CALIFORNIA
AIR RESOURCES BOARD

Innovative Clean Transit (ICT) Regulation

December 14, 2018

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Overview

- Transits lead the way
- Regulation summary
- Proposed 15-Day changes
- Available incentives
- Emissions reductions and other benefits
- Staff recommendations and next steps

Transit Agencies Lead the Way

- Transit agencies are partners in introducing new technologies
- Play a vital role in providing sustainable transportation
  - Reduce light-duty vehicle miles travelled
  - Enhance connectivity and mobility
- Key to accomplishing transportation and air quality goals
- More than 50 transit agencies making ZEB purchases
- 16 transit agencies committed to full transition to ZEBs
- ZEBs acting as beachhead in heavy-duty vehicle sectors

Broad Support for ZEB Deployment

- Wide range of buses and multiple manufacturers
- California Department of General Services streamlining ZEB purchases
- SAE published heavy-duty battery electric plug-in standard
- Large liquid hydrogen plant for West US will be built
- CPUC approved heavy-duty vehicle infrastructure investments
  - PG&E $236 million, SCE: $343 million and new rate schedule
  - SDG&E: $151 million proposed (pending decision)
- Substantial incentives available to encourage early actions
- Continued technology advancement and cost reductions needed

Principles of Staff Proposal

- Achieve zero-emission transit system by 2040
- Partner with transit on long-term strategies and implementation
- Encourage early action
- Provide environmental benefits, especially in disadvantaged communities (DAC)
- Ensure sufficient funding opportunities for successful transition
- Enhance transit services and encourage mobility options
- Ensure requirements are technologically and financially feasible
- Monitor progress and report back to Board annually

Recap of ICT Regulation

- Individual ZEB rollout plan
- ZEB purchase requirements
  - Discharge of initial ZEB purchase requirements
  - Later phase-in for cutaway and other buses
  - Exemptions to safeguard uncertainties
  - Delayed requirements for small fleets
- ZEB bonus credits and innovative zero-emission mobility option
- Joint group compliance
- Low NO_X engines and renewable fuels

Summary of Proposed 15-Day Changes

- Revised fleet size definition
- Updated thresholds to discharge initial ZEB purchases
- Expanded exemptions to guard against potential adverse service impacts NEW
- Expanded bonus credits to include electric trolley buses NEW
- Clarifications and minor edits NEW

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Proposed Changes Heard at September Board Hearing

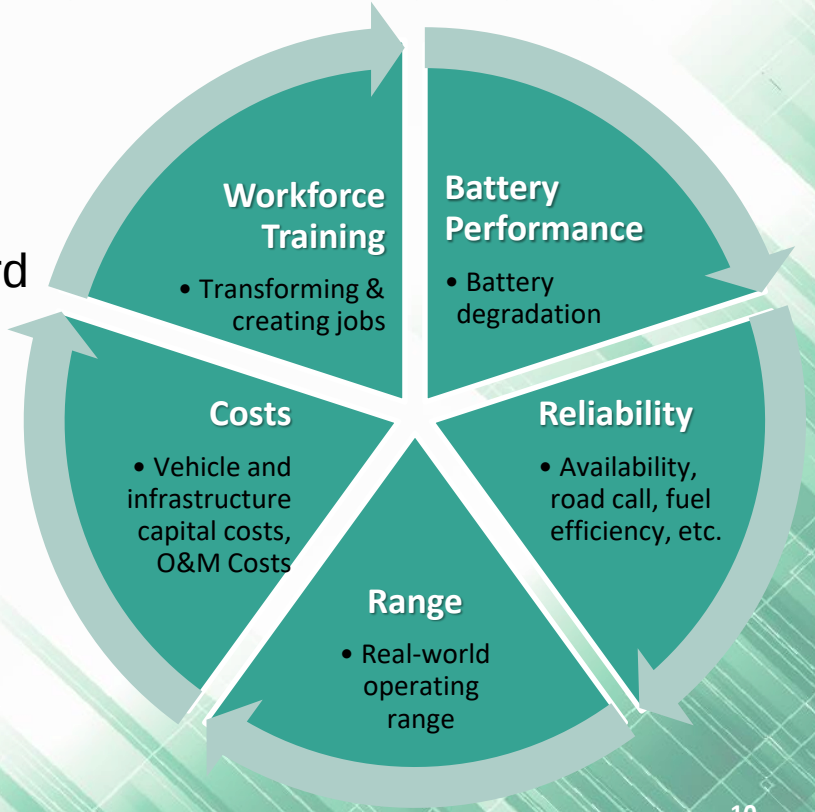
- Revised fleet size definition consistent with California Transit Association proposal
  - A large transit agency has:
    - Over 65 peak buses in South Coast or San Joaquin Valley, or
    - Over 100 peak buses in areas with over 200,000 population
  - Small transit agency includes all others
- Updated threshold to discharge initial ZEB purchases
  - 2023 requirement discharged if 850 ZEBs purchased by 1/1/2021
  - 2024 requirement discharged if 1,250 ZEBs purchased by 1/1/2022

Expanded Exemptions to Safeguard Transit Service

- Expanded Executive Officer approved exemptions - to ensure no service cuts or fare increases associated with regulation implementation
- Needed ZEB type is not available
- Exemptions based on available depot charging BEBs
  - Daily mileage needs cannot be met
  - Gradeability needs cannot be met
  - Incremental capital costs cannot be offset with funding and financing
  - Higher electricity costs
- Agency declared fiscal emergency
- Delay of infrastructure construction

Comprehensive Review
One Year Before the First ZEB Purchase

- Identify the status of ZEB technology, evaluate over 20 different metrics
- Review described in the resolution
- Complements annual updates to the Board
- Continued coordination with transits, OEMs, utilities, and other state agencies
- Evaluate transit agencies experience and identify issues
- Help formulate appropriate policies and funding strategies



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Economic Analysis

- Overall cost reductions from 2020 to 2050
  - Includes LCFS credits
  - Excludes other incentives
- Significant upfront capital costs for bus purchases and infrastructure; operational savings
- Funding opportunities and financing options eliminate early incremental costs

Significant Incentives Available

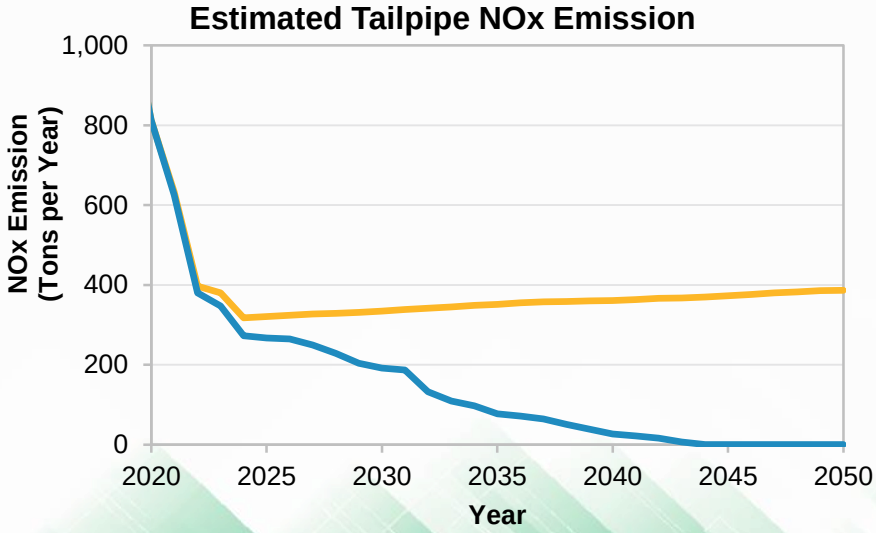
HVIP	VW	Carl Moyer	AB 617
Low NO_X engines, ZEVs, advanced technology, & infrastructure **FY 18-19** **$125M**	Zero-emission transit, school, & shuttle bus replacements **$130M**	Cleaner engines & ZEVs up to $80,000/bus plus fueling infrastructure **FY 18-19** **$79M**	Engine replacement & infrastructure in DAC **FY 18-19** **$245M**

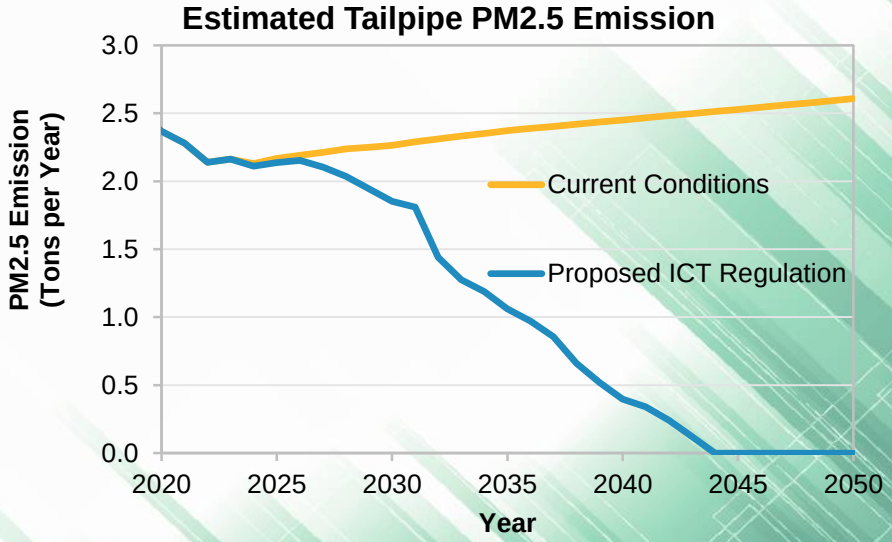
LCTOP	TIRCP	Utility Programs	LCFS
Expanded bus or rail services, & multimodal facilities **FY 17-18** **$146M***	Rail, bus, and ferry transit improvements **FY 17-18** **$291M***	Charging infrastructure service upgrades and electricity rates (SB350) **>$575M**	Credits for using low carbon transportation fuels **~$10,000/BEB/yr**

* Calculated from cap-and-trade auction proceeds listed at arb.ca.gov/cc/capandtrade/auction/aug-2018/ca_proceeds_report.pdf

NO_X and $PM_{2.5}$ Emissions Benefits

- Reduce statewide NO_X and $PM_{2.5}$ tailpipe emissions ~7,000 tons and ~40 tons respectively from 2020 to 2050





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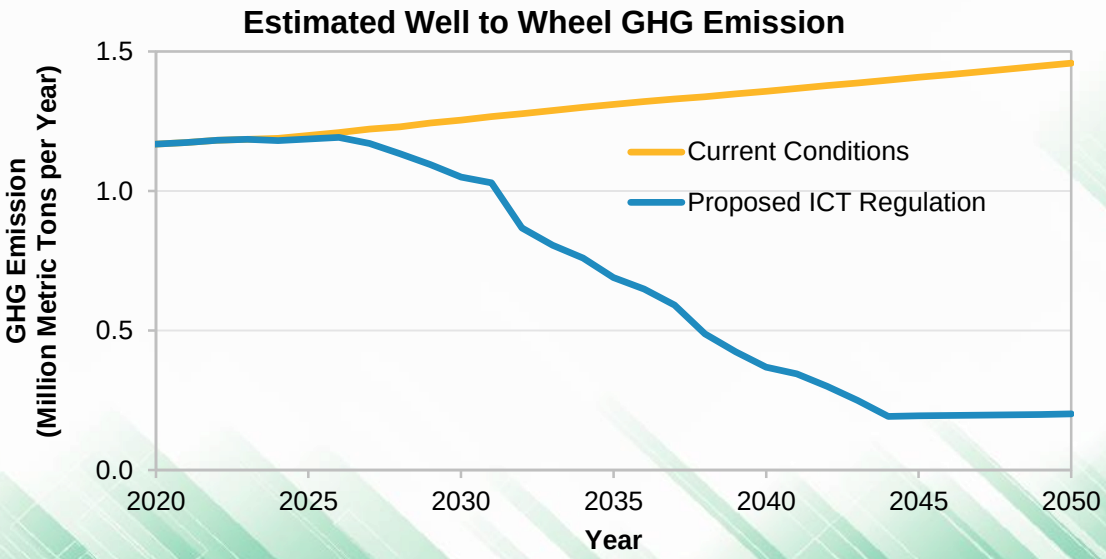
GHG Emissions Benefits

- Reduce GHG emissions by 19 MMT CO_2e from 2020 to 2050



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Environmental Analysis

- Draft Environmental Analysis (EA) completed
- Released for 45-Day public comment period
  - August 10, 2018 – September 24, 2018
- Written responses to comments published December 4, 2018
- Final EA published December 7, 2018

Benefits of Proposed ICT Regulation

- Health benefits, especially in disadvantaged communities
- Climate benefits
- Expand green jobs and trained workforce
- Reduced energy and petroleum use
- Less dependence on petroleum fuels
- Other societal benefits
- Leads zero-emission technology in other heavy-duty sectors

Staff Recommendations

Approve Proposed Resolution 18-60, which includes the following components:

- Approve written responses to environmental comments,
- Certify the Final EA.
- Approve the Proposed Amendments,
- Commitment to provide the Board with annual updates
- Commitment to conduct a comprehensive review one year before first ZEB purchase requirement

Next Steps

- Monitor status of ZEB technology
- Work with transit agencies to implement the regulation
- Report to the Board annually
- Conduct a comprehensive review