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Todd R. Campbell
Vice President Public Policy & Regulatory Affairs



August 30, 2018

Ms. Khamly Chuop
Port Associate Environmental Planner/Scientist
Port of Oakland
530 Water Street
Oakland, CA 94607

Re: Comments on Draft Seaport Air Quality 2020 and Beyond Plan

Dear Ms. Chuop,

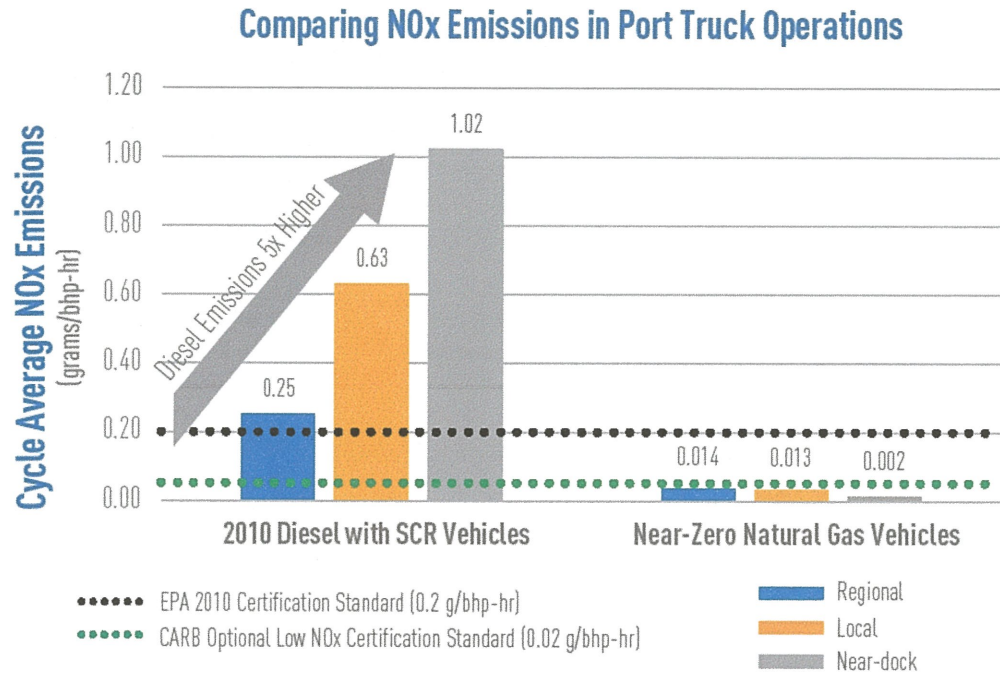
Clean Energy would like to thank the Port of Oakland staff for the opportunity to provide written comment on the "Draft Seaport Air Quality 2020 and Beyond Plan" (Draft Plan) and for meeting with us earlier this month to discuss the commercial readiness of near zero engine technology operating on renewable fuel for port drayage operations. Clean Energy recognizes the regional economic importance of the Port to the Bay Area and beyond and supports the Port Authority's desire to move toward a zero-emission future when it comes to port and port-related operations.

In short, we strongly believe the Port of Oakland's Draft Plan would benefit greatly if it provided greater flexibility towards emissions equivalent technologies, more certainty, and encouraged port tenants and affiliated businesses to aggressively apply for federal, state and local funding to comply with date certain goals that require a transition toward advanced clean technologies. More specifically, we believe zero emission equivalent technologies are commercially available now providing the Port of Oakland with an opportunity to provide immediate relief to its surrounding communities and region.

Near Zero Technology is a Zero Equivalent Option that is Commercially Available Today

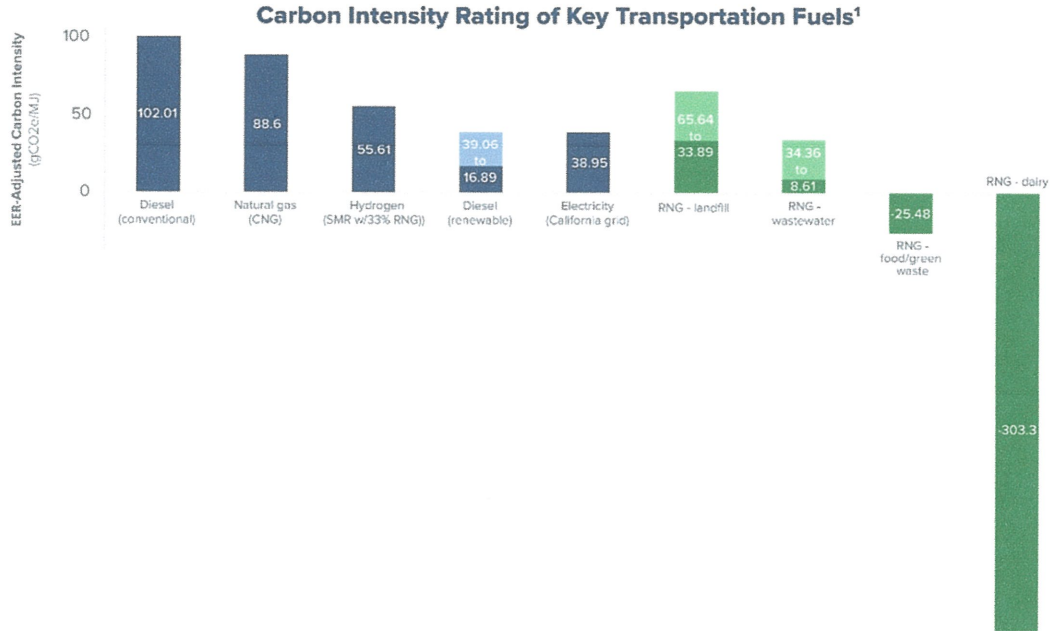
While there are several clean truck strategies in various stages of development, near zero engines that run on renewable natural gas are commercially available today. Specifically, the ISX12N engine manufactured by Cummins Westport has already been certified at 0.02 g/bhp-hr for nitrogen oxides (NOx) and has demonstrated emissions as low as 0.001 g/bhp-hr during in-use testing of the engine. In other words, not only has this engine been able to certify to an optional low NOx standard five years ahead of the 2023 California Air Resources Board (CARB) proposed rulemaking, it did so at the most stringent optional low NOx standard identified by CARB. The South Coast Air Quality Management District performed an evaluation of its regional electrical grid and determined that the electricity to charge a battery-electric truck would roughly be 0.024 g/bhp-hr NOx. In other words, it is very possible that near zero engines can match, and in some cases beat, zero tailpipe propulsion system performance depending upon the electrical grid.

More importantly, the Port Authority has an option that can deliver a zero emission equivalent performance today.

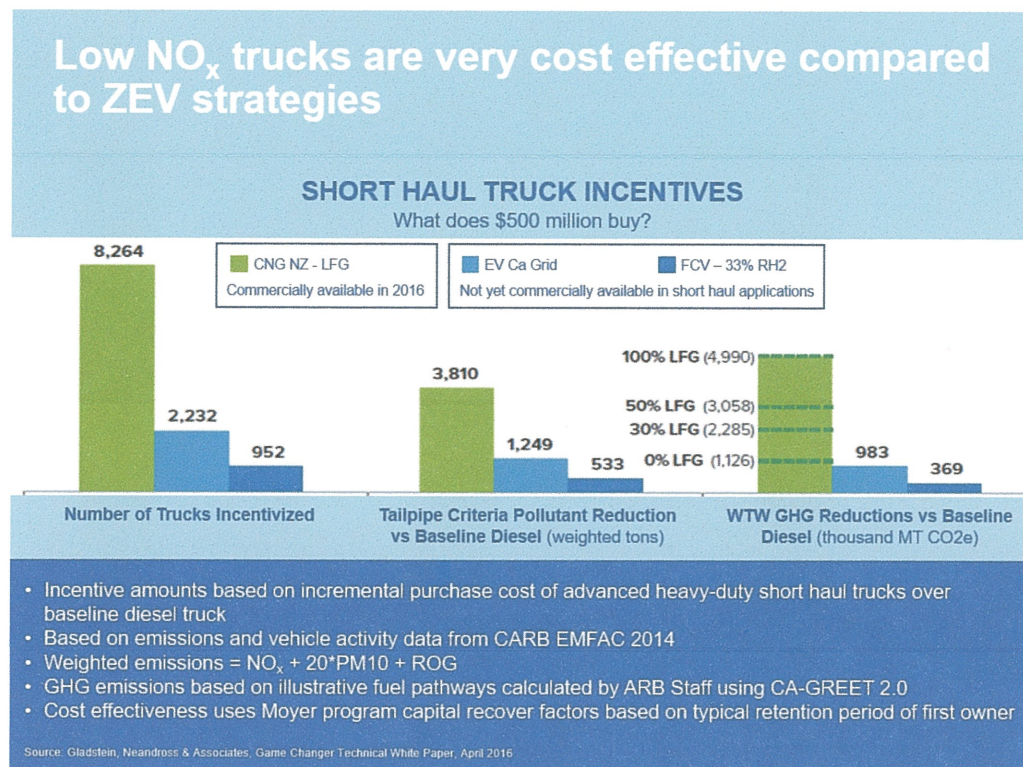


From UC Riverside CE-CERT Fact Sheet: Ultra-Low NOX Natural Gas Vehicle Evaluation

When powered by renewable natural gas (also sometimes referred to as RNG or biomethane), a natural gas-powered engine can deliver significant climate emission reductions that can ultimately provide zero, and even sub-zero, performance levels. Part of the reason for this is RNG's extremely low carbon content. This is especially the case when RNG is from sources like dairy, food and green waste and wastewater. Looking at the graph below, one can see just how RNG stacks up to conventional diesel, conventional natural gas, hydrogen and electricity received from the California grid.



These trucks are also more cost-effective when compared to zero tailpipe propulsion systems for both the truck and infrastructure. In fact, a 2016 analysis compared the emissions reductions of criteria pollutants and greenhouse gases with a \$500 million investment shown in the following chart. Near zero trucks powered by RNG delivered far superior benefits. Of course, the greenhouse gas reductions will be even more superior with the new sources of negative carbon RNG that are coming online. The emissions reduction advantages using a near zero, renewable alternative is very much in line with the Port of Oakland's vision as stated on page 2 of the Draft Plan.



Final Plan Would Benefit from a More Inclusive View of Achieving Zero Equivalent Emissions

While the Draft Plan touches on many advanced clean vehicle technologies that could help achieve the Port's clean air and climate change goals in the main document and its appendices, Clean Energy believes the final document would benefit from a narrative that strongly emphasizes the need for both zero and near-zero emission strategies that meet or beat a 0.02 g/bhp-hr NO_x standard or better. The rationale for this cut-point is as follows: (1) zero-equivalency for NO_x emissions has been estimated at 0.024 g/bhp-hr by the South Coast Air Quality Management District; (2) the most stringent optional low NO_x standard set for a heavy-duty truck engine is 0.02 g/bhp-hr; (3) trucks meeting the 0.02 g NO_x standard are commercially available on the market today; and, (4) setting such a standard provides both certainty and greater flexibility in meeting the Port Authority's vision for meeting zero equivalent emissions.

By giving equal weight to zero and near zero strategies that achieve at a minimum a 90 percent NO_x reduction and a 70 percent carbon reduction, the Port would increase the certainty of delivering both deep and cost-effective emissions reductions that are commercially available today. The Port of Oakland would provide greater flexibility for its tenants and affiliated businesses in terms of their operational needs. Furthermore, it would encourage port businesses to really look at what is available now to help clean up Oakland's goods movement operations without having a fear that they are choosing a pathway that the Port may opt not to support in the future.

Additionally, it will be critical for the Port Authority to encourage those operators that are in the market to purchase new equipment to do so now when substantial amounts of state and local grant monies are available and due to the new restrictions placed on CARB by SB 1 that allows trucks to operate on California's roads for up to 18 years or 800,000 miles. In other words, encouraging port businesses to move to commercially available clean tech options now for drayage is more important than ever if the Port wants to see meaningful reductions from this source category. The Port certainly does not want its customers to wait until 2023 and find out grant money is no longer available for the most viable option for drayage.

The Importance of Setting Targets for Action

Clean Energy believes the Draft Plan would greatly benefit from setting emissions standards for emissions sources over the next decade to ensure that a transition toward zero-equivalent operations occurs in the near-, mid- and long-term. By setting targets, the probability of clean technology investments will also be more likely and both tenants and vendors would be looking to take advantage of both grants and opportunities to transition to cleaner operations.

For example, we suggest that the Port Authority establish a Clean Truck Program for the Port of Oakland that begins in year 2020. During this year, truck owners need to begin contending with CARB's Truck and Bus Rule that bans pre-2010 port trucks at the end of 2022. The Port should capitalize on this event where truckers will be looking to replace their old diesels by incentivizing them to purchase cleaner options. The Port could do so by setting a 0.02 g/bhp-hr NOx requirement at the Port starting in year 2020. While trucks accessing the Port that fail to meet the 0.02 g/bhp-hr NOx standard will not be turned away from doing business, they will be assessed a fee at the gate which will be used to help Port drayage trucks transition toward cleaner options. Putting fee structure will also be critical for the Port to establish now because of the SB 1 provisions that allow a driver to operate a truck for up to 18 years or 800,000 miles. The more the Port can persuade a truck driver or a fleet to invest in the cleanest drayage technologies available, the better off the Port will be when it comes to report on clean air and carbon emission reductions to the surrounding communities and region.

Near Zero Trucks Are Commercially Available from Well-Known Truck Manufacturers

Cummins Westport achieved 0.02 NOx certification from EPA and CARB. The 12 liter ISX12N entered commercial production in February 2018. The engine is manufactured at the Cummins manufacturing plant in Jamestown, New York. The factory can produce as many ISX12N engines as are needed. The engine is fully supported by Cummins with a local service center in San Leandro along with service centers located throughout the US.

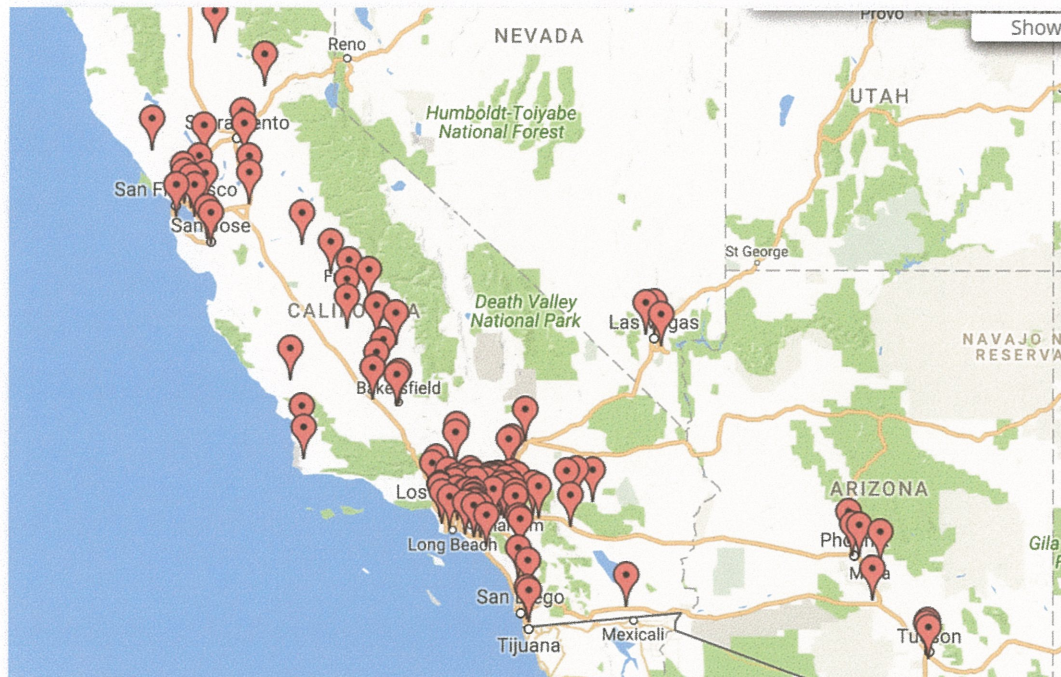
The leading truck manufacturers Freightliner, Kenworth, Peterbilt, Volvo and Mack all sell trucks with the near zero ISX12N engine. This means that truck buyers can rely on the same truck manufactures of their choice with service and support from their local dealers. The nationwide manufacturing, parts, service and support infrastructure is already in place.

Near zero truck buyers can select whether they want to use fuel as LNG or CNG. The fuel system market is robust and competitive with excellent companies already serving the market:

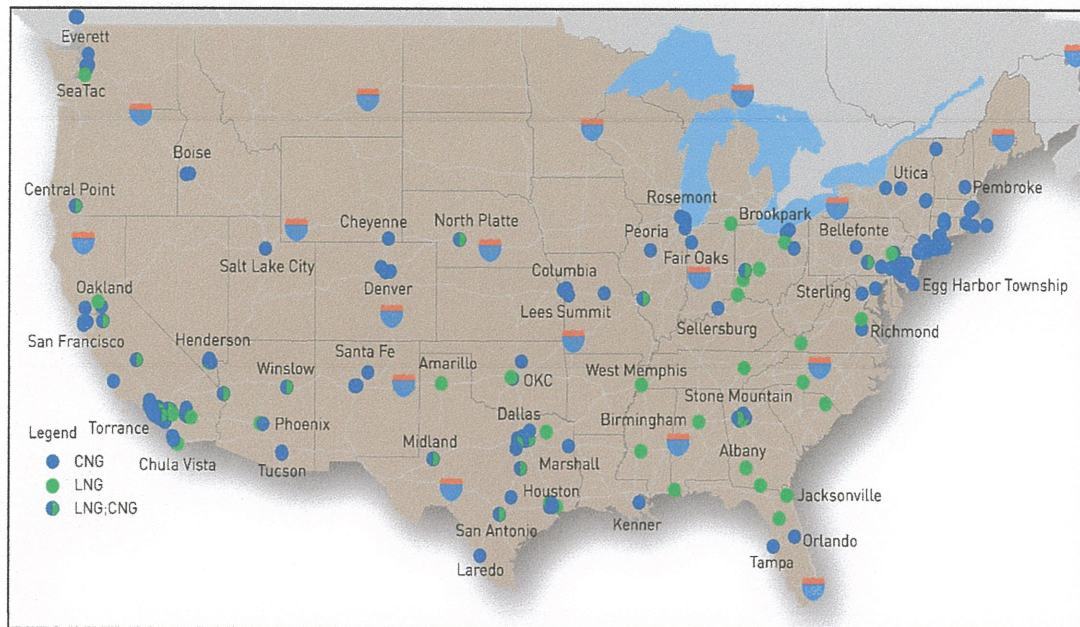
- Agility
- Momentum
- Worthington
- Quantum
- Chart

Renewable Natural Gas Fueling Industry Is Already Well Positioned to Serve the Port of Oakland, Surround Regions, and State

Fueling natural gas vehicles in the Bay Area is not new. NGV stations have been operated in the region for many years at locations such as the Oakland airport, San Francisco Airport, Waste Management, and on Brush Street near the Port. The natural gas fueling industry has matured over the past 10 years with heavy duty truck stations now deployed throughout California and the US. Stations will continue to be added to fill gaps as industry responds to market signals sent by the Port's policies. Most of the funding for natural gas fueling infrastructure is private capital rather than relying on public funds and utility ratepayers. The natural gas fueling industry is also undergoing a transformation by supplying renewable natural gas (RNG) to displace fossil gas. Clean Energy is already supplying 100% RNG to vehicle customers in California.



Semi-truck Natural Gas Fueling Stations from cngvc.org/news/fueling-stations



Semi-truck CNG and LNG Fueling Stations from www.cnglngstations.com

Californians Support Both Near Zero and Zero Strategies

The Coalition for Clean Air published a poll of Californians throughout the state and living in areas near transportation corridors. This poll found:

- Over 66% of respondents SUPPORT deploying BOTH near zero and zero emission vehicles
- 90% OPPOSE supporting just one technology over the other

www.ccair.org/wp-content/uploads/2018/06/220-4939-CA-Clean-Air-Issues-Memo-D1A.pdf

Concluding Remarks

Near zero trucks powered by renewable natural gas offer zero-equivalent performance that is cost-effective and available today:

- 99% lower NOx emissions than in-use diesel trucks
- 90% lower NOx emissions than the current EPA and CARB standards
- 70% to over 100% reduction in climate pollutants
- 0 diesel particulate matter
- 0 petroleum fuel
- 100% renewable energy
- 90% quieter operation

Clean Energy very much looks forward to working with the Port of Oakland on finalizing the Draft Plan and is ready to support the goods movement industry as it transitions toward cleaner

technologies that can lead us toward a zero emission future. By broadening the Final Plan's emphasis to be inclusive of both Zero and Near Zero strategies, the Port will achieve zero-equivalent emission outcomes, deeper reductions in carbon, and provide a range of cost-effective solutions which provide the flexibility the goods movement industry needs to succeed and operate properly. The Port will send market signals that encourage competition and introduction of zero-equivalent technologies. Furthermore, the Port Authority will be able to demonstrate measurable progress in the near term by establishing a fee structure that supports a transition to cleaner, zero-equivalent, and cost-effective solutions.

Thank you for the opportunity to provide our thoughts on this very important document.

Sincerely,

A handwritten signature in black ink, appearing to read 'Todd R. Campbell', with a stylized, cursive script.

Todd R. Campbell
Vice President, Public Policy and Regulatory Affairs

cc:

Richard Sinkoff, Port of Oakland

Diane Heinze, Port of Oakland

Catherine Mukai, Port of Oakland