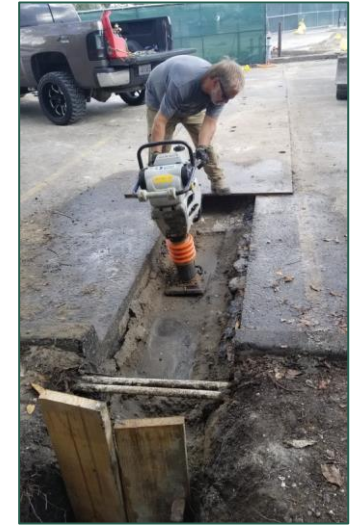


Demonstrating Electric Shuttles for the New Orleans Region

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Project ID # ti138

This presentation does not contain any proprietary, confidential, or otherwise restricted information



Overview

Timeline

- Start : October 1, 2020
- End: December 31, 2023
- 40% Complete

Budget

- Total project funding
 - DOE share: \$737,555
 - Cost share: \$828,955
- Total project budget expended (as of 3/31/22):
 - DOE share: \$108,719
 - Cost share: \$157,457

Barriers and Targets

- Limited local experience with Electric Vehicle (EV) fleets and Electric Vehicle Supply Equipment (EVSE) among local shuttle operators, contractors, and utility
- Limited availability of medium-duty transit vehicles in EV models
- Lack of data for analysis of environmental impact and financial costs and benefits

Partners

Tulane University, Entergy, Creative Bus Sales, Southeast Louisiana Clean Fuel Partnership

Project Objectives

Objectives

- Tulane University will demonstrate the operation of an EV shuttle fleet for other New Orleans area fleet operators

Impact

- Develop direct local experience with EV shuttles that can be shared with other fleet operators and stakeholders
- Provide financial life cycle cost analysis of EV shuttles based on actual costs in our region, and including carbon pricing

VTO Technology Integration goals

- Improving fuel diversity by adding EV vehicles to a gas & diesel fleet
- Reducing greenhouse gas emissions by shifting to electricity increasingly sourced from clean and renewable sources

Project Approach

BUDGET PERIOD 1

Procurement & Infrastructure Upgrades

- Confirm EV shuttle selection and place purchase order
- Design infrastructure upgrades
- Bid & award construction contract
- Site construction & electrical service installation
- EV shuttles fleet accessory upgrades at local dealer
- EV shuttles fleet ready for service

BUDGET PERIOD 2 (2022)

Initial Deployment & Data Collection

- EV Shuttles begin service on regular routes
- Review of initial data and sharing protocols
- Presentations at local Clean Cities events
- EV Charging Infrastructure Case Study

BUDGET PERIOD 3 (2023)

Data Analysis & Outreach

- Website published featuring Case Study 1, presentations, and workshop information
- On-campus workshop for area fleet managers
- Presentations at local Clean Cities events
- Case Study focusing on Operational Experience
- Financial Analysis with Carbon Pricing

Project Milestones

Milestone	Type	Status
BUDGET PERIOD 1 (OCT 2020-DEC 2021)		
EV Shuttle Bus Model & Specs Determination	Technical	In progress
Charging Station Design	Technical	Completed
Site Preparation Contract	Technical	Completed
Site Preparation and Electrical Service	Technical	Completed except for installation & commissioning of chargers
Fleet Accessory Upgrades	Technical	In progress
EV Shuttle Fleet Ready for Service	Go/No	In progress
BUDGET PERIOD 1 (JAN 2021-DEC 2022)		
EV Shuttles deployed on university routes	Technical	In progress
Data collection review completed	Technical	In progress
Presentation Preparation Completed	Technical	In progress
Case Study 1: EV Charging Infrastructure	Technical	In progress
Data Collection Protocol Confirmation	Go/No Go	In progress

Project Accomplishments and Progress: Procurement

Procuring EV shuttles within changing landscape of bus providers, manufacturers, and vehicle design has been project's largest challenge.

Proposed order of Four Lightning Electric E-450 Shuttle Buses now under final review.

PROCUREMENT SEQUENCE

- Initial purchase order with Alliance Bus Group for 5 Grande West Vicinity Shuttles with anticipated delivery Dec 2021 (Dec 2020)
- Creative Bus Sales purchases Alliance Bus Group (Aug 2021)
- Informed by Grande West of changed design and 60% cost increase for Vicinity EV shuttles (Dec 2021)
- New bus provider, Creative Bus Sales, provides new EV shuttle options (March 2022)
- Selection of Lightning Electric E-450 Shuttle Buses with anticipated delivery Dec 2022 (April 2022)

Project Accomplishments and Progress: Design

EV Charging area organizes and enhances existing shuttle parking area.

- Charging station plan developed from consideration of operations schedule, charging station specs, possible emergency situations
- Initial site layout considered parking lot use, security, proximity to utility electrical service
- Test fits preceded design development by electrical and civil engineers
- Five ABB Terra 54HV 50 kW DC fast charging stations to be installed on concrete islands



Project Accomplishments and Progress: Infrastructure

Construction of EV charging area readily accomplished by local contractor and utility team.

- Contractor: Trenches excavated, conduit installed. Charger islands poured, wiring pulled to the islands. Main disconnect station installed, including a utility meter. New asphalt.
- Utility: Installed pole and three transformers
- Installation & commissioning of chargers will be completed when shuttles arrive.



Collaboration and Coordination among Project Team

Project Sponsor: Department of Energy

Prime Recipient/Project Manager: Tulane University

- Office of Sustainability
- Office of Shuttles & Transportation
- The ByWater Institute
- With assistance from Office of University Architect, Capital Projects, Communications & Marketing

Utility: Entergy New Orleans

Local Bus Provider: Creative Bus Sales

Clean Cities Coalition: Southeast Louisiana Clean Fuel Partnership

Contribution to Energy Equity and Environmental Justice

- The project demonstrates the replacement of diesel vehicles with zero-emission EVs, fostering action to improve local air quality in a city with a majority Black population.
- Use of EVs will ameliorate some impacts of the historic injustice of development high-traffic streets and interstates through Black communities in New Orleans (air pollution, noise pollution)
- The Renewable & Clean Energy Portfolio Standard established for local utility Entergy New Orleans will help ensure that electricity powering these vehicles comes from cleaner sources, reducing upstream environmental justice impacts

Summary

GOAL	<ul style="list-style-type: none">• Expand use of EVs in transit fleets
APPROACH	<ul style="list-style-type: none">• Deployment of EV shuttles and EVSE by Tulane University to serve existing shuttle routes and services• Collection, analysis, and sharing of cost data and overall experience
ACCOMPLISHMENTS	<ul style="list-style-type: none">• Design and construction of five-bay EV charging area• Procurement of EV shuttles in fluid business environment• Utility gained experience with EV customer needs
UP NEXT <i>Any proposed future work is subject to change based on funding levels.</i>	<ul style="list-style-type: none">• Installation and commissioning of chargers• Update implement bus and site graphics• Arrival of EV shuttles in December 2022• Commencement of training, operation, and data collection• Publication of initial case study

Technical Backup Slide

Starcraft Lightning Electric E-450 Shuttle Bus

BASE CHASSIS	Ford E-450 Cutaway
ELECTRIC MOTOR	Lightning eMotors Powertrain
PASSENGER CAPACITY	20 passenger, with ADA lift and 2 wheelchair positions
BATTERY CAPACITY (KWH)	130
MILE RANGE	130
CHARGE TIME	2-2.5 Hours, DC Fast Charge at up to 80kW



An E-450 Shuttle Bus with a diesel engine was brought to Tulane University for test drives in March 2022