All-Electric Bus Program

New York, NY

Presentation to AEC
Advanced Energy Conference

March 2018
Electric Buses are

- ZERO Emissions
- Quieter (inside and outside)
- Smoother Accelerating
- Growing rapidly worldwide, lowering vehicle costs
- Not ZERO Impact
Bus agencies across the US are quickly testing or adopting Electric Buses
Extensive coordination with multiple stakeholders to successfully scale up Electric Bus deployments.
Phase I: Test & Evaluate 10 buses
Phase II and Phase III: scale-up based on results

- **Phase I** - Lease 10 standard **40-foot buses & charging systems** from two separate vendors to start revenue service Quarter 1 2018

- **Pilot Objectives**
  - Evaluate Various Battery Sizes
  - Depot vs. En-Route Chargers & Charging
  - Develop Requirements, Specifications & Standards

- **Phase II** – 60 buses including 15 articulated 60-foot buses
- **Phase III** – up to ??? buses
Brooklyn and Queens routes are ideal for testing AEB operation in medium average speed routes.
Williamsburg Bridge Plaza
Brooklyn, New York
Crosstown Manhattan routes are ideal for testing AEB operation in low average speed routes.
Siting charging equipment with minimal impact on streetscape (West Side of Manhattan)

Terminal for **M42** and **M50**, West 43rd Street, Manhattan, Circle Line
Siting charging equipment with minimal impact on streetscape (East Side of Manhattan)

Terminal for M42 possibly M50, East 41st Street, Manhattan, TBTA Queens Midtown Tunnel - Ventilation Tower
Charging Systems/ Electrical

Design & Safety
- IEC
- SAE
- NFPA
- IEEE
- NEC
- Other standards
Phase I status and Next Steps

- Board Reviewed/Approved
  - April 2017 – July 2017 (Brooklyn/Queens)
- NYC Public Design Commission Approved
- CD 30/60/90/100 Approved
- Contracts Awarded – Q3 2017
- Began Revenue Service Q1 2018
- Re-Engaging the Internal and External Stakeholders
- Design, Permit, **Install & Commission On-Street Charging Systems**
- **Evaluate future deployments**
- **Evaluate potential to support Special Operations (such as L-Train Canarsie Tube Overhaul for NYCT Subway System)**
Our objectives are aligned in reducing greenhouse gas (GHG) emissions

- Continue to improve air quality in the region and mitigate climate change
- Implement a 10 bus AEB pilot to gain knowledge and experience in New York operating environment
- Zero Emissions does not mean Zero Impact
Electricity to charge Electric Buses… Where does it come from?

New York Net Electricity Generation by Source, Apr. 2017

Source: Energy Information Administration, Electric Power Monthly
Some of the Project KPIs

- Project Stakeholders
  - Internal
  - External
- Inform Policy? Utility? Future Procurements?
  - Configurations
  - Specifications (APTA has Electric Buses in the new spec)
- Project Owner
- Project Funding Sources
- Project Schedule
- Align Project with State and Local Emission Goals
- Can project results help develop a Strategy for scaling up?
Thank you!

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