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Public Comment on Advanced Clean Fleets AB1594 Amendments – Altec's Informal Response

Re: Altec met with the CARB team on November 21, 2024,to discuss recommendations to amend the Advanced Clean Fleets regulation for Assembly Bill 1594 to potentially offer Public Agency Utilities (PAU) fleets the option for increased flexibility to purchase Internal Combustion Engines (ICE). In addition to our on-site meeting, Altec has included the following informal response.

Altec's History of Vehicle Electrification:

For over 15 years, our electric utility customers have advocated for developing ePTO and jobsite anti-idle technology for our truck-mounted equipment vehicles. 2009 we initiated this journey with simple plug-in AGM lead-acid 48V systems. While functional, these systems were heavy and required operators to take additional steps to utilize the engine-off ePTO systems, which proved less than ideal.

In 2014, we partnered with a startup to develop and provide an automated, fully featured ePTO system. This system included a plug-in lithium battery JEMS system with ePTO hydraulics, an automated anti-idle feature, robust HVAC for the cab, 12V energy support, and 120V export power.

By 2016/17, Altec Green Fleet Engineering embarked on designing our proprietary Altec JEMS ePTO systems. Collaborating with Cummins, our battery supplier, we leveraged historical insights to create new automated performance JEMS systems characterized by enhanced reliability and comprehensive data collection capabilities, including CARB DAC functionality.

Many JEMS operating in fleets today were manufactured in Dixon, CA, where we currently employ Altec associates that help our customers in CA, across the US, and Canada, achieve their emissions goals.

Today, Altec is the market leader for ePTO and jobsite anti-idle technology for the truck-mounted equipment market. Despite the current limitations of MD/HD Electric Vehicles (EVs), Altec expanded its electrification portfolio to EVs targeting specific work applications.

Assembly Bill 1594 Background:

Current Challenges and Market Dynamics: Altec supports CARB's urgency for zero-emission solutions; however, there are some challenges specific to PAUs, High Priority, and Federal Fleets to achieve the reported adoption goals. MD/HD ZEV limitations include but are not limited to:

- Limited MD/HD Charging Infrastructure
- Range and Performance limitations
- OEM technology is available for diverse work applications required for truck-mounted equipment (such as towing, 4x4, available payload, etc.)
- Duty Cycles that vary significantly based on the work application and workday
- PAU mutual aid and emergency grid response
- Supply chain lead time due to lagging response from the initial supply chain crisis

Aerial trucks to support the grid can idle at the jobsite around 5.5 – 7 hrs. of their workday. Without an ePTO, idling is necessary to deliver power to the aerial and other jobsite tools. An ePTO solution such as JEMS eliminates jobsite idling and offers the fleets a zero-emission jobsite solution. In addition, ePTO

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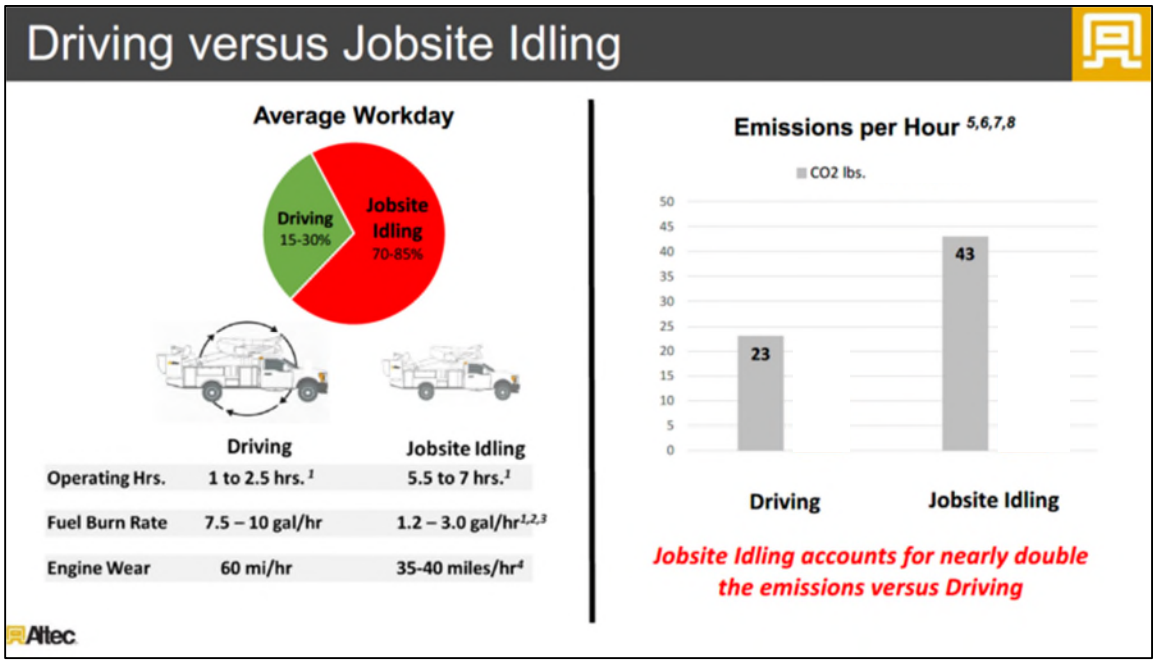
solutions overcome the current limitations of MD/HD ZEVs while significantly eliminating unnecessary toxic emissions.



Compares the impact of Driving a vehicle versus a vehicle while idling at the jobsite

Altec JEMS Solution:

JEMS' primary goal is to eliminate jobsite idling, thus eliminating toxic emissions from the engine. JEMS solutions range from eliminating chassis jobsite idling to eliminating idling from an onboard generator. JEMS solutions are designed to eliminate jobsite idling while not compromising jobsite performance and reliability. JEMS offers Level 1 and Level 2 plug-in charging solutions and mobile charging. JEMS recovers energy while traveling between jobsites to replenish the JEMS lithium-ion batteries to maximize JEMS performance at the jobsite.

In addition, JEMS delivers a safe and quiet jobsite that offers the operators increased situational awareness and improved communication due to a quiet jobsite from the engine, not idling.

JEMS also reduces the concern when fleets offer mutual aid or respond to prolonged emergency grid repairs. Fleet performance goals are not compromised and are achieved using JEMS while eliminating unnecessary jobsite emissions no matter the situation or work application demand.

Altec's AB1594 Policy Recommendations:

Therefore, Altec suggests that CARB requires any Internal Combustion Engine (ICE) offered an exemption under AB1594 to include an electric power take-off (ePTO) and onboard lithium-ion batteries to power jobsite tools to reduce and/or eliminate jobsite idling.

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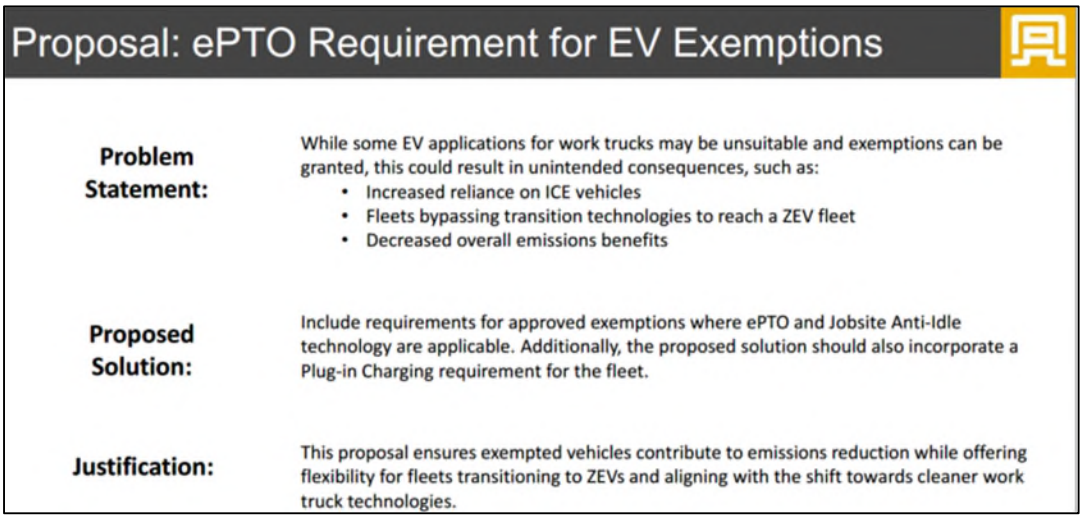

Summary of Altec's AB 1594 Policy Recommendation

Justification:

The suggestion for CARB to focus on jobsite emissions with ePTO technology is further supported by the following:

- many of these aerial trucks idle at the jobsite operate in densely populated areas, therefore emitting unnecessary toxic emissions
- ePTO solutions such as JEMS do not compromise jobsite performance and overcome current charging infrastructure limitations
- ePTO solutions help fleets scale towards a ZEV fleet and act as a technology bridge solution until ZEV limitations are reduced and ZEV adoption rates improve
- ePTO solutions such as JEMS offer an attractive payback for the initial investment due to fuel and maintenance savings from not idling, along with the attractive HVIP incentive
- Current ZEV OEM technology limits performance for reasons such as range anxiety, available payload, unit/body design limitations that restrict performance, and limited options for towing, tandem axles, and 4x4 ZEV solutions

Altec continues to share and support CARB's goal of significantly and ultimately eliminating unnecessary vehicle emissions. ePTO technology can help bridge the technology gap while still achieving emission goals.

Best Regards,

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