Innovative Clean Transit (ICT) Regulation

December 14, 2018
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\textsubscript{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
- Expanded bonus credits to include electric trolley buses
- Clarifications and minor edits

NEW
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

- Battery Performance
  - Battery degradation

- Costs
  - Vehicle and infrastructure capital costs, O&M Costs

- Reliability
  - Availability, road call, fuel efficiency, etc.

- Range
  - Real-world operating range

- Workforce Training
  - Transforming & creating jobs
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

<table>
<thead>
<tr>
<th>Program</th>
<th>Description</th>
<th>Fiscal Year</th>
<th>Total</th>
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<tbody>
<tr>
<td>HVIP</td>
<td>Low NOx engines, ZEVs, advanced technology, &amp; infrastructure</td>
<td>FY 18-19</td>
<td>$125M</td>
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<td>VW</td>
<td>Zero-emission transit, school, &amp; shuttle bus replacements</td>
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<td>$130M</td>
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<td>Carl Moyer</td>
<td>Cleaner engines &amp; ZEVs up to $80,000/bus plus fueling infrastructure</td>
<td>FY 18-19</td>
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<td>AB 617</td>
<td>Engine replacement &amp; infrastructure in DAC</td>
<td>FY 18-19</td>
<td>$245M</td>
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<td>LCTOP</td>
<td>Expanded bus or rail services, &amp; multimodal facilities</td>
<td>FY 17-18</td>
<td>$146M*</td>
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<td>TIRCP</td>
<td>Rail, bus, and ferry transit improvements</td>
<td>FY 17-18</td>
<td>$291M*</td>
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<td>Utility Programs</td>
<td>Charging infrastructure service upgrades and electricity rates (SB350)</td>
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<td>&gt;$575M</td>
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<tr>
<td>LCFS</td>
<td>Credits for using low carbon transportation fuels</td>
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<td>~$10,000/BEB/yr</td>
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* Calculated from cap-and-trade auction proceeds listed at arb.ca.gov/cc/capandtrade/auction/aug-2018/ca_proceeds_report.pdf
**NO\textsubscript{x} and PM\textsubscript{2.5} Emissions Benefits**

- Reduce statewide NO\textsubscript{x} and PM\textsubscript{2.5} tailpipe emissions ~7,000 tons and ~40 tons respectively from 2020 to 2050.
GHG Emissions Benefits

- Reduce GHG emissions by 19 MMT CO$_2$e from 2020 to 2050
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