

DOCKETED

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DTNA Comments on TE Load Modifier Scenario

Please see attached comments submitted by Daimler Truck North America.

Additional submitted attachment is included below.

DAIMLER TRUCK

North America

December 1st, 2023

Quentin Gee
California Energy Commission
715 P Street
Sacramento, CA 95814

Re: Docket # 23-IEPR-03 Load Modifier Scenario Results

Daimler Truck North America (DTNA) submits the following comments in response to CEC's IEPR Commissioner Workshop on Load Modifier Scenario Results.

DTNA is the largest producer of medium- and heavy-duty (MHD) vehicles in North America. DTNA is fully committed to supporting the emerging zero-emission vehicle (ZEV) market; we expect these technologies to play a significant role in the future of commercial transportation, and know they are a vital contributor to lowering NOx and GHG emissions. DTNA is investing heavily in the development of electric vehicles. We currently offer battery electric school buses, walk-in van chassis (Class 5/6), as well as medium-duty (Class 6/7) and heavy-duty (Class 8) tractors for sale. DTNA – in partnership with Portland General Electric (PGE) – is proud to have built the first-of-its-kind public charging island for commercial ZEVs in Portland, Oregon. In addition, DTNA launched a joint venture focused on public charging & refueling (Greenlane) to help in the acceleration of infrastructure that meets the needs of MHD vehicles. Finally, DTNA has an expert eConsulting team dedicated to supporting fleets with all aspects of the ZEV transition, including site design and interfacing with utilities. Therefore, DTNA is uniquely positioned to offer insights into MHD transportation electrification (TE).

DTNA believes the successful transition to ZEV transportation will require a three-part “transformation equation”¹.

Vehicle Technology x Cost Parity x Infrastructure = Successful Transformation

Manufacturers have vehicle technologies available today suitable for a variety of fleet applications. A number of state and federal incentive programs exist to help fleets achieve cost parity. However, the infrastructure factor remains effectively zero, jeopardizing this transformation, the ability of obligated parties to meet CARB regulatory requirements, and the State of California's carbon reduction targets.

DTNA Feedback on MDHD Forecasting Updates

Vehicle Forecast

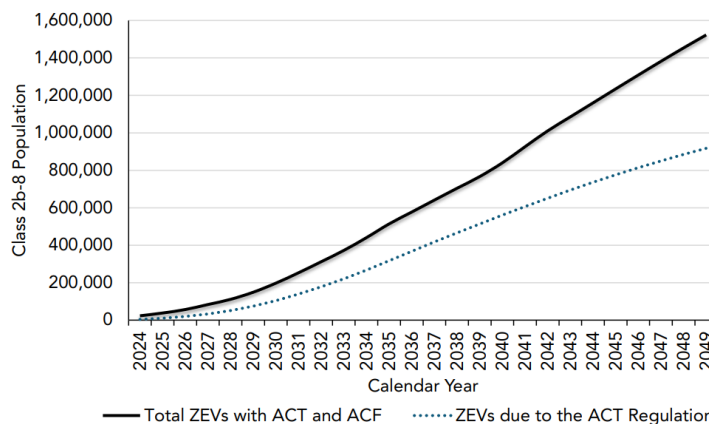
¹ <https://www.youtube.com/watch?v=eY76BzcxFe>

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DTNA commends CEC staff for their continued refinement of the transportation electrification scenario forecast. DTNA is pleased to see this year’s IEPR forecast incorporates CARB’s Advanced Clean Fleets (ACF) regulation and has been extended to 2040, reflecting the rapid increase in MHD ZEV population and associated electricity demand increase as a result of the ACF’s 100% ZEV sales mandate in 2036. DTNA believes the updated AATE3 vehicle forecast is more closely aligned with CARB’s vehicle forecast, but notes it still appears CEC may be slightly under-projecting. DTNA believes it is critical that all California state agencies rely on the same vehicle forecast.

Figure 1. CARB ACF Vehicle Forecast²



DTNA recommends staff share additional insights into the development of the modeling assumptions, particularly the fuel price forecast. While the socialized cost of hydrogen infrastructure is typically included in the cost per kilogram projections, it is not clear how CEC factored the grid upgrade costs into the electricity price forecast.

DTNA generally supports CEC’s approach to hydrogen fueled trucks in the 2023 IEPR AATE3 forecast. While DTNA is investing in the development of hydrogen fuel cell electric vehicle (FCEVs), significant uncertainty exists around the total cost of ownership as well as the availability of medium- and heavy-duty accessible hydrogen refueling infrastructure. DTNA believes the ACF regulation may drive some early decade FCEV adoption, as High Priority and Federal Fleets following the Milestone Schedule must begin electrifying their Group 3 (sleeper cab and specialty vehicles) in 2030, and we believe these segments may favor FCEVs over BEVs. However, given the uncertainties, we believe CEC’s approach to assuming a mostly BEV scenario at this time is prudent.

DTNA recommends CEC annually revisit the hydrogen assumptions as the market develops. DTNA also encourages CEC staff to consider the impacts of hydrogen production on the state’s energy

² Figure 1 in CARB’s ACF ISOR: <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf>

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forecast, if not already included as part of the FCEV projections.

Electricity Demand Forecast

DTNA is concerned that staff may be under projecting the electricity needs of the forecasted vehicles. For example, 4,000 gigawatt-hours projected in 2030, to support approximately 180,000 vehicles, equates to approximately 22,222 kilowatt-hours of energy usage annually per truck. Using an assumed average efficiency of 1 to 2 kilowatt-hours per mile (depending on vehicle class), this equates to only approximately 11,000 to 22,000 miles per vehicle per year. This assumption may be reasonable for light-duty applications, but is significantly under-projecting for the needs of commercial vehicles.

This under-projection may be explained by certain assumed inputs in the AATE3 model development. For example, Table 10 in the recent AB 2127 report indicates the AATE3 forecast uses an assumption of 88.1 Average Daily Miles for Class 8 vehicles³. Drayage trucks are likely to be a significant share of the Class 8 BEVs deployed in California by 2030 (CARB estimates approximately 14,500). CARB references a 2018 Feasibility Assessment for Drayage trucks, where they found an average daily mileage of 238 miles for this application⁴. Based on these inputs, DTNA estimates over half of CEC's 2030 energy demand forecast would be consumed by 14,500 drayage trucks alone.

In addition to CARB's data, DTNA's anonymized telematics data collected from real-world operations in California similarly indicate over half of the 4,000 GWh projected in 2030 would be required to support 14,500 day cabs. Furthermore, the BEV value proposition lies in a total cost of ownership (TCO) benefit, where BEVs operate at a lower cost-per-mile compared to an internal combustion powered vehicle. Most TCO calculators show a benefit for Class 8 vehicles in the 200-300 daily miles range. Fleets are unlikely to adopt BEVs into applications that operate under 100 miles per day, as the operational cost savings does not offset the higher up front purchase cost of a BEV. DTNA recommends CEC publish additional details around the assumptions used in the electricity demand forecast.

DTNA Feedback on the Regional Energy Allocation and Load Shapes

DTNA commends CEC staff for the inclusion of the load forecasts by region and electric utility as part of this year's transportation electrification work. We believe this detailed analysis at the regional and local levels is critical for understanding where capacity additions will be required. DTNA encourages CEC to further identify the areas likely to see the highest loads, and support the State's utilities in expediting new capacity additions in these "no regrets" zones.

Based on analysis of anonymized fleet telematics data, DTNA believes CEC staff is reasonably forecasting the expected MDHD load shape. However, DTNA urges CEC not to over-weight the

³ <https://www.energy.ca.gov/data-reports/reports/electric-vehicle-charging-infrastructure-assessment-ab-2127>

⁴ <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/acf22/isor2.pdf>

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impact of TOU rates on the MDHD load profile. Medium- and heavy-duty charging times are less flexible than light-duty vehicles, and charging is not easily shifted to other times of day when demand is lower. Commercial vehicles are assets acquired by businesses to perform tasks and fulfill obligations to their customers. For freight customers, on-time delivery performance is critically important. For school and transit bus operators, daily route schedules dictate usage times and durations. For other vocational customers, specific tasks like snow removal, utility line work, and construction projects often must occur at specific times. In some cases, where business operations permit, it may be possible to manage the charging times and reduce the need to increase grid capacity to meet coincident peak loads, but commercial vehicle use cases are often unlikely to coincide with a utility's time of use (TOU) interests, because the vehicles must first and foremost perform the jobs for which they were purchased.

DTNA strongly encourages staff to consider the findings of the North American Council for Freight Efficiency's Run on Less initiative, which highlights how fleets are maximizing utilization of their vehicle assets by running slip seat operations⁵. DTNA is concerned that if CEC overstates the flexibility of commercial charging demand, and heavily relies on dynamic pricing schemes instead of installing additional capacity, the cost benefits of commercial BEVs will be negated, leading to a stalling of California's regulated vehicle market and the inability of the state to meet its carbon reduction targets.

DTNA Feedback on Timing

While DTNA is pleased to see the addition of the Advanced Clean Fleets regulation in this year's IEPR forecast, this forecast is being presented only six weeks ahead of the start of ACF implementation. Because of the long lead nature of utility proceedings, current ongoing General Rate Cases are relying on the 2021 IEPR forecast, with proposed infrastructure upgrades coming online in the critical ~2030 timeframe, where the 2023 IEPR is projecting much higher ZEV implementation. DTNA encourages CEC to share insights into how the agency will help California's utilities catch up with the updated forecast for long lead capacity additions.

DTNA thanks CEC for the opportunity to provide feedback on the this year's IEPR Load Modifier Scenario and looks forward to continued collaboration to enable widespread transportation electrification.

Sincerely,



Alissa Recker
Engineer, Compliance & Regulatory Affairs

⁵ <https://runonless.com/>