

Demonstrating Electric Shuttles for the New Orleans Region

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Project ID # TI138

This presentation does not contain any proprietary,
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Overview

Timeline

- Start : October 1, 2020
- End: December 31, 2023
- 60% Complete

Budget

- Total project funding
 - DOE share: \$737,555
 - Cost share: \$828,955
- Total project budget expended (as of 4/14/23):
 - DOE share: \$152,792.64
 - Cost share: \$219,519.94

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 – Adapted for Delays

BUDGET PERIOD 1

Procurement & Infrastructure

- Confirm EV shuttle selection and place purchase order
- Design infrastructure upgrades
- Bid & award construction contract
- Site construction & electrical service installation

BUDGET PERIOD 2

Procurement & Infrastructure

- Complete installation of charging equipment and site striping
- Second procurement process

BUDGET PERIOD 3 (2023)

Data Analysis & Outreach

- Third procurement process
- Activate charging equipment
- Finalize Case Study 1, Infrastructure
- Review of initial data and sharing protocols
- Commence technology transfer presentations & workshops
- Receive EV shuttles & adapt with fleet accessory upgrades at local dealer
- Website published featuring Case Study 1, presentations, and workshop information
- EV shuttles staff and fleet prepared for service & begin service
- Case Study focusing on Operational Experience
- Financial Analysis with Carbon Pricing

Project Milestones Budget Period 1 & 2

Milestone	Type	Status	Notes
BUDGET PERIOD 1 (OCT 2020-DEC 2021)			
EV Shuttle Bus Model & Specs Determination	Technical	Completed	Completed for each procurement process
Charging Station Design	Technical	Completed	
Site Preparation Contract	Technical	Completed	
Site Preparation and Electrical Service	Technical	Completed	
Fleet Accessory Upgrades	Technical	In progress	Awaiting arrival of shuttles
EV Shuttle Fleet Ready for Service	Go/No	In progress	Awaiting arrival of shuttles
BUDGET PERIOD 2 (JAN 2021-DEC 2022)			
EV Shuttles deployed on university routes	Technical	In progress	Awaiting arrival of shuttles
Data collection review completed	Technical	In progress	Scheduled for May to review new telematics software
Presentation Preparation Completed (for demonstration events, "Drive Electric Week")	Technical	In progress	Awaiting arrival of shuttles
Case Study 1: EV Charging Infrastructure	Technical	In progress	Complete
Data Collection Protocol Confirmation	Go/No Go	In progress	Scheduled for May to review new telematics software

Project Milestones Budget Period 3

Milestone	Type	Status	Notes
BUDGET PERIOD 3 (JAN 2023-DEC 2023)			
Website published	Technical	In progress	In development, awaiting certain arrival of shuttles
On-campus workshop	Technical	In progress	On-site presentation pegged for USGBC Louisiana FORWARD Symposium, October 2023
Presentations and demonstrations at SLCFP (South Louisiana Clean Fuel Partnership) events	Technical	In progress	Presentation scheduled for April 19, 2023 Clean Fuels Summit, Baton Rouge
Completion of case study 2	Technical	In progress	Awaiting arrival of shuttles
Completion of white paper	Technical	In progress	Awaiting arrival of shuttles

Any proposed future work is subject to change based on funding levels.

Project Accomplishments and Progress: Procurement

Procuring EV shuttles within changing landscape of bus providers, manufacturers, and vehicle design remains this project's primary challenge.

On February 14, 2023, Tulane brought one Ford e-Transit Van to the university to test it with staff, on prospective routes, and facilities.

Current shuttle order: An order was placed in early March for 9 Ford e-Transit Vans.

Any proposed future work is subject to change based on funding levels.

PROCUREMENT SEQUENCE

Initial purchase: Order placed through 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)

Second purchase: Selection of Lightning Electric E-450 Shuttle Buses with anticipated delivery Dec 2022 (April 2022)

Informed the order will not be honored because batteries not available. (January/February 2023)

Third purchase: Order placed through Creative Bus Sales for 9 Ford e-Transits. Anticipated delivery June 2023.

Project Accomplishments and Progress: Infrastructure

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

- Contractor: Installed charging equipment and completed striping.
- Tulane: Activating EV charging equipment.
- Tulane: Identified and secured dedicated parking for additional four shuttle vehicles. Future work, beyond scope of grant, may include additional charging infrastructure for additional vehicles at these locations.

Any proposed future work is subject to change based on funding levels.



Tulane University Claiborne EV Charging Bays. Ford e-Transit in foreground. Current mid-size diesel shuttles behind. February 14, 2023.

Project Accomplishments and Progress: Outreach

Outreach has begun focused on procurement, infrastructure, and collaboration. Scheduled and events in development listed below.

- Clean Fuels Summit, Baton Rouge April 19, 2023
- Tulane Earth Day fair, in-person, April 21
- Southeastern Campus Sustainability Network Annual Summit, June 12-14 virtual presentation
- USGBC Louisiana Chapter: Virtual presentation of Case Study 1, May 2023; In-person workshop, October 2023.
- University Sustainability Coalition (Louisiana), virtual presentation, July/August.
- Shuttles & Transportation Website update in progress

Any proposed future work is subject to change based on funding levels.

AFV: FROM CONCEPT TO IMPLEMENTATION

- **JORDAN STEWART**, TULANE OFFICE OF SUSTAINABILITY, PRINCIPAL INVESTIGATOR
- **BRIAN LOWE**, TULANE SHUTTLES & TRANSPORTATION, EQUIPMENT INCORPORATION & TRANSITION
- **MARK LEBLANC**, TULANE CAPITOL PROJECTS, CONSTRUCTION PROJECT MANAGER & ESTIMATOR
- **SCOT BARRIOS**, ENTERGY ELECTRIC MOBILITY PORTFOLIO, UTILITY CONTACT

Tulane

Slide listing panelists for 2023 Clean Fuels Summit in April.

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">• Activation (rather than “commissioning”) of charging equipment• Presentation to Clean Fuels Summit, April 2023 and other events• Commencement of training, operation, and data collection• Update bus graphic designs for Ford e-Transit model• Arrival of EV shuttles to campus projected for June 2023• Publication of case study and financial analysis research

Technical Backup Slide

Ford e-Transit

VEHICLE	Ford E-Transit, high roof
PASSENGER CAPACITY	13 passenger including 1 wheelchair position



Ford e-Transit, Tulane Campus,
New Orleans, February 14, 2023