

4th Transit Agency Subcommittee (TAS) Meeting Summary

January 29, 2018, 1:00 p.m. to 5:00 p.m.
Orange County Transportation Authority (OCTA),
550 S Main Street, Orange, CA

Attendees

| Name | Affiliation |
|---------------------|--|
| Andrew Papson | Foothill Transit |
| Alex Clifford | Santa Cruz Metropolitan Transit District |
| Beth McCormick | Orange County Transportation Authority |
| Bhavin Khatri | San Francisco Municipal Transportation Agency |
| Bill Spraul | San Diego Metropolitan Transit System |
| Carl Sedoryk | Monterey-Salinas Transit |
| Cliff Thorn | Orange County Transportation Authority |
| Debra Johnson | Long Beach Transit |
| Don Curry | North County Transit District |
| Donna DeMartino | San Joaquin Regional Transit District |
| Jesus Montes | Los Angeles County Metropolitan Transportation Authority |
| Joe Meer | Morongo Basin Transit Authority |
| Keith Nunn | Golden Gate Transit |
| Kevin Kane | Victor Valley Transit Authority |
| Kristin Essner | Orange County Transportation Authority |
| Lauren Skiver | Sunline Transit Agency |
| Marty Mellera | San Francisco Municipal Transportation Agency |
| Michael Pimentel | California Transit Association |
| Michael Wygant | San Diego Metropolitan Transit System (SDMTS) |
| Paul Jablonski | SDMTS/Chair of Transit Agency Subcommittee |
| Rick Ramacier | Central Contra Costa Transit Authority/ Vice Chair of Transit Agency Subcommittee |
| Ron Zirges | Victor Valley Transit Authority |
| Salvador Llamas | Alameda-Contra Costa Transit District |
| Sharon Cooney | SDMTS |
| Shirin Barfjani | California Air Resources Board (CARB) |
| Steve Miller | Golden Gate Bridge, Highway, and Transit District |
| Steve Schupak | Los Angeles County Metropolitan Transportation Authority |
| Sue Zuhlke | Orange County Transportation Authority |
| Tony Brasil | CARB |
| Varalakshmi Jayaram | Ramboll Environ |
| Yachun Chow | CARB |

Conference Call Attendees

| Name | Affiliation |
|--------------|--|
| Don Curry | North County Transit District |
| Fang Yan | CARB |
| Glen Tepke | Metropolitan Transportation Commission |
| Jennifer Lee | CARB |
| Jing Guo | CARB |
| Sean May | CARB |

Discussion Items

The meeting started with a brief summary of written comments California Air Resources Board staff received from transit agencies about the ICT regulatory concept. CARB staff discussed the agenda with the California Transit Association (CTA) prior to the meeting. CTA indicated it would prepare a follow-up letter with specific recommendations and that the Subcommittee meeting should focus on the December proposal.

The Transit Agency Subcommittee (Subcommittee) went over some potential technological and operational challenges transits may face by deploying ZEBs and commented on elements of ICT regulatory concepts. Subcommittee members also suggested few other concepts to be considered by CARB staff. Members were also interested in CARB regulatory development timelines to learn when and how these suggestions will be included in draft regulation. CARB staff will discuss the comments and recommendation internally and will follow-up with CTA on their proposal. Any changes would be reflected in draft regulatory language at the next workshop.

Comments and discussions during the meeting are summarized in following categories:

- Technological challenges
- Operational challenges
- Regulatory concept
- Funding
- ZEB purchase provisions

Comments on Technological Challenges

- Battery Electric Bus (BEB) range limitation, higher capital costs, and space constraints are real and need to be considered, otherwise transits end up with service cuts.
- Zero-emission technologies need to be proven in transit applications, especially in mass deployment of +25 buses. OEMs claims alone are not sufficient.
- Interoperability of charging systems is essential, because transits cannot limit themselves to one technology. City officials, public opinion, and operating

environment influence transits' decisions regarding the charging strategy (i.e. historical place in case of Monterey-Salinas Transit (MST))

- Battery life and degradation need to be considered. Even with a 12-year battery warranty, transits still have to diagnose any issues and deal with down time to replace the batteries. Battery lease reduces the risk, but increases the spare parts and bus costs in general.

Comments on Operational Challenges

- ZEB deployment is still high risk, because of ZEB performance restrictions.
- An agency like Golden Gate Transit (GGT) may need at least one charging station at every facility to deploy only one ZEB, because they normally rotate buses between facilities for the purpose of maintenance. Buses in the fleet are rotated to different locations because GGT has one main maintenance facility for major repairs/overhauls for all buses.
- It is not possible to designate buses to specific routes because of the mileage constraints. Operating multiple sub-fleets adds to operation complexity and costs.
- Title 6 does not allow transits to operate ZEBs on specific routes only.
- Some transit agencies will be keeping their buses longer than before (the Orange County Transportation Authority (OCTA) board recently voted to keep their buses 18 years)

Comments on Regulatory Concept

- Most participating agencies are interested in implementing zero-emission technologies, but want to have a regulation that recognizes risks and constraints and provides flexibility.
- 2020 as the regulation start date is too early. Transit agencies that are already operating ZEBs like SunLine and Long Beach agree the start date is too early too. Transits need more time for infrastructure and ZEB purchase. The delivery of vehicle and buildout of infrastructure should be aligned. The current rule proposal does not allow for it. Members highlighted examples where ZEBs are sitting at transit agencies' yards without infrastructure in place to charge the buses today (e.g. Humboldt Transit and San Joaquin Regional Transit District (SJRTD))
- 2022 is too early for informational board update. There will not be enough operational, maintenance, and service plan data available by then from new ZEB deployments.
 - The 2022 date was originally suggested by CARB because there will be several years of data from Alameda-Contra Costa Transit District (AC Transit), Foothill Transit, Antelope Valley Transit Authority (AVTA) and other agencies. Periodic updates to the Board also would provide information about implementation of the transportation electrification programs approved by the California Public Utilities Commission (CPUC) and would review access to funding and implementation of regulatory requirements.

- 2040 end goal may be doable with a plan and reporting data. Some transits are skeptical though.
- Requirements based on a purchase date is better than using a delivery date, because purchase order is the only parameter transits have control over (vs delivery and deployment date).
- CARB should consider some credits for early infrastructure too.
- Cutaways should be excluded due to uncertainty of when they will become available and due to range concerns. Cutaway buses typically have higher daily ranges than standard buses. CARB staff confirmed that the survey results received from transit agencies about two years ago generally show higher daily mileage than standard buses.

Comments on Funding

- There should be dedicated funds for transits.
 - \$150 million that San Diego Gas & Electric (SDG&E) proposed for its medium and heavy duty transportation electrification plan is for mix usage, including port projects, trucks, school buses, and transit buses.
- The amount of dedicate funds for transits need to be higher than other applications, because transits are non-profit—compared with trucking business that are for-profit, and they help incubating technology.
- Transit wanted to know why funding is restricted when a regulation is in effect. Is it because of CARB policy or it is statutory requirement?
- In general, for most funding sources, funding is available to those who act prior to regulatory requirements. Restrictions on access to funding to meet minimum regulatory requirements depends on the funding source. Some restrictions are statutory and others are based on CARB policy. CARB staff prepared a summary that was given to CTA a couple of weeks before and will send a copy to the Subcommittee.
 - With the proposed schedule, meeting surplus requirement is not possible for some transit agencies.
 - Transits requested to relax incentive surplus requirement, so funding can be used for compliance and at the time it is really needed.
- There is uncertainty in whether the CPUC will approve offsetting part of the infrastructure cost.

Comments on ZEB Purchase Provisions

- CARB is not considering cost as an off-ramp. But is there enough money for transits?
- Altoona testing alone cannot be used to determine technology readiness. Altoona tests are done under ideal conditions and do not account for energy use for heating and air conditioning.
 - Passed vehicles should operate for 3-4 years in service by transit agencies to prove their performance.

- Cutaways, articulated, and over-the-road buses are a primitive market. To date, no ZEBs of these types have passed the Altoona tests. Development in their performance needs to be considered in periodic board updates.
- Revisit the GVWR. There is special concern for including cutaways
 - Cutaways are used for ADA requirements.
 - Weight of zero-emission cutaways are especially important, because fully loaded weight includes combined weight of vehicle with wheelchairs.
 - A ZEB requirement will increase their price. They cost now \$250,000.

Innovative Zero-Emission Mobility

- SunLine Transit is going to have a mobility program in place in this fall and is working with a 3rd party operator.
- Vanpool information is reported in NTD.
- Transits want to claim credits if with the help of mobility programs they can retire some of their dirty diesel buses (i.e. County Connection)
- Mobility program will happen, but maybe not directly under transits operations and management.

Other Comments

- Transit agencies want to see specific language in the rule to make utilities accountable for rates and infrastructure, and OEMs for interoperability and meeting the technological milestones. If these requirements are not met, transits should be off the hook.
- Transit agencies also have overlapping operation and requirements with other state or federal agencies and they need to be informed and involved in rulemaking
 - Transit agencies have to meet the FTA Transit Asset Management (TAM) requirements to keep their assets (infrastructure) in a good condition and must report the costs of planning, operating, and maintaining the facilities.
 - Transits have to meet CHP requirements (such as vehicle weights and safety) and work with CalFire in case of emergency.
 - Will experience issue with DMV registration, if fully loaded weight of buses exceed the limits
 - This is a special concern for cutaways, because fully loaded weight is combined weight of vehicle with wheelchairs
- Start with mandatory pilot projects (with 40-ft. buses) for all agencies and scale up with time. Collect and evaluate the data with the help of a third party. Outcome of the pilot projects should be presented to transit boards (including performance of revenue, non-revenue buses, infrastructure, maintenance, etc.)
- Set performance standards as milestones for ZEBs that improve with time and are good for 1 to 1 replacements. Transits will put them as requirements in their RFP for OEMs to bid. Combine the milestones with periodic informational Board updates, so if these milestones are not met, the regulation should be revisited.

- Criteria to consider include range, weight, capital costs, total cost of ownership (TCO), battery energy density, miles between road calls, and funding.
- Evaluate TCO until ZEB is cost neutral compared with conventional technologies at multiple scales of implementation.
- TCO cannot be used to calculate the neutral cost. Because nobody has used the technology that long to have real long-term cost data.
- Altoona test alone is not enough to evaluate the technology readiness and performance.
- Make OEMs accountable for advancing the technology.
- Some OEMs may still bid and not perform.
- Consider using a memorandum of understanding (MOU) option, because it is specific to each agency.
- Use incentive alone instead of a rule to drive the technology

Next Steps

- CARB to consider the Subcommittee comments and have a discussion with CTA in early February.
- CARB will send a summary that describes the reasons for restrictions in different funding programs.
- All participating agencies will be sharing their next purchase schedule with types and number of buses with CTA. CTA to share with CARB.
- CARB planning to release draft regulatory language in March for comment and is planning another round of workshops.
- The Board date for the Innovative Clean Transit regulation is scheduled for July 2018.