California Environmental Protection Agency
Air Resources Board

Discussion Guide
Advanced Clean Transit Workgroup Meeting
Friday, January 29, 2016

1. Introductions and goals (30 min)
   A. Introduction
   B. Goals of the Workgroup
      1) Work towards shared goals of enhancing transit mobility, air quality, climate protection, and petroleum reduction through collaboration.
      2) Ensure an open, transparent process for all interested stakeholders
      3) Clearly identify key issues, concerns and potential solutions
      4) Help collect cost information and projections for analysis
      5) Work towards consensus analysis and methodologies
      6) Other?
   C. Anticipated role of members
      1) Attend regular meetings in person, participate in focus meetings, and help provide information as needed.
   D. Timeline
      1) Advanced Clean Transit Technology Symposium (February 8, 2016) http://www.arb.ca.gov/msprog/bus/actmeetings.htm
      2) Board update: February 18, 2016
      3) Continued work group meetings (spring-summer 2016) http://www.arb.ca.gov/msprog/bus/actmeetings.htm
         a. ACT workgroup
         b. Transit Agency Subcommittee
      4) Statewide workshops in Spring and Summer 2016
      5) Board consideration: Late 2016
2. Background and current rulemaking status (20 min)
   A. May 2015 workshop proposal
      1) California faces challenging mandates to meet air quality, climate, and petroleum reduction goals. A transformation to zero and near-zero emission technologies in every sector is necessary to achieve these goals.
      2) Staff proposed to require transit fleets to use renewable fuels when contracts are renewed, and to purchase advanced technologies when buses are replaced. Starting in 2018, low NOx engines would need to be purchased if available for all conventional bus purchases and a percentage of bus purchases would need to be zero emission buses. The zero emission bus purchases would be phased in with a modest schedule with the goal of transitioning to a full zero emission transit fleets in

2040. Staff also provided a guiding principle that no transit service should/will be reduced as a result of this regulation.

3) Consider flexibility options or regional approaches that complement SB375 that enhance mobility and improve transit efficiency
4) Consider potential off-ramp provisions

B. Data Collection
1) ARB Transit survey to supplement national transit data, and help ARB better understand transit operations to be sent out soon
2) Ongoing data collection for ZEBA fuel cell electric buses, Foothill battery electric buses
3) Planned data collection for ARB solicitation projects (range of advanced technologies)

C. Financial incentives and options
1) Various financing options from zero emission bus manufacturers:
   a. Battery leasing options (same or lower capital cost than conventional buses)
   b. Bus leasing options (no upfront capital cost)
2) ARB's Low Carbon Fuel Standard (LCFS) program (http://www.arb.ca.gov/fuels/lcfs/lcfs.htm).
3) ARB's Zero-Emission Bus Pilot Commercial Deployment Projects (www.arb.ca.gov/aqip)
4) ARB's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) (www.californiahvip.org)
5) The Transit and Intercity Rail Capital Program managed by California State Transportation Agency (http://www.dot.ca.gov/hq/MassTrans/tircp.html)
6) The Low Carbon Transit Operations Program, managed by Caltrans (http://www.dot.ca.gov/hq/MassTrans/lctop.html)
7) FTA's Low or No Emission Vehicle Deployment Program (http://www.fta.dot.gov/newsroom/news_releases/12286_16576.html)

3. Transit Agencies Subcommittee (TAS) Update (15 min)
A. Fleet O&M cost data gathering
B. Developing flexibility and regional approaches
C. Defining performance-based approach
D. Potential technology off-ramp provisions
E. Comments on ARB Transit Survey
F. First meeting summary (http://www.arb.ca.gov/msprog/bus/actmeetings.htm)

4. Additional Topics for discussion (90 min)
   A. Outreach and education
   B. Total cost of ownership (normal bus replacement and operation vs with costs with rule)
      1) Handout with cost items and currently collected information
      2) TAS is working with staff, collecting O&M costs of operating conventional buses
      3) Current and future cost projections for buses, battery (for different battery chemistry), fuel cell stacks, fueling and maintenance infrastructure etc.
      4) Business case demonstration and individual fleet case studies
      5) Battery's second life value
   C. Renewable fuels
      1) Current availability in California market as a result of the LCFS program
      2) Costs to transit agencies same as conventional fuels (after LCFS credits)
      3) Requirements to use renewable fuels will not reduce LCFS credits, but GHG reduction benefit is attributable to the LCFS program and cannot be double counted. Therefore, no GHG emission reduction can be claimed by ACT.
      4) The LCFS program recognizes that GHG reduction benefit will not occur as a result of LCFS program alone. Therefore, the LCFS program attributes GHG reduction benefits to relevant program (either light duty or heavy duty) and will not double count in its annual accounting.

5. Areas specifically need Workgroup or Subgroup input (10 min)
   A. Price projections for battery, ZEB, and low NOx engine bus
   B. Flexibility options and regional approaches
   C. Technology readiness

6. Summary of action items (5 min)

7. Potential topics for next meeting (10 min)