



# Utilities and Fleet Electrification

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# Topics for Discussion

- City Utilities Fleet Status
- Our Experience
- Things to Consider Before Implementing

# City Utilities Fleet Status

- Combined commodity utility
  - Electric, Gas, Water, Fiber Internet, Transit
- 25 Fixed Route
  - 23 Diesel, 2 Electric
- Charging Equipment
  - 2 ABB Chargers







# Our Experience

- Grant application
  - Infrastructure provided by CU's Electric Division
- Battery life
  - Driver habits, weather
  - Routes designed for diesel
  - No on-route charging
- NTD Reporting
- Software Options
  - On bus, with chargers, etc.

# Data/Reporting Available

## Performance

- Avg. Speed
- # of charging sessions
- Regeneration rate

## Energy

- Energy consumed driving
- Energy used in service
- Energy regenerated driving

## State of Charge

- SOC used driving
- SOC used idling
- SOC

## Time

- Time charging (fast vs slow)
- Time driving
- Time idling

## Charger Data

- Charger status
- Charging session start/stop time
- Charging duration
- Energy delivered
- Stop charge reason
- Initial SOC vs Ending SOC

# Things to Consider

- 1.) Engage with your electric provider early in the process
  - a. Electric fleets = revenue
  - b. Key Accounts, Economic Development Staff
- 2.) What is the current electrical capacity of your charging location?
- 3.) Understand charging cost & rates
  - a. Off-Peak, On-Peak, Special Rates
- 4.) Will it be beneficial to have chargers on separate meter?
  - a. NTD Reporting



# Things to Consider

- 5.) Is there a need for duplicate charging capabilities/secondary site?
  - a. Do you need a standby generator?
  - b. What percentage of your fleet is (will be) electric?
  - c. How long are you comfortable not being able to charge a bus, in case of reporting a charger/no power issue?
- 6.) What does your “big picture” fleet look like?
- 7.) Can your team accommodate off-peak charging, or will you require on-peak?

# Things to Consider

- 8.) Electric buses could require new/additional safety measures.
  - a. Additional training
  - b. PPE requirements
  - c. Lockout/tagout process
- 9.) Will there be an insurance impact?
  - a. Will rates be impacted?
  - b. Will insurance have an opinion on whether buses are stored inside/outside?