



METRO ELECTRIC BUS UPDATE

TRANSPORTATION PLANNING & POLICY BOARD

11/1/2021



WHY ELECTRIC?

- Goal of halving emissions by 2030 to combat climate change
- Improve local air quality
- Reduce long term operating costs
- Improve service quality

OTHER OPTIONS



Compressed Natural Gas

- Most common in the industry
- Fewer emissions than diesel
- Still a fossil fuel
- Requires significant storage and pressurization infrastructure



Biodiesel

- 100% renewable, from plant stock
- Can be used in existing fleet
- Strong solvent that requires some modifications to fueling systems
- Poor cold weather performance
- May void warranties



Renewable Diesel

- 100% renewable, from plant stock
- Can be used in existing fleet
- Requires no modifications to fueling systems
- Good cold weather performance
- Expensive



ELECTRIC BUSES

- Gaining significant market share
- Fewer moving parts
- Quiet
- No localized emissions
- Consistent Duty cycle
- Lower fuel cost



ON-ROUTE CHARGING

- Top off at layover
- Smaller Battery
- Can run all day
- Add driver time on route
- Distributed infrastructure

DEPOT CHARGING

- Charge in garage
- Centralized infrastructure
- No driver time
- Larger batteries (\$)
- Can't run all day (yet)



COST CHALLENGES

- Not a “one to one” replacement
- Need more electric buses than diesel
- Cost is 50-75% higher than diesel per bus
- Capital expenditures likely 2x



MAINTENANCE CHALLENGES

- New technology that is less proven
 - Many upstart, unproven, manufacturers
 - Need to train new mechanic skills
- = more downtime in short term

TRANSITION PLAN

- Transition shouldn't degrade service
 - Most efficient bus is the one that people ride
 - Hedge risks to ensure no disruptions
- Use mixed strategy for BRT - 27 electric w/ on-route charging + 14 diesel
- Experiment with biofuels in short term
- Plan for all new buses to be electric starting in 2025
- Buses last up to 15 years, so 2040 for full transition
- Be flexible as technology and manufacturers mature (or doesn't mature)

QUESTIONS & COMMENTS



1245

metro transit
administration offices

NOT IN SERVICE

945