus has a purchase price of \$300,000 and reduces emissions by 593 lbs. This is a cost of \$506 per pound reduction. Propane school buses are the most cost-effective solution to reduce NO_x emissions from school buses so funds should be made open to all options not just electric school buses.

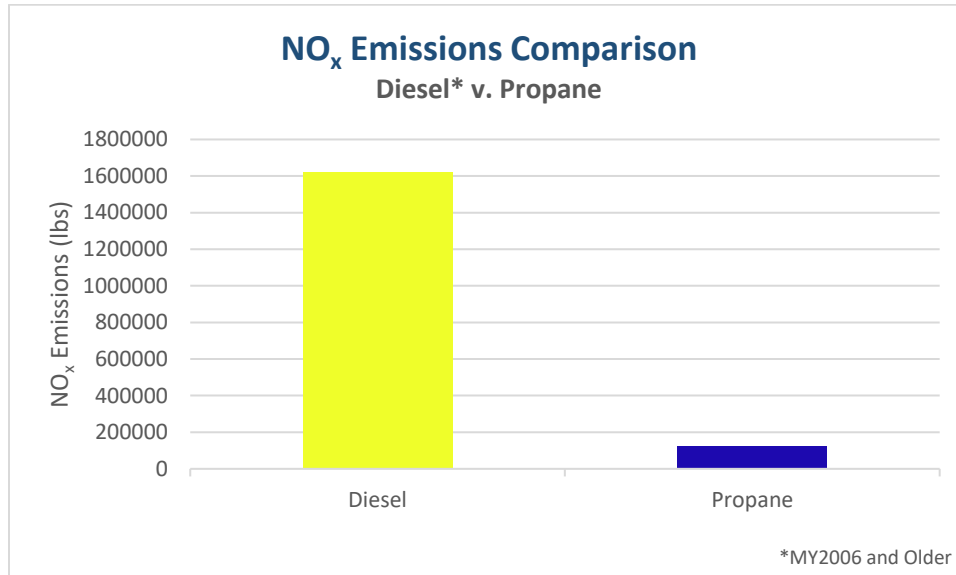
Ultimately, the goal is NO_x reduction and this is why school buses should be larger focus in the mitigation plan. According to data from Argonne National Laboratory, if Washington were to replace all 4,047 eligible for this settlement with new, clean-burning propane models, there would be a **92 percent reduction in NO_x**. As an additional benefit, there would be a 98 percent reduction in particulate matter (PM) and a 91 percent reduction in tailpipe Volatile Organic Compounds (VOC)⁴.

¹ *Propane Greenhouse Gas and Criteria Pollutant Emissions Comparative Analysis* Gas Technologies Institute

² CARB low NO_x certification data for MY2017 Roush 6.8L propane model compared with MY2016 Cummins 6.7L diesel model

³ http://www.afdc.energy.gov/uploads/publication/alternative_fuel_price_report_oct_2016.pdf

⁴ Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) 2016 tool (provided by Argonne National Laboratory) as well as U.S. school bus fleet data (provided by PERC) to calculate the emissions reduction potential associated with replacing diesel-fueled school buses with new (2016) propane autogas school buses



Data Source: AFLEET

Clean School Buses Have Proven Results

With the ability to install refueling apparatus cost effectively and easily on site, propane marketers have worked with school districts across the country to switch over to propane models. More than 12,000 propane-powered school buses transport 700,000 students safely every day. In Washington, 187 propane-powered buses are already on the road, serving the community. It is important to highlight that as part of the Volkswagen Settlement, propane school buses are eligible for **100 percent** of the replacement costs⁵. Although eligible for 100 percent of the replacement costs the PPGA believes that 25 percent rebate with a 75 percent local match would be very attractive to school districts in Washington and result in a substantial “bang-for-the-buck.”

Already in Washington, there are 23 school districts that have buses running on clean burning propane. Students on these buses are experiencing these clean air benefits. There is also the added advantage that propane buses are quieter than their diesel counterparts⁶. When factoring in all of the benefits, there is no doubt that investing Volkswagen Settlement funds into propane powered school buses would be one of the most cost-effective ways of reducing the excess NO_x caused by Volkswagen.

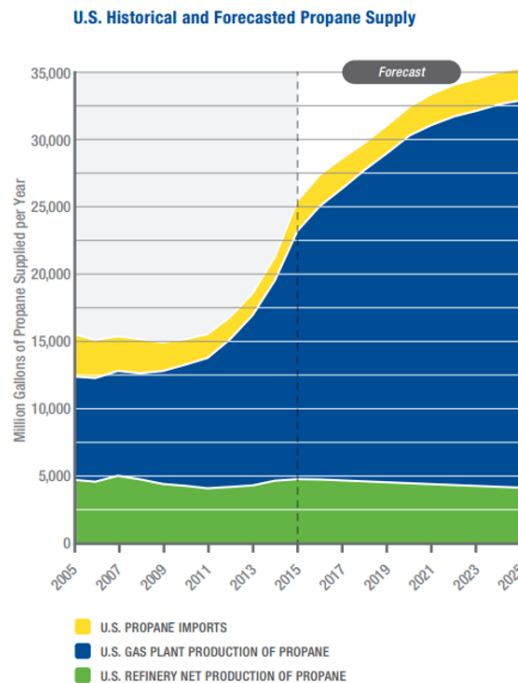
Fuel Availability

America’s current domestic energy renaissance has meant drastic increases in the production of propane. Propane has traditionally been viewed as a byproduct of the oil refining process. However, the increase in production from natural gas processing has shifted this perception. In 2014, there was enough propane

⁵ Supra Partial Consent Decree at Appendix D-2

⁶ The Blue Bird Propane Vision school bus cuts vehicle and engine noise by producing sound 11 decibels lower than diesel fueled buses.

produced from the domestic natural gas supply to meet about 98 percent of the U.S.’s consumer and petrochemical demand. The increase of domestic production has led to record high levels of propane in recent years. Production is forecasted to continue to increase⁷, ensuring a steady supply of this American-made fuel.



Source: ICF International

In the last ten years, the United States has gone from being a net importer to a net exporter of propane. In fact, we are currently exporting nearly 10 billion gallons of propane annually. That’s the equivalent of the fuel needed for 4 million fleet vehicles. Energy security and independence has been a goal of the United States for many years. By using more of our domestically produced propane, we can continue to decrease the reliance on foreign-sourced fuel.

In order to get this large propane supply to the consumer transportation market, the industry relies on a network of public and private refueling stations. Nationwide, there are more than 3,600 stations ready to supply consumers with propane. In Washington, there are already 90 public and private stations⁸. As you can see, propane infrastructure is already in place to facilitate Washington’s Environmental Mitigation Plan.

Additionally, many fleet managers opt to install their own central refueling infrastructure to ease the adoption of propane into the transportation fleet. Propane infrastructure is relatively easy and affordable to install and maintain. Depending on the needs and equipment, the infrastructure installation costs can

⁷ 2016 Propane Market Outlook ICF International

⁸ http://www.afdc.energy.gov/fuels/stations_counts.html



range from \$37,000 - \$175,000⁹. When compared to competing alternative fuels, propane's availability and accessibility is one of the most cost effective ways for adopting new technologies.

Summary

Once again, the PPGA strongly encourages the Department of Ecology to make changes to the proposed mitigation plan and specifically allocate dollars for the replacement of old diesel school buses with newer, clean school buses. A mitigation plan reflecting this change will result in:

- Significant NO_x reduction
- Eliminating exposure to a high-risk population—school children
- Provide benefits to Washingtonians in all corners of the state
- Stretch the settlement dollars to the fullest extent possible

Should you have any immediate questions please contact me at matt@kdafirm.com or (844) 585-4940.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew Solak". The signature is fluid and cursive, with a large initial "M" and "S".

Matthew Solak
Executive Director
Pacific Propane Gas Association

⁹ http://www.afdc.energy.gov/fuels/propane_infrastructure.html