Urban Bus New Engine Emission Standards

October 20, 2005
Board Hearing
Sacramento, CA

Urban Bus

Adopted Fleet Rules For Transit Agencies

- Adopted by Board in 2000
- Fuel Path Selection that Regulates New Bus Purchases
  - Transit agencies chose by January 31, 2001
  - Non-revocable decision to make 85% of annual purchases alternative fuel if on that path
- 57% of CA Transit Agencies Chose Diesel Path
  - Operate 38% of the CA Urban Bus Fleet
- Other Provisions Addressing NOx and PM Emission Reductions From Existing Fleet

Urban Bus vs. Truck Engine NOx Standards (g/bhp-hr)

Engine Type	2000	2004	2007	2010
Urban Bus Diesel	4.0	0.5*	0.2	0.2
Urban Bus Alt. Fuel	4.0 ***	2.2 ***	0.2	0.2
Truck HDE	4.0	2.2	1.2**	0.2

* 2004 Diesel hybrid electric UB at 1.8 g/bhp-hr

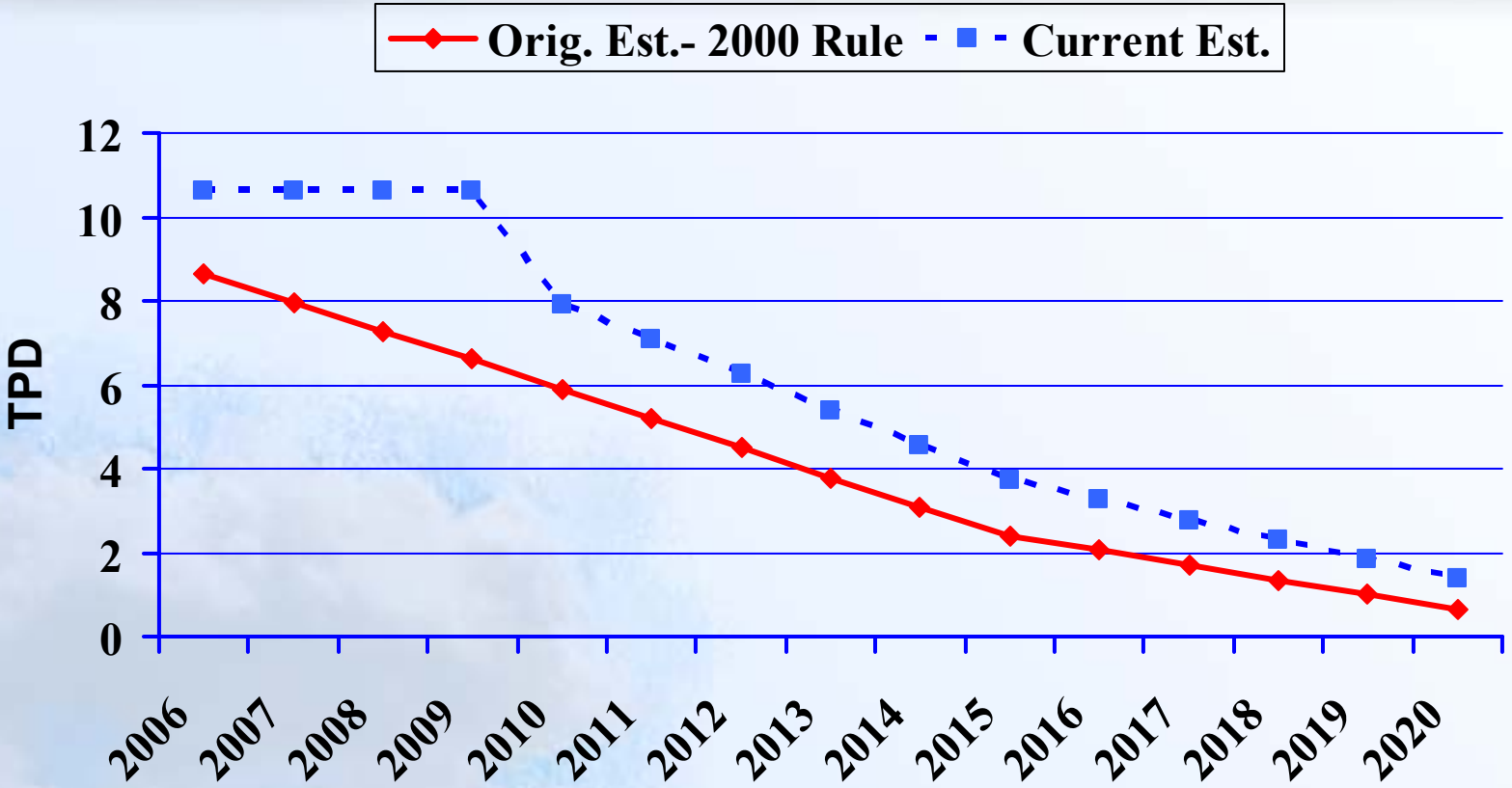
**Expected certification based on averaging

*** Actual emissions lower

Current Status

- Alt. Fuel Agencies Buying CNG and Other Non-Diesel Technology
  - CNG Buses Likely Available in 2007 meeting 0.2g NOx Standard
- Diesel Path Agencies Not Buying New Urban Buses
  - No Diesel Buses Available until 2010
  - Keeping Older Buses in Service
  - Expected Emission Reductions Not Achieved

Emission Reductions Expected vs. Actual



Staff Proposal

- Initial Statement of Reasons
  - 3 Options, No Recommendations
- Today's Proposal
  - Staff Recommendation

Option 1: No Change

- New Diesel Urban Bus Purchase Deferred until 2010
  - No Diesel Path Transit Agency Expected to Switch to Alternative Fuel
  - Older Urban Buses Remain in Service
- Delayed Purchase Results in:
  - Higher Emissions Through 2010
  - Slightly Lower Emissions Post-2010

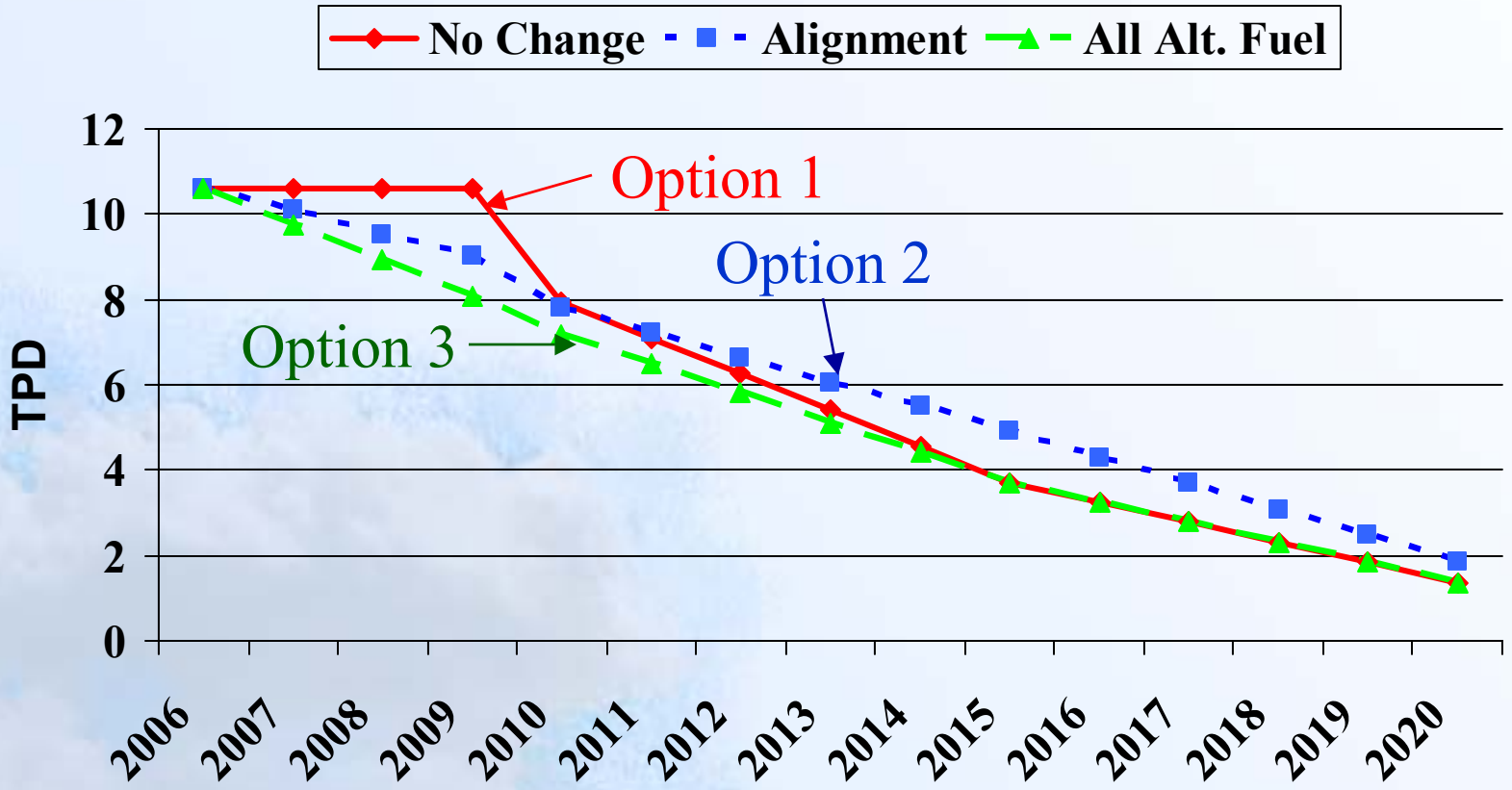
Option 2: Alignment

- Align With 2007+ Truck Engine Standard
- Purchase of Cleaner Diesel Engines Beginning in 2007
  - Older Urban Buses Replaced
- 1.6 tons of NOx per Day in 2009
  - Slightly Higher NOx Post-2010

Option 3: Mandatory Alternative Path

- All Diesel Path Agencies Moved to Alt. Path Through 2015
- Purchase of Alt. Fuel Buses Increase
  - Deferred Purchases No Longer an Option
- 2.5 tons of NOx per Day in 2009
  - Same Emissions as “No Change” in 2015+
- Higher Costs for Diesel Path Agencies
  - Cost Effectiveness ($119,030 per Ton of NOx)
- Requires New Rulemaking Process

Emission Reductions of 3 Options



Today's Staff Proposal

- Option 2: Align with Truck Engine Standard Beginning 2007 at 1.2 g/bhp-hr NOx
- Provide NOx Mitigation When Purchasing Higher Emission Diesels
  - Diesel Path Transit Agencies with Fleets >30
    - One NOx Retrofit For Each Purchase
      - Verified Retrofit at 25%+ NOx Reduction
      - Limited to Available Urban Buses

Issues Remaining

- Many Smaller Diesel Path Transit Need to Purchase Buses Now
  - Staff's Proposal Allows Diesel Purchases
- Switch to Alt. Fuels Disruptive
  - Diesel Path Agencies Oppose
  - Capital Costs High
  - No Difference in Emissions in 2010+ Buses
- Alignment Signals Lack of Support for Alternative Fuel
  - 62% Fleet with Alternative Fuel Path Transits

Recommendation

- Adopt Option 2 – Alignment with the Truck Engine Standard
  - Require NOx Retrofit for Fleets Greater than 30.