RTC Electric Bus Program
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RTC Interim Executive Director

Regional Transportation Commission
Metropolitan Planning • Public Transportation & Operations • Engineering & Construction
Metropolitan Planning Organization of Washoe County, Nevada

Your RTC. Our Community.
RTC Electric Bus Program

- About RTC
- Benefits of Electric Buses
- RTC Electric Bus Program
- Challenges / Lessons Learned
The RTC is a cooperative regional board comprised of five representatives appointed from the three local government jurisdictions.
Regional Transportation Commission of Washoe County Role

- Metropolitan Planning Organization
- Transit Service Authority
  - RIDE, RAPID, ACCESS, INTERCITY
- Regional road construction, & preservation
RTC Transit Service

Serving Reno & Sparks NV since 1978

- 8 million annual trips
- 26 Routes
- 68 Fixed Route Buses
- 21 Electric Buses
- 2 BRT Lines
- 45 CNG Paratransit Vehicles
Benefits of Electric Buses

- Environmental sustainability
  - Improve air quality & reduce GHG emissions
- Customer experience
- Potential for cost savings
- Goal to convert entire fleet to alternative fuels by 2030
Benefits of Electric Buses

- Nevada Governor Steve Sisolak Signed Executive Order to Reduce GHG on November 22, 2019
RTC Electric Bus Program

- 4 Proterra BE 35 (2014)
  - Short range 30 miles
  - 4 minute charge time (about 10%)

Overhead fast charger
- Rate of charge 480 kWh
RTC Electric Bus Program

- **17 Proterra Catalyst (2018)**
  - Long range 90-130 miles
  - 6 – 7 hours charge time
  - Overnight charging
  - Rate of charge 60 kWh

- But – also can charge on fast charger!
  - Rate of charge 300 kWh
RTC Electric Bus Program

- Used on Lincoln Line BRT on US 40 between Reno & Sparks
RTC Electric Bus Program

- Used on Regional Connector between Reno & Carson City
Villanova Maintenance Facility Upgrades

- $15m improvements
- Bus bay door height
- Charging infrastructure
Villanova Maintenance Facility Upgrades

- Charging infrastructure
- Maintenance bays
Lessons Learned

- **Electrical Demand Charges**
  - Demand charge or peak demand (KW) is highest rate of usage during any 15 minute period during the month
  - Peak demand determines cost for the entire month
  - Billed between $10 and $30 per KW
Lessons Learned

- **Infrastructure**
  - For a few buses - relatively simple – tie into building system
  - For a large number of buses - can be costly and complex

- **Upgraded transformers, switch gear, distribution panels**

- **Number / geographical distribution and type of chargers**
Challenges / Lessons Learned

- Short range buses work well on fixed routes of short duration
- Predictable range and performance
- Short range buses fast charge at 480kWh during the peak rate period, longer range buses charge overnight at lower rate
- Power outages and charger issues may put vehicles out of service
Scheduling

- Electric Buses may require different scheduling process
  - Range is shorter than diesel
  - Energy costs vary with time and kWh needed
  - Opportunity Charging – Gaps in schedule
Next Steps

Battery storage

Data Collection / Analysis
Life Without Diesel: Operations Planning for Emerging Vehicle Technologies

Thank You!

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