ZEV FLEET PLANNING

AC Transit

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EXISTING CONDITIONS

- 618 total buses in fleet – all fuel types
- 15 40-foot Hydrogen Fuel Cell buses
  - Grant funded
  - Order for 10 more
- Plans to purchase five 40-foot Electric buses
  - Grant-funded, delivery in about two years
  - About $1 million each with charging stations at $100,000 each
  - Depot charged
- Fuel Cell results so far:
  - Initial buses cost $2.8 million each
  - Cost $1.40/mile to operate (diesel is between $0.70 and $0.77)
  - Cost $1.91/mile to maintain (diesel is about $0.81)
  - Fueling station cost $12.3 million, with maintenance at $141k/year

RELATIVE BENEFITS

- Hydrogen Fuel Cell
  - "Tried and True" in the fleet
  - Maintenance staff and operator familiarity
- Battery-electric
  - Less expensive per-bus cost
  - Maintenance costs lower than diesel
  - Battery/powertrain replacement costs are lower than Fuel Cell
  - Energy is cleaner, depending on original power source
  - More "Buy America" manufacturers of battery-electric buses

BATTERY-ELECTRIC CHARGING

▶ Charging approach is most critical decision

    ▶ "Route charging" vs. "Depot Charging"

▶ Route Charging

    ▶ Buses have small batteries with dedicated charging stations at end of the route (5-10 minutes to charge)

    ▶ Allows for theoretically unlimited daily range

    ▶ Less expensive batteries, more expensive charging stations

    ▶ Route charging station likely must be off-street

    ▶ Limits operational flexibility, questions about detours

▶ Depot Charging

    ▶ Buses have large batteries and must charge overnight (4-5 hours)

    ▶ More expensive batteries, less expensive charging stations

    ▶ Provided daily range exceeds 200 miles, can operate on all lines/blocks as equivalent diesel bus

PATH TO THE FUTURE

▶ Currently on a "two track" path

  ▶ Utilize both types of technologies

  ▶ Compare and evaluate

▶ Need to have 100-percent ZEV fleet by 2040

  ▶ All purchases beyond 2028 must be ZEV per CARB

QUESTIONS?