

# ADVANCED TRANSIT VEHICLE CONSORTIUM

Los Angeles County Metropolitan Transportation Authority  
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**OCTOBER 27, 2015**

**TO: ATVC BOARD OF DIRECTORS**

**FROM: RICHARD HUNT, PRESIDENT**

**SUBJECT: RECEIVE AND FILE REPORT ON ZERO EMISSION BUS AXLE WEIGHTS**

At the July 2015 ATVC Board Meeting, staff was asked to review and report back on how zero emission battery buses comply with state axle weight regulations.

Vehicle weight limits for transit buses and other vehicles are established in the California Vehicle Code (CVC §35400). California bus axle weight limits were recently modified by AB1250 (Bloom, Santa Monica); new bus axle curb weights effective in 2017 are 25,000lbs/axle, and these weight limits will drop to 22,000lbs/axle in 2022.

All Metro buses currently comply with the newly adopted bus axle weight limits, including the BYD electric battery buses. It is the responsibility of the bus manufacturer to design vehicles that can be operated within applicable weight limits.

Current battery technologies can be heavy, and there are often trade-offs between vehicle weight and the amount of battery energy storage systems that can be placed on a vehicle. Metro's five BYD battery electric buses were weighed at 33,600 pounds, which is 1,500–2,000 pounds more than comparable 40' CNG buses. There are other electric buses available using composite body technology (similar to Metro's Compo Bus) that will greatly reduce bud axle weight.

Current battery technologies and weight regulations limit 40' electric bus designs to a maximum of about 320kwh of battery energy storage; our experience is that this is enough energy storage to run a vehicle about 100 miles in Metro's service.

Battery technologies are evolving rapidly in terms of energy density, weight and cost, and staff expects to be able to buy battery electric buses with longer range operating capabilities, while still complying with bus axle weight limits.

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Richard Hunt  
President, Advanced Transit Vehicle Consortium

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