Comments of Joseph T. Dalum,

President of Odyne Systems, LLC

June 25, 2020

NZEV Credit for Zero Emissions Worksite (ePTO) Advanced Clean Trucks Regulation

AGENCY:

California Air Resources Board

To:

Mary Nichols, Chair
California Air Resources Board
1001 1 Street
Sacramento, CA 95814

From:

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RE: Advanced Clean Trucks Regulations

Dear Chair Nichols and Board Members,

Odyne Systems, LLC (Odyne) appreciates the opportunity to provide comments on the proposed Advanced Clean Trucks Regulation.

Odyne develops and sells zero-emission solutions for trucks operating at worksites, also known as electric power take-off or ePTO systems.

Thousands of medium and heavy-duty trucks operating in California spend much of the day running engines to provide power for truck mounted equipment when stationary or use truck mounted generators to supply power for worksites. Examples include utility trucks that operate engines for many hours to power a bucket lift to repair power lines, trucks at construction sites operating cranes to load and unload material, trucks operated by municipalities to repair underground infrastructure using jack hammers powered by truck mounted compressors, and many, many other applications where truck engines are primarily used to power equipment.

Truck electrification systems are available and in use that eliminate the operation of truck engines at worksites for the entire day, resulting in zero emissions, fully electrified modes of operation. Third party studies, paid for by the state of California, have shown that ePTO systems provide extraordinarily strong full day NOx emission reductions[i] of up to 96% and full day fuel savings up to 65%.[ii]

Odyne respectfully recommends that the air resources board include vehicles with approved ePTO systems in its definition of Near-zero-emission vehicles in the proposed Advanced Clean Trucks Regulations.

CARB in consultation with the California Energy Commission, defined near zero-emission as vehicles that have a duty-cycle that includes zero-emission operation, including ePTOs, and provided incentive funding through HVIP to encourage the use of ePTO systems. CARB wrote that "These vehicles create a pathway to zero-emissions and help to ensure that funding supports early commercial deployment of zero- and near zero-emission heavy-duty truck technology per the requirements of SB 1204 and SB 1403."[iii]

Specifically, Odyne recommends changing the language of "NZEV" to include:

> (C) An on-road plug-in vehicle with an electric power take-off (ePTO) that is capable of zero emissions operation of equipment and accessories, such as, for example, pumps, compressors, generators and TRUs, and that meets the requirements of section 5(a) through section 5(k) of the IMPLEMENTATION MANUAL FOR THE HYBRID AND ZERO-EMISSION TRUCK AND BUS VOUCHER INCENTIVE PROJECT (HVIP), dated June 4, 2020 as released by the California Air Resources Board.[iv]

The credits for near-zero-emission vehicles with ePTOs could accrue to the chassis OEM using a delegated assembly relationship as defined in "The Zero-Emission Powertrain Certification Amendments to California Greenhouse Gas Exhaust Emission Standards And Test Procedures For 2014 And Subsequent Model Heavy-Duty Vehicles."[v]

Adding a regulatory incentive to accelerate the adoption of ePTO technology would result in more quickly reaching criteria and GHG emission reduction goals, while providing communities with other benefits such as reduced noise, due to the quiet stationary operation of work trucks without idling. Commercial operators would benefit from reduced fuel consumption, reduced engine maintenance and more flexible operating hours.

While Odyne supports a quick transition to full electric vehicle operation, many trucks, such as utility trucks and fire trucks need to operate after a natural disaster, such as an earthquake that could disrupt grid power. Fully electric trucks could pose limitations on disaster response during a large-scale grid outage or reduce the ability to perform storm damage assistance in locations without operating grids for recharging. Trucks with ePTO systems could save fuel and emissions during normal operation and still perform without requiring access to the grid during emergencies.

Although outside the scope of ACT, Odyne also recommends that the air resources board consider mandating the use of ePTO technology in certain zones with high NOx emissions. ePTO systems can be installed on existing trucks as a retro-fit providing the ability to rapidly reduce emissions without waiting for new trucks with reduced emissions to be produced to replace existing trucks. Many larger medium and heavy-duty vehicle can remain in the field for over 20 years; relying only upon the turn-over of trucks before introducing improved emissions reduction technology will delay the attainment of overall emissions reduction goals.

In summary, Odyne supports the transition to electrified vehicle operation and believes the use of ePTO systems to provide zero emissions fully electric operation of trucks at worksites is an important step towards that goal. Odyne respectfully asks that ePTO systems be included in the definition of a Near Zero-Emissions Vehicle in the proposed Advanced Clean Truck Regulation.

Best regards,

Digitally signed by Joseph T. Dalum
DN: cn=Joseph T. Dalum, c=US, o=Odyne Systems, LLC, email=jtdksbd@outlook.com
Reason: I am the author of this document
Location: Delafield, WI
Date: 2020.06.25 11:45:42 -05'00'

Joseph T. Dalum

[i] Investigation of Emissions Impacts from Hybrid Powertrains, National Renewable Energy Laboratory, report was supported by the California Air Resources Board under agreement number 14-613, National Renewable Energy Laboratory contract number FIA-15-1802. Page 61: … "with the implementation of the battery powered ePTO system large improvements were made in NOx emissions over a conventional stationary PTO operation". … "This study provide evidence that these benefits can provide up to a 10X NOx reduction for the hybrid over a given day, depending on the amount and duration of work site activity." https://www.nrel.gov/docs/fy20osti/75782.pdf

[ii] Page 3-14 Plug-In Hybrid Medium-Duty Truck Demonstration and Evaluation , U.S. Department of Energy, SCAQMD and EPRI: http://www.osti.gov/scitech/biblio/1234437-plug-hybrid-medium-duty-truck-demonstration-evaluation

[iii] Page 76, Proposed Fiscal Year 2019-20 Funding Plan for Clean Transportation Incentives

"SB 1403 also requires that no less than 20 percent of truck funding be used to support early commercial deployment of existing zero- and near zero-emission heavy-duty truck technology. For the purposes of this funding plan, CARB, in consultation with the California Energy Commission, has defined near zero-emission as vehicles that have a duty-cycle that include zero-emission operation, including ePTOs and hybrids with an all-electric range. Currently, ePTOs represent a technological improvement that support the pathway towards zero-emission technologies."

Page 96: "ePTO (electric power take-off) systems will remain as an eligible near zero-emission technology due to their ability to provide zero-emission operation at worksites while using combustion engines for motive power. These vehicles create a pathway to zero-emissions and help to ensure that funding supports early commercial deployment of zero- and near zero-emission heavy-duty truck technology per the requirements of SB 1204 and SB 1403."

[iv] https://www.californiahvip.org/resources/#implementation-manuals

[v] The Zero-Emission Powertrain Certification Amendments to CALIFORNIA GREENHOUSE GAS EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2014 AND SUBSEQUENT MODEL HEAVY-DUTY VEHICLES, as amended June 27, 2019, page B-24, 1037.621