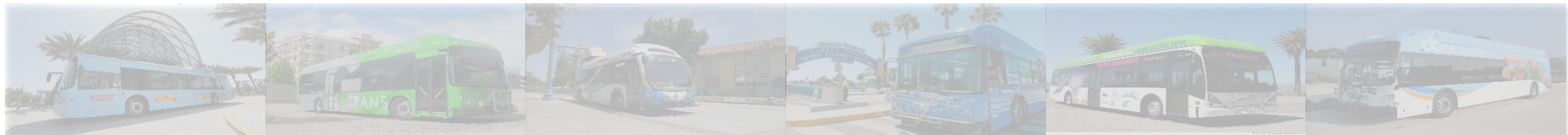




Air Resources Board Update on Regulations

April 18, 2023

Yachun Chow, Julie Cooper



Innovative Clean Transit Reporting

- All transit agencies regardless of size must report
- Innovative Clean Transit Reporting Tool ([ICTRT](#)) is open from February 1st through April 28th this year
- [ICTRT Guidance Document](#) in Q&A format to illustrate and explain functions of each module
- More information available at [Reporting Tool & Data](#)
- Send questions to ICT@arb.ca.gov

Rollout Plans

- Rollout Plans for small transit agencies are due June 30, 2023
 - [Rollout Plan Guidance Document](#) explains the requirements
 - Final Rollout Plans are posted on the [ICT-Rollout Plans](#) page
- Must include all buses with the gross vehicle weight rating greater than 14,000 lbs.
 - Demand response cutaways are included
- A Rollout Plan must include all 8 elements identified in the regulation to be considered complete and get approved

Required Rollout Plan Components

- Goal of full transition to zero-emission buses (ZEB) by 2040, considering minimum useful life of buses
- Planned bus purchase schedule
- Planned conversion (conventional buses to ZEBs) schedule, if any
- Identification of ZEB technologies planning to deploy
 - Battery vs fuel cell electric buses or both
- Infrastructure build out schedule, location, type, and service capacity
- Workforce training (planner, technician, driver, etc.)
- Description of how planned ZEBs would serve disadvantaged communities
- Identification of potential funding sources

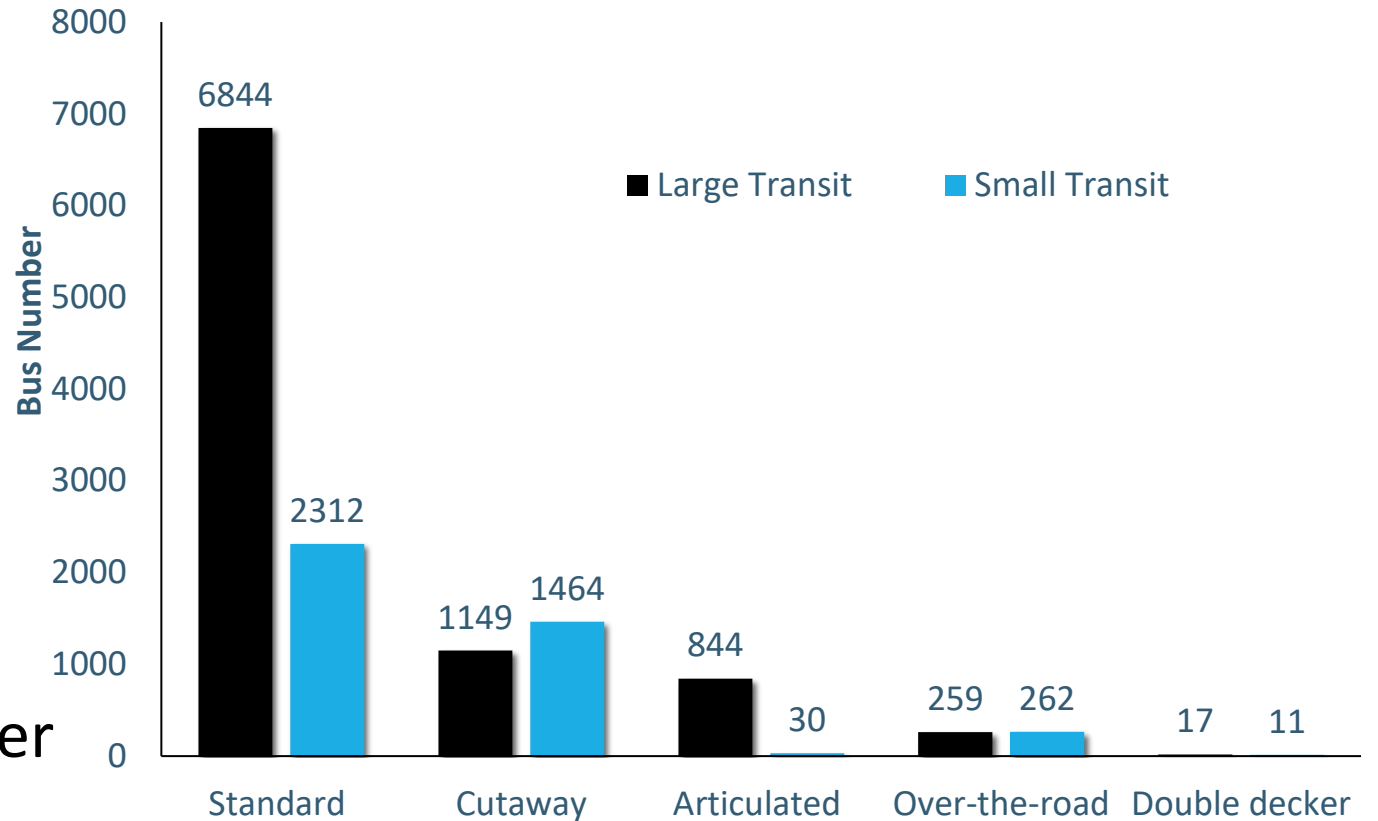


Comprehensive Review on Program Readiness

- ZEB Comprehensive Review to evaluate the program readiness
 - Inform heavy-duty zero-emission policy and funding strategies
 - Identify status of ZEB technology
 - Ensure transit service not adversely impacted
- Contracted with National Renewable Energy Laboratory for an independent third-party assessment

California Transit Bus Composition

- About 200 transit agencies
 - 21 large transit agencies accounting for 70% of total buses
- Approximately 13,000 buses
 - 70% are standard buses
 - 2021 data shows 510 ZEBs deployed and 424 ZEBs on order



Phase 1 Comprehensive Review Results

- The report shows California large transits are ready for 2023 ZEB purchase requirement on standard 40' buses
- Continued efforts are needed for 100% ZEB transition
 - Lower capital costs and provide financial support
 - Improve ZEB reliability and optimize ZEB performance
 - Enhance deployment flexibility and scalability
 - Establish a reliable supply chain and develop a highly skilled workforce

Phase 2 Comprehensive Review

- Include other types of buses (cutaway, over-the-road, double decker, and articulated buses) and an update to the 40 ft standard buses
- 2026 ZEB purchase requirement
 - Large transit: 50%
 - Small transit: 25%
- Anticipate to share the report in 2025

Challenges for Other Types of Buses

- Zero-emission technologies for other types of buses are not as mature as standard transit buses
- Limited Altoona tested buses for other types of buses
- Uncertain daily range especially for demand response
- Limited data available
 - Call for help on the data collection and transit survey

Data Collection and Transit Survey Needs

- Data collection
 - Collect the real-world ZEB operation data
 - Crucial for the transit community and CARB to understand ZEB performance from a long-term perspective
- Transit survey
 - Understand ZEB and infrastructure capital cost, purchase and buildout timeline, reliability, and other critical elements to a successful ZEB deployment
 - Supplement for vehicle data collection



Statewide ZEB Data Collection

- Gather information on real-world ZEB operations
- Understand individual fleet costs and potential challenges
- Inform our policy and investment decisions and foster collaboration across the industry
- Utilize data templates (Excel format) developed by CARB
- Please contact ict@arb.gov for more information

Comprehensive Transit Survey

- Determine each agency's ZEB transition progress to date
- For agencies currently operating ZEBs, report on:
 - ZEB infrastructure costs and project timelines to enable ZEB operation
 - ZEB operating costs and performance metrics
 - Workforce development for ZEBs
- Timeline: expecting to conduct survey in Q3 2023 (tentative)



Comprehensive Transit Survey— Infrastructure

- Size, quantity, and type of fueling/charging equipment
- Costs – equipment, installation, construction costs and necessary infrastructure and/or facility upgrades
- Incentive funding programs utilized for ZEB infrastructure
- Total project timelines
- Warranty information and maintenance/service agreements
- Reliability, uptime of fueling/charging equipment
- Operational changes/impacts



Comprehensive Transit Survey— ZEB Cost and Performance

- ZEB capital costs and incentive funding programs utilized for ZEBs
- ZEB availability and use (daily mileage, routes)
- Energy/fuel consumption, range
- Fueling/charging time, fuel costs
- Reliability – roadcalls and miles between roadcall (MBRC)
- Performance issues encountered and solutions



Comprehensive Transit Survey— Workforce Development

- New job creation for ZEBs
- Types of ZEB training programs/courses available
- Sources of training (provided by OEM, developed in-house, 3rd party online training or local institution)
- Cost of new ZEB training and amount of incentive funding applied to training programs
- Percent of workforce trained for ZEBs
- Other tools/resources utilized



Other ZEB Data Sources

- CA transit agency ZEB rollout plans
- CARB ICT Reporting Tool
- APTA transit vehicle database
- Altoona test reports
- HVIP, Low-No, LCFS data dashboard, etc.
- CTA, Caltrans, and others
- Other ZEB industry reports and databases, as available

Heavy-Duty Inspection and Maintenance (HD I/M) Regulation—Vehicle Applicability

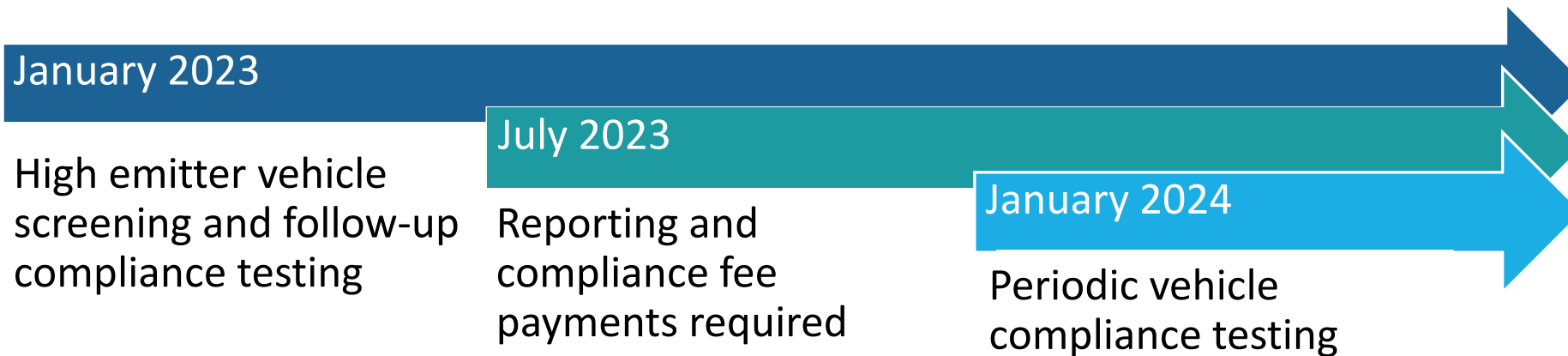
- All non-gasoline heavy-duty vehicles operating in California with a GVWR >14,000 lbs.
- All diesel, alternative fuel, and hybrid vehicles
- All California, out-of-state, and out-of-country registered vehicles that operate within California
- Single vehicle fleets are also subject to this regulation



Entities Subject to HD I/M

- Vehicle owners and drivers of non-gasoline vehicles with a GVWR >14,000 lbs. that travel in California
- Testers that perform compliance tests
- Freight contractors and brokers that do business in California
- Applicable freight facilities located in California that allow vehicles subject to the HD I/M program onto their properties
- On-board diagnostics test device vendors that produce and sell testing instrumentation used to perform compliance tests on HD I/M vehicles

Vehicle Owner Requirements



- Existing Periodic Smoke Inspection Program requirements apply until HD I/M periodic compliance testing begins in 2024
- Official start dates depend on the rollout of the HD I/M program database and CARB will provide notice prior to effective dates

Proposed Advanced Clean Fleet (ACF) Regulation

- Aim to accelerate medium and heavy duty zero-emission vehicle purchases toward meeting a full transition to ZEVs by 2045
- Transit buses subject to the ICT regulation (GVWR > 14,000 lbs.) are exempt in ACF
- Other transit vehicles (buses with a GVWR \leq 14,000 lbs. and other vehicles like tow trucks, snow plow) are exempt until January 1, 2030 with a 100% of ZEV purchase requirements starting in 2030
- Public hearing on April 27, 2023

Contacts and Links

- Innovative Clean Transit Reporting Tool (<https://ictrt.carb.arb.ca.gov>)
 - ICT program email (ICT@arb.ca.gov)
- ACF (<https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets>)
- HD I/M (<https://ww2.arb.ca.gov/our-work/programs/heavy-duty-inspection-and-maintenance-program>)
 - HD I/M webinar
(<https://ww2.arb.ca.gov/sites/default/files/truckstop/azregs/training.html>)

How Much Do You Know?

Q1 (True or False)

- The Innovative Clean Transit Reporting Tool (ICTRT) reporting tool on February 1, 2023 and it will close on April 28, 2023.
- True or false. A transit does not need to report if no new purchase was made in 2022.

Q2: (True or False)

- CARB uses bus delivery dates to calculate compliance obligation in the ICT regulation

Q3: (True or False)

- Beginning January 1, 2029, 100% of new purchases by transit agencies must be ZEBs.

Q4: (True or False)

- ZEB purchase requirements for standard bus types begin in 2023 for large transit agencies and 2029 for small transit agencies.

Q5: (True or False)

- The ICT regulation does not apply to cutaway buses with a GVWR greater than 14,000 lbs that are used for para transit and/or on demand service.

Q6: (Fill in the missing words)

- In your rollout plan, you must include a goal of full transition to zero-emission buses by 2040 with careful planning that avoids _____ of conventional internal combustion engine buses.

Bonus Question: (True or False)

- The HD I/M regulation does not apply to transit buses.

Backup Slides



Important ICT Dates

Innovative Clean Transit (ICT) Requirement	Date
Annual reporting of prior calendar year activities due	April 28, 2023
Annual Omnibus Regulation exemption application due	April 30, 2023
Rollout Plans for small transits due to CARB	June 30, 2023
Zero – emission bus (ZEB) purchases for small transits begins	January 1, 2026



HD Inspection & Maintenance Regulation Timeline

