Advanced Clean Transit

November 12, 2014
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Mobile Source Control Division
Air Resources Board
Overview

* Background Air Quality Goals
* Advanced Technology is Key
* Advanced Clean Transit
Air Quality Goals
California NOx Emissions

* On-road sector remains large contributor to statewide emissions
* 46% of total NOX emissions
  * 33% Heavy duty
  * 13% Light duty
On-road sector contributes to 30% of total greenhouse gas (GHG) emissions.
**Overall Emission Reduction Goals**

- Significant emission reductions needed to meet long-term air quality and climate goals:
  - 90% reduction in NOx needed by 2032 (federal)
  - 80% reduction in GHG needed by 2050 (AB32)
- Achieving goals will require transformational change for on-road mobile sources to zero and near zero emission technologies
Advanced Technology is Key
Advanced Technology Policy Framework

Policy areas to transform technology

* **Planning**: Coordination of statewide efforts between regions

* **Investments**: Enhance markets with strategic public incentive and investment programs

* **Regulations**: Alignment of statewide rules; coordinated multi-pollutant approach
Planning Efforts for Advanced Technology

* Planning drivers that require transformation in the transportation sector
  * Climate Change Scoping Plan (AB 32)
  * Governor Brown’s Zero Emission Vehicle (ZEV) Action Plan
  * Sustainable Freight Strategy
  * Air quality criteria pollutants commitments (State Implementation Plans)
  * Sustainable Communities Act (SB375)
ARB Investments for Advanced Technology

* $230M in Air Quality Improvement Program (AQIP) and Low Carbon Transportation Investments
  * Zero and near-zero emission passenger vehicle rebates
  * Heavy duty hybrid/ZEV trucks and buses
  * Freight demonstration projects
  * Pilot programs in disadvantaged communities
ARB Regulations Targeting On-road Advanced Technologies

- **Light-Duty Sector**
  - Advanced Clean Cars Program: requires 1.4 million cars to be plug-in hybrid, battery all-electric or hydrogen fuel cell by 2025

- **Medium- & Heavy-Duty Sector**
  - Phase I GHG standards
  - Currently developing strategies
    - Phase II GHG standards
    - Advanced clean transit amendments
  - Technology assessment underway
Technology Assessments Underway

Developed in partnership with air districts

- Air Quality Plans (SIPs)
- Mobile Source Control Programs
- Freight Strategy

Technology Assessment
Assess existing and emerging advanced technologies that further reduce criteria pollutants and GHG emissions

Sources
- Trucks and buses
- Port, rail yard, locomotives and distribution center sources
- Airport Sources
- Fuels

Assess compatibility with each sector
- Operational constraints
- Economics
- Time to market
Mobile Source Control Program

Advanced Clean Transit
Existing Transit Fleet Rule

- Adopted in 2000, Fleet Rule for Transit Agencies (Transit Fleet Rule) required transit agencies to:
  - Reduce PM and NOx emissions from transit fleet vehicles & urban buses
  - Diesel or alternative fuel path for urban bus fleet
    - Half of transit fleets currently using CNG
  - Utilize ultra low sulfur fuel
Required larger transit agencies on diesel path to demonstrate zero emission bus technology

- Initial demonstrations 2005-2007
- Advanced demonstration 2010- current

Requires 15% of bus purchases to be zero emission technology

- Currently on hold per Jan 2010 mailout, MSC #10-04
Zero Emission Demonstrations are Critical

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<th>Bus Operator</th>
<th>Technology Type</th>
<th>Total Buses</th>
<th>Operating period (yrs)</th>
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</table>

* buses have not yet been delivered
Amendments Under Consideration: Advanced Clean Transit

- Partner with transit agencies to take lead in advancing technology and meeting emission reduction goals
- Broaden scope to include all transit agencies
- Consider other advanced emission control and zero emission transportation options
- Continue progress toward widespread zero emission bus commercialization
Amendments: Several Elements Under Evaluation

* Low NOx ICE engines
* Plug-in hybrids
* Zero emission miles
* Light rail systems
* Renewable fuels
* Regional planning
Amendments: Timeline

- Winter 2014: Public workshops
- Spring/Summer 2015: Draft Amendments language
- Fall 2015: Board hearing
Potential ARB Funding for Zero-Emission Buses

* AQIP funding plan (FY 14/15)
  * $10M - $15M funding for the HVIP program
    * $95,000/zero emission bus
  * $25M funding for Zero-Emission Truck and Bus Pilot Projects
    * Solicit proposals early 2015
    * Allow alignment with Federal LoNo and 5307 Formula Program funds

Note: Eligible buses and voucher amounts available at www.californiahvip.org
AQIP funding plan available at: www.arb.ca.gov/msprog/aqip/aqip.htm
Advanced Clean Transit
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