



Innovative Clean Transit Regulation and What to Expect

ZOOM TO ZERO:
A Zero Emission Infrastructure Planning Workshop

Long Beach, California
August 15, 2019

ELEMENTS OF INNOVATIVE CLEAN TRANSIT REGULATION

- Applicability
- Zero Emission Bus (ZEB) Rollout Plan
- ZEB purchase requirements
 - Flexibility, exemptions, and credits
- Low-NOx engines and renewable fuels
- Annual reporting and record keeping



REQUIREMENTS DIFFER BY FLEET SIZE

A Large Transit Agency (as of Dec 31, 2017)

- Serves other areas with populations >200,000
 - Has ≥ 100 buses* during peak operation
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- Operates in South Coast or San Joaquin Valley
 - Has >65 buses* during peak operation

A Small Transit Agency

All other transit agencies

* Includes all buses with a GVWR > 14,000 lbs., but excludes demand response

ZEB ROLLOUT PLAN

- An individual transit agency plan on how to transition to a zero emission bus fleet by 2040
- Approved by the transit agency's board of directors and submitted to CARB
 - July 1, 2020 for large transit agencies
 - July 1, 2023 for small transit agencies
- Helps inform funding plans and utility planning, and engage general public
- Non-binding and expected to change



ZEB PURCHASE SCHEDULE

- Allows buses to have their minimum useful life
- 2023 requirement discharged if 850 ZEBs purchased by 12/31/2020
- 2024 requirement discharged again if 1,250 ZEBs purchased by 12/31/2021
- Early ZEB purchases count towards future compliance
- Retain newly purchased ZEBs for at least 5 years, starting January 1, 2023

Year	ZEB Percentage of Total New Bus Purchases	
	Large Transit Agency	Small Transit Agency
2023	25%	-
2024	25%	-
2025	25%	-
2026	50%	25%
2027	50%	25%
2028	50%	25%
2029 & after	100%	100%

LATE PHASE-IN FOR LESS COMMON BUS TYPES

- Purchase of zero-emission cutaway, over-the-road, double decker, and articulated buses
 - Starts on or after January 1, 2026
 - When bus type passes Altoona testing
- Voluntary early ZEB purchases of these types will still count towards compliance



TRANSIT AGENCIES MAY COMPLY JOINTLY (OPTIONAL)

■ Eligibility to form a ZEB Joint Group

- All members must share the use of some infrastructure, or
- Be within the same Metropolitan Planning Organization, Regional Transportation Planning Organization, Air District, or Air Basin

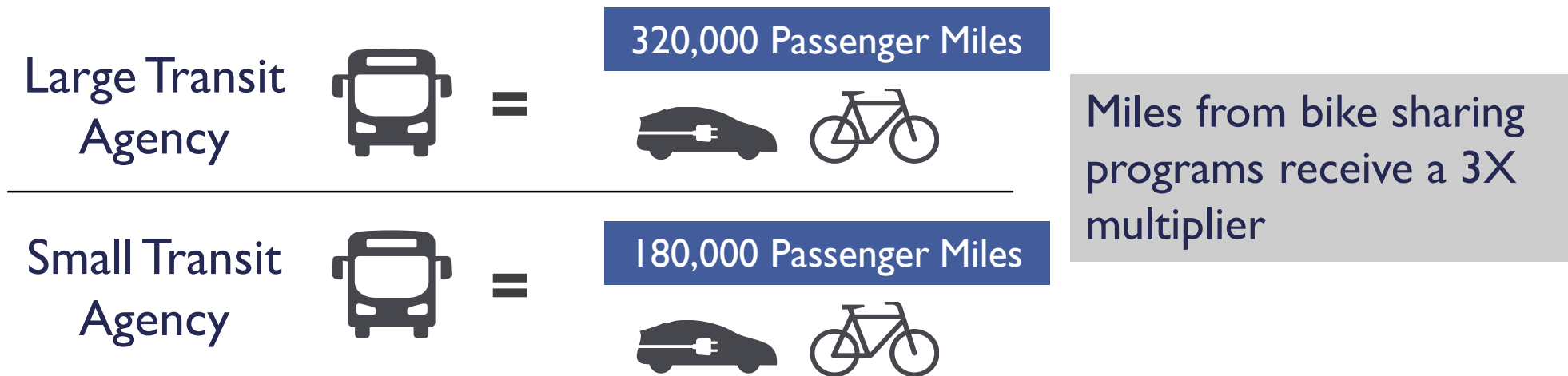
■ Compliance requirements

- Submit the request one year before the Joint Group takes effect
- Comply with individual ZEB purchase requirements collectively (including bonus credits)
- If the largest member is a large transit agency it must meet its minimum number of ZEBs required
- Exemptions apply only if ZEB purchase requirements cannot be met by whole group
- May submit one rollout plan as a ZEB Joint Group



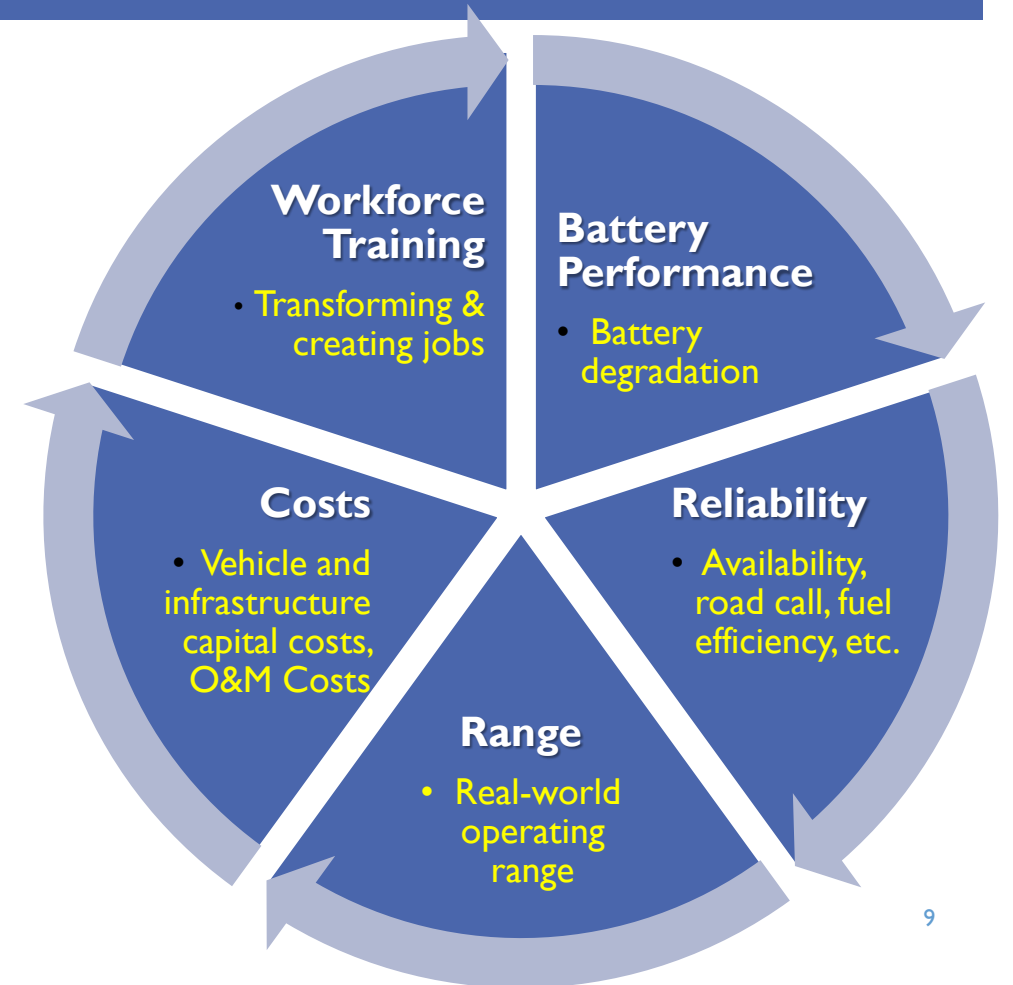
ZERO-EMISSION MOBILITY (OPTIONAL)

- Zero-emission car sharing, vanpool, micro-transit, active transportation
 - Vehicles with GVWR \leq 14,000 lbs., scooters, or bicycles
- May be used in lieu of ZEB purchases
- Transit agency must track zero-emission passenger miles for each eligible vehicle



COMPREHENSIVE REVIEW

- Inform HD ZE policy and funding strategies
- Ensure transit service not adversely impacted
- Address program readiness
- One year before the first ZEB purchase requirement
- Complements annual updates to the Board



CONTINUE THE PARTNERSHIP—INPUT NEEDED

- Identify specific research needs for deployment
 - Focused topics on challenges
 - e.g. steps to start a ZEB fleet, best practice for electricity cost management, affordable hydrogen fueling for a small scale deployment, charging arrangement for scaling up, etc.
 - Can be incorporated into Rollout Plan or future implementation
- Statewide data collection
 - Purchase related information, e.g. ZEB price and specs, infrastructure, etc.
 - Long-term effort on O&M cost collection
 - Fueling/charging pattern, fuel costs, etc.
 - Maintenance costs, miles between roadcalls, bus availability, etc.

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