Southeast Louisiana Electric Vehicle Readiness Guide

Issue 1: Released January 2022

This report is a product of the Southeast Louisiana Clean Fuel Partnership and
The Regional Planning Commission of Jefferson, Orleans, Plaquemines, St. Bernard,
St. Charles, St. John the Baptist, St. Tammany, and Tangipahoa Parishes

Southeast Louisiana Clean Fuel Partnership

Putting the Pieces Together for Cleaner Fuel
A Strong Economy • A Healthier Community

RPC REGIONAL PLANNING COMMISSION FOR THE PARISHES OF LOUISIANA

Abstract

The national trend of investing in both electric vehicles (EVs) in the market and electric vehicle supply equipment (EVSE) to service drivers continues to gather momentum. EVs present a tremendous opportunity to serve a significant portion of Southeast Louisiana's mobility needs, while simultaneously reducing energy use, fueling costs, and greenhouse gas (GHG) emissions. Preparing our region for a successful transition to electric vehicles, whether that be for personal use or government and commercial fleets, requires smart planning. What new EV charging infrastructure is needed? How will EVs integrate into our electrical supply systems? What new building and electrical codes will need to be created for home, commercial, and public use? How will EVs impact transportation planning and demand management at both the local and regional level?

The Southeast Louisiana Electric Vehicle Readiness Guide provides a comprehensive introduction to this EV technology and how to transition to an electrified transportation system, informed by regional housing, income, and population data. The guide outlines identified barriers for adoption and showcases best practices to help develop strategies that will promote electrification of the region's transportation systems, greater mobility access, and a cleaner environment - all of which leads to more opportunity for prosperity in Southeast Louisiana for generations to come.

Disclaimer

Data compiled from the American Community Survey (ACS) 5 Year Summary File (2015-2019) published December, 2020 by the U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau. Data received in text format, and joined to spatial geography files by the New Orleans Regional Planning Commission (RPC). Specific tabular data relating to RPC activities formatted for mapping and analytical purposes. For further information please contact RPC, Lyn Dupont, GIS Manager.

Cover Photo Courtesy of U.S. Department of Transportation

Table of Contents

Appendices

Photo Courtesy of U.S. Department of Transportation

i. List of Acronyms & Abbreviations

1 ----------

120v One hundred and twenty volts

2 ----------

240v Two hundred and forty volts

A ----------

ACS American Census Survey

ADA U.S. American with Disabilities Act

AFC Alternative Fuel Corridors

AFDC Alternative Fuels Data Center

AFV Alternative Fuel Vehicle

AIQP California's Air Quality Improvement Program

AMFA Alternative Motor Fuels Act

APTA American Public Transit Association

B ----------

BEV Battery electric vehicle

BIL Bipartisan Infrastructure Law

BUILD Better Utilizing Investments to Leverage Development

C ----------

CAA Clean Air Act

CAFE Corporate Average Fuel Economy

CARB California Air Resources Board

CAV Connected and autonomous vehicle

CNT Center for Neighborhood Technology

CTF U.S. DOE Clean Technology Fund

CTIF Louisiana Climate Initiatives Task Force

CMAQ Congestion Mitigation and Air Quality Improvement Program

COVID-19 Coronavirus Disease 2019

CNG Compressed natural gas

CVRP California's Clean Vehicle Rebate Project

D ----------

DC Direct Current

DCFC Direct Current Fast Charging

DOE U.S. Department of Energy

DOT U.S. Department of Transportation

E ----------

EERE Energy Efficiency & Renewable Energy

EIA U.S. Energy Information Administration

EISA Energy Independence and Security Act

e-MasS Electric Mobility as a Service

EPAct Energy Policy Act

E-Tech Entergy's electric supply equipment incentive program

EVCI Electric Vehicle Charging Infrastructure

EVSE Electric vehicle supply equipment

F ----------

FAST ACT Fixing America's Surface Transportation Act

FHWA Federal Highway Administration

G ----------

GHG Greenhouse Gas

H ----------

H&T Index Center for Neighborhood Technology's Housing & Transportation Index

HEV Hybrid electric vehicle

I ----------

I-10 U.S. DOT Federal Highway Interstate Ten

I-12 U.S.DOT Federal Highway Interstate 12

IBC International Building Code

ICC International Code Council

ICE Internal combustion engine

ICEV internal combustion engine vehicle

IIJA Infrastructure Investment and Jobs Act

IRC International Residential Code

ISTEA Intermodal Surface Transportation Efficiency Act

ITS Intelligent Transportation System

J ----------

JBE Governor John Bel Edwards

K ----------

kWh Kilowatt hour

L ----------

LOTTR Level of Travel Time Reliability

LRTP Long Range Transportation Plan

M ----------

MaaS Mobility as a service

MFT Motor Fuel Tax

MOU Memorandums of Understanding

MPGe Miles per gasoline gallon equivalent

MPH Miles per hour

MPO Metropolitan Planning Organization

MTP Metropolitan Transportation Plan

MUD Multi Unit Dwellings

N ----------

NACS National Association for Convenience and Fuel Retailing

NEC National Electrical Code

NFPA National Fire Protection Association

NGV Natural Gas Vehicle

NHS National Highway System

P ----------

P3 Public-private partnerships

PEV Plug-in electric vehicle

PHEV Plug-in hybrid electric vehicle

R ----------

RPC Region Planning Commission

RAISE Grant The U.S. DOT Rebuilding American Infrastructure with Sustainability and Equity, or RAISE Discretionary Grant program

S ----------

SBPG Saint Bernard Parish Government

SLCFP Southeast Louisiana Clean Fuel Partnership

T ----------

TAC Technical Advisory Committee

TAPforce Los Angeles Metro bus company's multimodal transit pass program

TNC Transportation Network Company

TOU Time of use

TRB Transportation Research Board

1. Executive Summary

Why Electric Vehicles and Why Now?

The passing of the federal Bipartisan Infrastructure Law (BIL) in November 2021 has placed the U.S. on the precipice of historic investment in electric vehicles (EVs) and electric vehicle charging infrastructure. While EVs still represent a comparatively small margin of new vehicle sales at 2.9%, this percentage is rapidly growing.[1] The transportation industry has been steadily moving towards cleaner, more efficient fueling systems and infrastructure for the better part of twenty years. The Bipartisan Infrastructure Law sets a new stage to increase the pace at which communities plan to transition and invest in electrifying our transportation system.

There are tremendous benefits to transitioning to an electrified transportation system. Compared to traditional internal combustion engine (ICE) fuel sources such as gasoline and diesel, alternative fuel sources (such as hydrogen, natural gas, propane, biodiesel, and electric) can be more efficient and contribute to lower greenhouse gas (GHG) emissions. U.S. EV sales hit a record high of 761,000 vehicles in 2020 which, according to the U.S. Bureau of Statistics, is the fifth consecutive year of growth. Sales of EVs surpassed 300,000 in the first quarter of 2021 and were on target to exceed 2020 sales, which furthers the public's shift towards acceptance of EVs in the consumer market.[2]

Southeast Louisiana is also at the front lines of some of the most pressing issues facing the country, including climate change, increased risk of natural disaster events such as hurricanes and flooding, systemic racial injustices, and the recovery of the economy and health system from the COVID-19 pandemic. The region could benefit immensely by electrifying our regional transportation network and promoting consumer adoption to EV technology. Doing so will increase the region's mobility options, while reducing fossil fuel energy use, save consumers on fueling costs, and reduce regional GHG emissions.

At the moment, there is still a lack of public charging infrastructure as well as broad acceptance and understanding of the benefits to fully integrate EVs into transportation systems. The new Bipartisan Infrastructure Law passed in mid-November 2021 has not been executed yet. There will be months, if not years for full guidance to be issued on how to implement dedicated funding for EV infrastructure. The Southeast Louisiana EV Readiness Guide will prepare our regional stakeholders to plan for infrastructure investments and policy changes that will help incrementally make this transition.

---

[1] Bureau of Transportation Statistics, "Earth Day 2021 Arrives as U.S. Electric Vehicle Sales Continue to Grow", April 21, 2021, https://www.bts.gov/data-spotlight/electric-vehicle-use-grows

[2] Bureau of Transportation Statistics, "Earth Day 2021 Arrives as U.S. Electric Vehicle Sales Continue to Grow", April 21, 2021, https://www.bts.gov/data-spotlight/electric-vehicle-use-grows

The Southeast Louisiana Electric Vehicle Readiness Guide provides insight on how to better plan for the public to transition to EVs. The guide will also help municipalities expand options for municipal and commercial fleets to transition to EVs, along with providing recommendations on how to better integrate EVs into regional transportation networks. As an extension of this document, there are other resources included to gain more knowledge about EVs, including emerging and best practices for EV codes and ordinances, and planning resources such as regionally specific data and maps that are available in print and online. The path to full EV integration still has many unknowns, but this regionally focused Southeast Louisiana Readiness Guide provides key insights and sets regional goals to encourage widespread EV adoption in public and private sectors across the region.

2. Electric Vehicle Background

Who is the Southeast Louisiana Clean Fuel Partnership?

The Southeast Louisiana Clean Fuel Partnership is a coalition of regional vehicle fleet managers and operators; alternative fuel vehicle and technology providers; local, state and federal government agencies; and other organizations interested in promoting policies and practices that diversify our transportation fuel options, improve our environment and reduce fleets' operational costs.

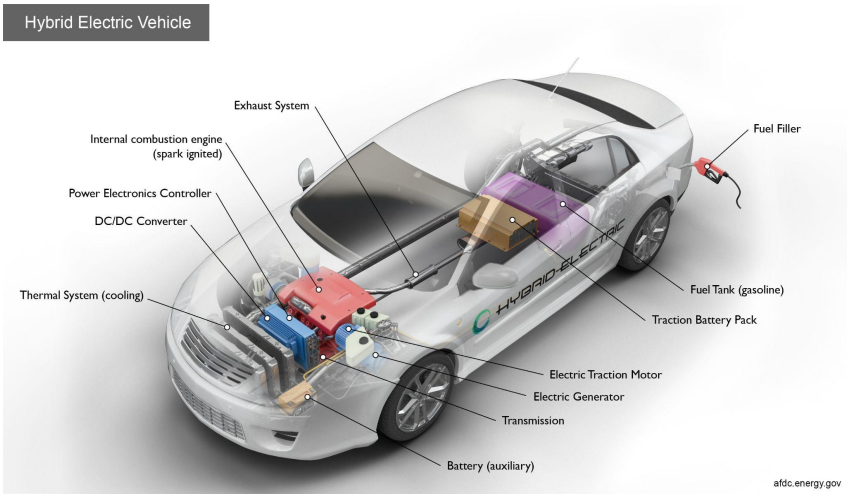
As part of a network of over 75 U.S. Department of Energy designated Clean Cities Coalitions nationwide, the Southeast Louisiana Clean Fuel Partnership provides education, technical assistance, funding information and other services to assist vehicle fleet managers and personnel incorporate cleaner transportation options into their operations.

Photo Southeast Louisiana Clean Fuel Partnership
Clean Fleets Awards 2019

The Southeast Louisiana Clean Fuel Partnership is housed at the Regional Planning Commission which serves eight parishes (counties) in southeast Louisiana: Jefferson, Orleans (includes the City of New Orleans), Plaquemines, St. Bernard, St. Charles, St. John the Baptist, St. Tammany, and Tangipahoa. The Regional Planning Commission is a board of local elected officials and citizen members, appointed to represent their jurisdictions on regional issues. This board is supported by a staff of professionals with broad experience in a variety of areas including urban and regional planning, community development, economics, engineering, government, history, law, landscape architecture, political science, sustainable development, transportation, geography and other disciplines.

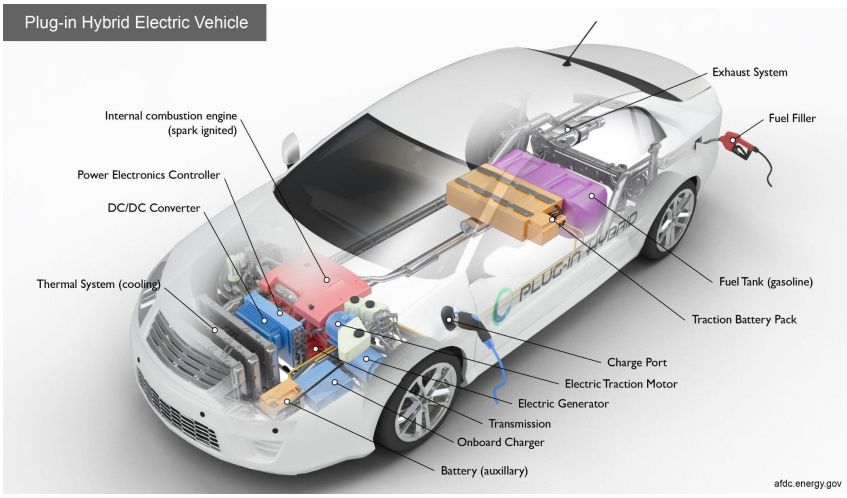
What Do We Mean When We Say "Electric Vehicles"?

The term "Electric Vehicles" (EVs) encompasses a variety of vehicle technologies, including hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), and all-electric vehicles (EVs)—also referred to as battery electric vehicles (BEVs). PHEVs and BEVs are also referred to more specifically as plug-in electric vehicles (PEVs). Below is a more detailed description of each vehicle type as defined by the U.S. Department of Energy's Alternative Fuel Data Center:



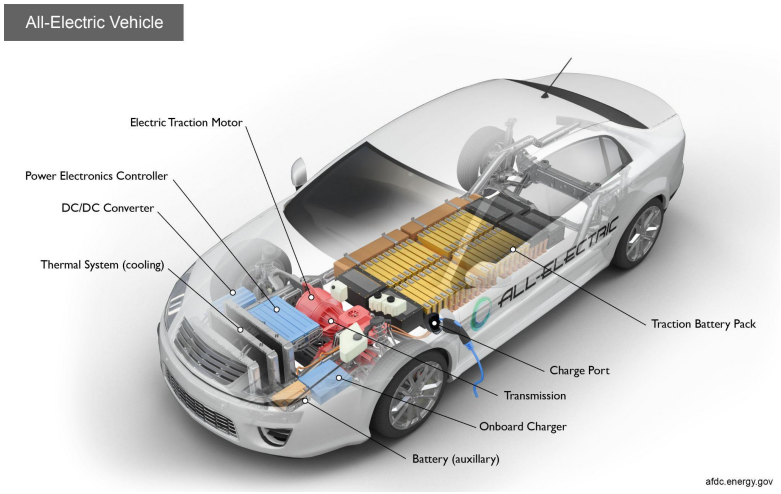
Hybrid Electric Vehicles (HEVs)

HEVs are powered by an internal combustion engine and an electric motor that uses energy stored in a battery. The vehicle is fueled with gasoline to operate the internal combustion engine, and the battery is charged through regenerative braking, not by plugging in.



Plug-In Hybrid Electric Vehicles (PHEVs)

PHEVs are powered by an internal combustion engine and an electric motor that uses energy stored in a battery. PHEVs can operate in all-electric (or charge-depleting) mode. To enable operation in all-electric mode, PHEVs require a larger battery, which can be plugged into an electric power source to charge. Most PHEVs can travel between 20 and 40 miles on electricity alone, enough to support a driver's typical daily travel needs, and then will operate solely on gasoline, similar to a conventional hybrid when needed.



All-Electric Vehicles / Battery Electric Vehicles (BEVs)

Battery electric vehicles (BEVs) have a battery that is charged by plugging the vehicle into charging equipment. BEVs always operate in all-electric mode and have typical driving ranges from 150 to 300 miles before needing to recharge.

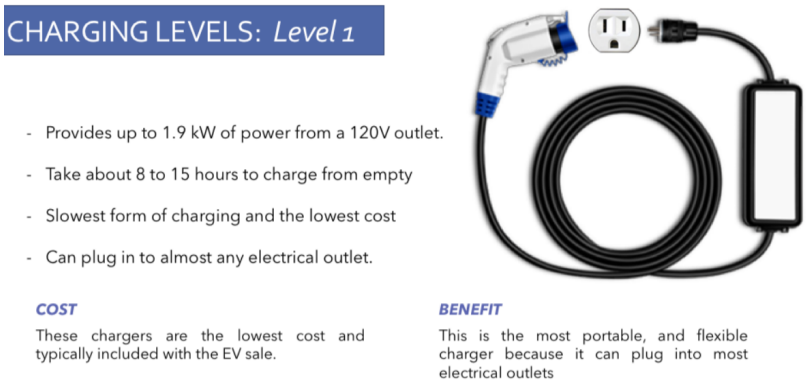
Electric Vehicle Supply Equipment (EVSE)

EVSE is the equipment used to deliver electrical energy from an electricity source (such as the electricity running to your home's outlets) to an electric vehicle. EVSE communicates with the EV to ensure that it supplies an appropriate and safe flow of electricity. All EVs, including light, medium, and heavy duty vehicles require the installation of charging infrastructure. EVSE can be installed at many locations, including residences, workplaces, and public and private fleet facilities.

Image Courtesy of Port NOLA

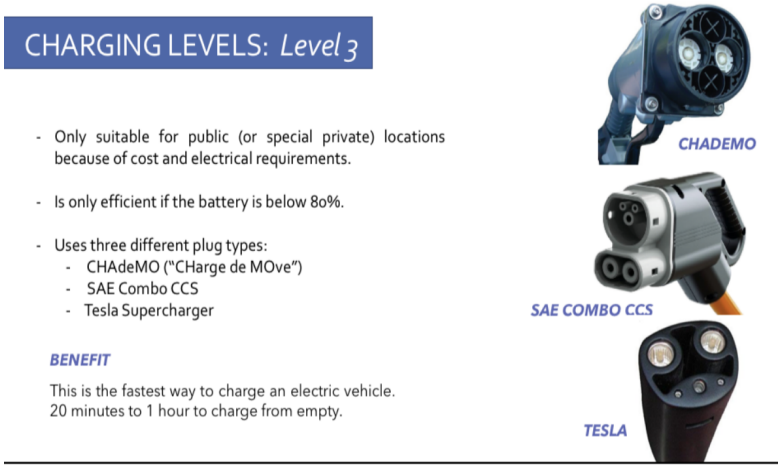
Charging Levels

North American EV charging stations and capabilities are broken down into three levels: Level 1, Level 2, and Level 3 which is also called Direct Current (DC) Fast Charging.



A Level 1 charger is typically included with most EVs and can plug in to almost any electrical outlet. This enables new owners to not have to purchase special charging equipment

A Level 2 charger is usually sold separately from the car and can be plugged into any 240v (volt) outlet. Installation of a Level 2 charger usually requires the work of a licensed electrician.



A Level 3 charger or Direct Current Fast Charging (DCFC) equipment (typically 208/480v AC three-phase input) enables rapid charging capabilities. Because of the high voltage charge, DCFC stations are primarily installed at public or high-use fleet stations.

Illustrative Graphics from SLCFP EV Dealership Educational Training Materials

Charger Type

The type of socket and connector that are used for EV chargers varies based upon brand. The three most popular types have been CHadEMO, CCS, and Tesla's proprietary charger. The industry is rapidly moving away from CHadEMO, and it's anticipated most public charging stations will only offer CCS by 2022.[3] Tesla vehicles have a unique charge port and connector that works for all their charging levels including their fast charging option, called a Supercharger. Although Tesla vehicles do not have a CCS charge port and do not come with a CCS adapter, Tesla does sell an adapter.

[3] Hanley, Steve, Cleantechnica.com, "Electrify America To Phase Out CHAdeMO In 2022", September 2021, https://cleantechnica.com/2021/09/22/electrify-america-to-phase-out-chademo-in-2022/#:~:text=An%20Electrify%20America%20investment%20plan,proprietary%20standard%20at%20our%20stations.

Illustrative Graphic from Enelx

Below are commonly used definitions for Electric Vehicle Supply Equipment (EVSE):

Charging Port: The apparatus that plugs directly into the electric vehicle to charge it.

EV Charging Adapter: A charge port attachment apparatus that converts the connection to a different charger type for compatibility.

Definitions pertaining to the electrical output and charging time.

- **Level:** The power output of an EVSE.
- **Kilowatt-hour (kWh)**: A measure of electricity usage used to measure EV battery size & usage.
- **Miles per kWh:** The electric equivalent to miles per gallon. This measures the efficiency of an electric vehicle.

Public EV Charging Stations

Image Courtesy AFDC

Potential EV buyers may be hesitant to convert because of an issue called "range anxiety", the fear that they will run out of charge because there is a lack of charging infrastructure along their route. In an attempt to alleviate this, there are various mobile applications and websites that provide interactive maps to locate nearby public charging stations. These interactive tools show charging station locations, driving directions, charging levels, plug types, charging fees, and charger availability for each station. A list of 2021 EV Network charging providers is included in Appendix A.

Public charging stations can have any of the three levels of chargers. Most EVs have the inlet for DC Fast Charging, or offer it as an option. These chargers are only suitable for public or special private locations because of cost and electrical requirements. DCFC is only efficient if the battery charge is below 80%. Above that, charging will slow down due to issues with battery heating.

The primary payment types charging networks provide are: pay as you go, monthly, and free. For the pay as you go method EV owners can use credit cards or charging network cards to pay each time they charge. This transaction is similar to going to any gas station with an ICE vehicle (ICEV). For monthly contracts EV owners pay a set price per month for unlimited access to chargers in the network. There are many chargers within a network that are free. Examples in Southeast Louisiana include the downtown New Orleans Rouses Market location, Fremaux Town Center in Slidell, Whole Foods in Mandeville, and the Town of Abita Springs.

Electric Vehicle Policies

Federal Policies

The federal government has been instrumental in transitioning the U.S. to adopt EVs and in incentivizing their use. Over the years, the U.S. Congress created tax break legislation, fleet acquisition incentives, manufacturing incentives, and authorizations for research and development. Some key federal policies were set in place in the early 1970s with the U.S. Clean Air Act (1970) and the Energy Policy and Conservation Act (1975), which established Corporate Average Fuel Economy (CAFE) standards for on-road vehicles. CAFE standards play a key role in encouraging vehicle manufacturers to increase per vehicle gas mileage. It also offers credits to manufacturers to produce a certain percentage of alternative fuel vehicles in their production cycle.[4] Now, with these incentives and tax credits in place, major U.S. car manufacturers, such as Ford and General Motors, are rolling out dozens of electric vehicle models each year, with plans to be completely electrified by 2035 and have carbon neutral lifecycle productions by 2040.[5]

The U.S. Congress also passed transportation acts to help transition the public to EV adoption. The first was the Intermodal Surface Transportation Efficiency Act (ISTEA, 1991), and until November 2021, the latest transportation act was the Fixing America's Surface Transportation Act (FAST Act, 2015). Through these acts the Congestion Mitigation and Air Quality Improvement Program (CMAQ) and the Clean Fuels Grant Program work in tandem to help reduce our transportation systems' carbon footprint.[6]

---

[4] Rockford Planning Council, "Electric Vehicle Readiness Plan for the Rockford Region: Technical Memorandom #1", October 2020, https://static1.squarespace.com/static/54f7d1eee4b056cf8def292a/t/5f9181d59a7e0f1727565544/1603371486303/evse_memo+1.pdf

[5] Abuelsamid, Sam, Forbes.com, "GM to Make Only Electric Vehicles by 2035, Be Carbon Neutral by 2040", January 28, 2021, https://www.forbes.com/sites/samabuelsamid/2021/01/28/general-motors-commits-to-being-carbon-neutral-by-2040/?sh=7bcd1ebf6355

[6] Rockford Planning Council, "Electric Vehicle Readiness Plan for the Rockford Region: Technical Memorandom #1", October 2020, https://static1.squarespace.com/static/54f7d1eee4b056cf8def292a/t/5f9181d59a7e0f1727565544/1603371486303/evse_memo+1.pdf

The Energy Policy Act (EPAct, 1992) was developed with the intention of reducing U.S. dependence on petroleum and improving air quality. It also established the Clean Cities Program under the U.S. Department of Energy (U.S. DOE). In 2005, the EPAct was amended to add new grant programs, tax incentives, and initiatives that support the development of alternative fuel vehicles. The Energy Independence and Security Act (EISA, 2007) was established to reduce U.S. dependence on foreign oil and required transportation fuel sold in the U.S. to contain a minimum of 36 billion gallons of renewable fuels annually by 2022.[7]

The latest legislation signed by President Biden in November 2021 is the Bipartisan Infrastructure Law (BIL, 2021). This law dedicates over $7 billion dollars for EV infrastructure, along with billions of dollars for other programs to transition to clean fuel technology including transit, school transportation, and resilience planning and infrastructure. Through BIL, the U.S. will invest in the first ever public EV charging infrastructure that will reach all 50 states, along with billions of dollars of competitive grants for local governments to invest in EVSE.

FHWA Alternative Fuels Corridor

Image Courtesy of Fuelsfix.com

The Department of Transportation (USDOT) Federal Highway Administration (FHWA) developed the Alternative Fuel Corridors (AFC) program to establish a national network of alternative fueling and charging infrastructure with standardized signage and branding to help catalyze public interest in clean fuels. In Southeast Louisiana, Interstate I-10 and I-12 are identified by the FHWA as part of the national Alternative Fuel Corridors.[8]

Federal, State, and Regional Incentives

The US DOE keeps a current list of all federal, state, and regional incentives on their Alternative Fuels Data Center website. Of specific interest for regional entities to consider are the following incentives summarized from the AFDC Electricity section. To note, many new incentives will quickly become available once rules and regulations for the BIL are established in the coming months.

[7] Rockford Planning Council, "Electric Vehicle Readiness Plan for the Rockford Region: Technical Memorandum #1", October 2020, https://static1.squarespace.com/static/54f7d1eee4b056cf8def292a/t/5f9181d59a7e0f1727565544/1603371486303/evse_memo+1.pdf

[8] U.S. FHWA, Alternative Fuel Corridors, https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/

Federal

The Alternative Fuel Infrastructure Tax Credit	A tax credit of 30% of the cost of EV charging infrastructure not to exceed $30,000. Permitting and inspection fees are not included in covered expenses.
Freight Efficiency and Zero-Emission Vehicle Infrastructure Grants	Provides federal financial assistance to eligible transportation infrastructure projects that address climate change and environmental justice impacts, among other key objectives. Eligible applicants are states, metropolitan planning organizations that serve urbanized areas with a population of more than 200,000 individuals, local governments, political subdivisions, port authorities, and tribal governments.
Improved Energy Technology Loans	Eligible projects may include the deployment of fueling infrastructure, including associated hardware and software, for alternative fuels. DOE may issue loan guarantees for up to 100% of the amount of the loan for an eligible project.
Low and Zero Emission Public Transportation Research, Demonstration, and Deployment Funding	Financial assistance is available to local, state, and federal government entities; public transportation providers; private and non-profit organizations; and higher education institutions for research, demonstration, and deployment projects involving low or zero emission public transportation vehicles.
Natural Gas Vehicle (NGV) and Plug-In Electric Vehicle (PEV) Weight Exemption	This exemption allows NGVs and PEVs to exceed the federal maximum gross vehicle weight limit for comparable conventional fuel vehicles by up to 2,000 pounds (lbs.) while operating on the road. The NGV or PEV must not exceed a maximum gross vehicle weight of 82,000 lbs.
Qualified Plug-In Electric Vehicle (PEV) Tax Credit	This tax credit applies to vehicles acquired after December 31, 2009. The minimum credit amount is $2,500, and the credit may be up to $7,500, based on each vehicle's traction battery capacity and the gross vehicle weight rating. The credit will begin to be phased out for each manufacturer in the second quarter following the calendar quarter in which a minimum of 200,000 qualified PEVs have been sold by that manufacturer for use in the United States.
Qualified Two-Wheeled Plug-In Electric Drive Motor Vehicle Tax Credit	A credit is available for the purchase of a new qualified two-wheeled plug-in electric drive vehicle. The credit is for 10% of the cost of the qualified vehicle, up to $2,500.
Zero Emission Vehicle Infrastructure and Advanced Vehicle Grants (part of U.S. RAISE Grants)	Eligible projects include, but are not limited to, supporting connected, electric, and automated vehicles, a modal shift in freight or passenger movement to reduce greenhouse gas emissions, and the installation of zero-emission vehicle infrastructure.

State and Regional

State of Louisiana Executive Order Number JBE 2020-18 Climate Initiatives Task Force	Executive Order JBE 2020-18 formally established Louisiana's first-ever *Climate Initiatives Task Force*, a group of stakeholders tol study and make recommendations to reduce economy-wide greenhouse gas emissions.
State of Louisiana Executive Order Number JBE 2020-19 Coastal Resilience	The resilience work outlined in Executive Order JBE 2020-19 has been named the *Adaptive Governance Initiative*. The goal of the Initiative is to have State agencies conduct internal assessments on resiliency vulnerabilities and provide updates on their strategic resiliency plans that correspond to targets and goals that work in tandem with the Louisiana Coastal Master Plan.
Alternative Fuel Vehicle (AFV) Tax Credit	Louisiana offers a nonrefundable income tax credit for new original equipment manufacturer AFVs purchased before July 1, 2021. A taxpayer may take a tax credit of 10% of the cost of the motor vehicle, up to $2,500. To qualify for the tax credit, vehicles must have a dedicated alternative fuel storage and delivery system and be registered in Louisiana. ***This tax credit for new EVs expired as of July 1, 2021 and is no longer available for new purchases of EVs after that date**
Alternative Fueling Infrastructure Tax Credit	Louisiana offers a nonrefundable income tax credit of 30% of the cost of purchasing and installing qualified clean-burning motor vehicle fueling or charging infrastructure.
Provision for Green Jobs Tax Credit	Pending available funding, the Louisiana Department of Economic Development will offer a corporate or income tax credit for qualified capital infrastructure projects in Louisiana that are directly related to industries including, but not limited to, the advanced drivetrain vehicle and biofuels industries. The tax credit is for 7% to 18% of the project costs, calculated based on the investment costs, up to $1,000,000 per state-certified green project. The portion of the base investment expended on payroll for Louisiana residents employed in connection with the construction of the project may be eligible for an additional 7.2% tax credit on the payroll. Annual credits caps apply and credits will be distributed on a first-come, first-served basis to eligible recipients.
Electric Equipment and Electric Vehicle Supply Equipment (EVSE) Incentive - Entergy	Qualified Entergy customers are eligible to receive incentives in varying amounts for the purchase Level 2 and DC Fast Charging EVSE. For more information, including eligible technologies, see the Entergy eTech website.

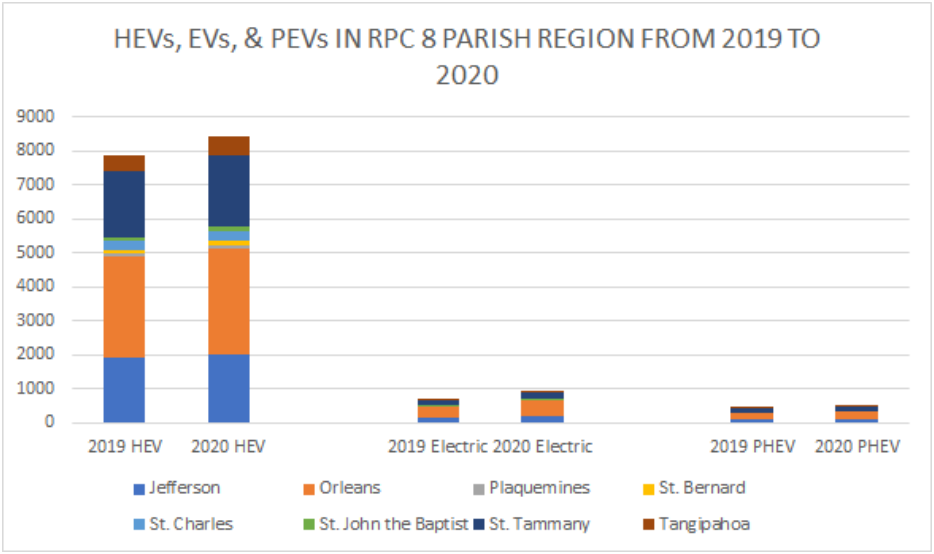
3. Regional Existing Conditions

Image Courtesy SLCFP

Implementing EV Readiness strategies in Southeast Louisiana will take localized efforts in addition to regional collaboration. Existing policies, plans, and land uses provide helpful comparisons to analyze EV adoption at a regional scale. As an accompanying tool to this guide, there is an online regional ArcGIS Mapping Viewer available to help visualize and analyze pertinent regional data that will assist local decision making processes for future EVSE infrastructure implementation. Below is more insight into how regional demographics will impact EV Readiness planning in the region.

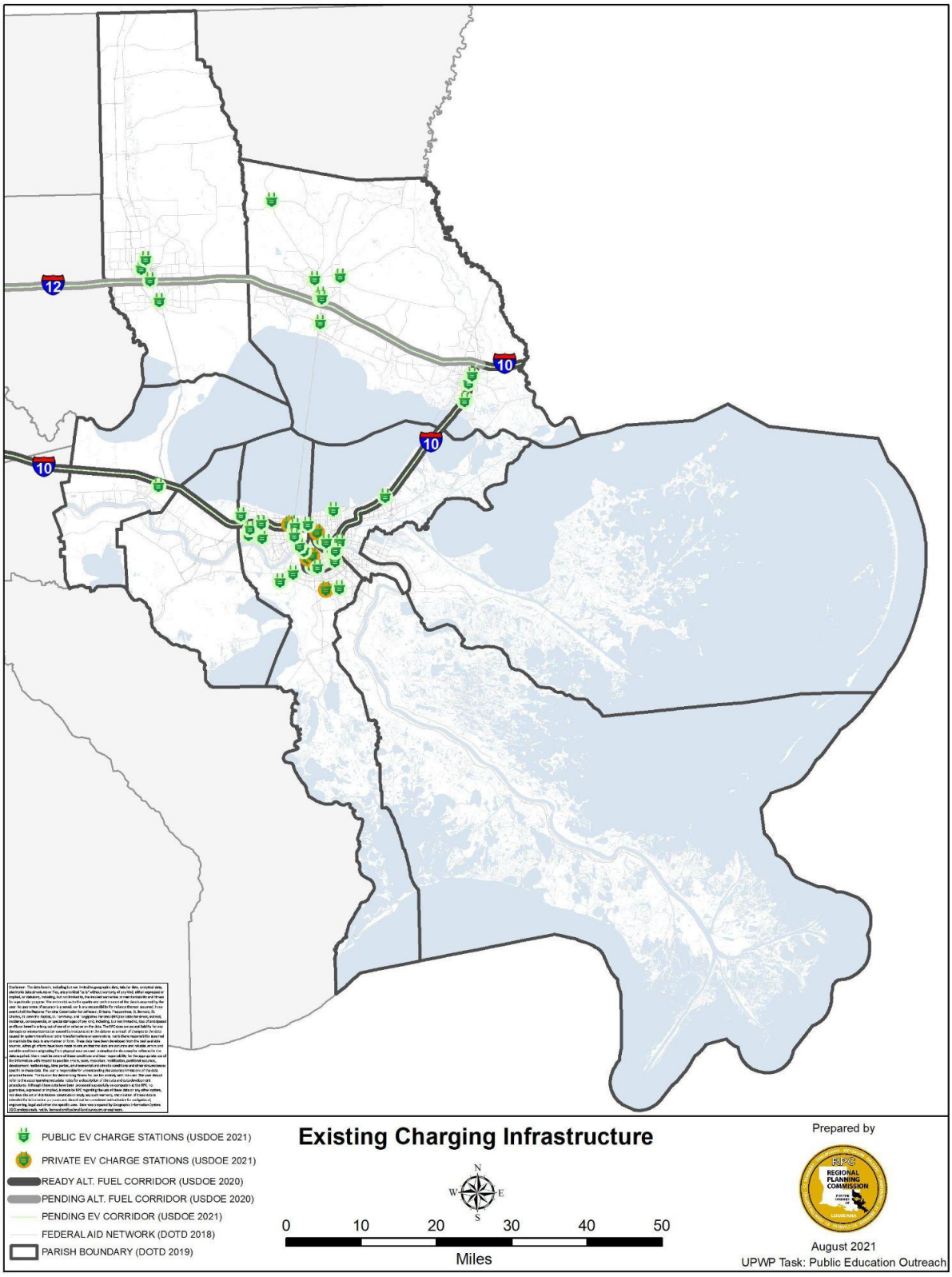
EV Registration Data

Southeast Louisiana is following the national trend of increased electric vehicle ownership and electric vehicle charging infrastructure. The National Renewable Energy Laboratory and Experian Information Solutions found that the number of hybrids, all-electric, and plug-in hybrid electric vehicles sold in Southeast Louisiana all increased from 2019 to 2020.



Data Source: National Renewable Energy Laboratory, Experian Information Solutions

Existing Regional EV Charging Infrastructure

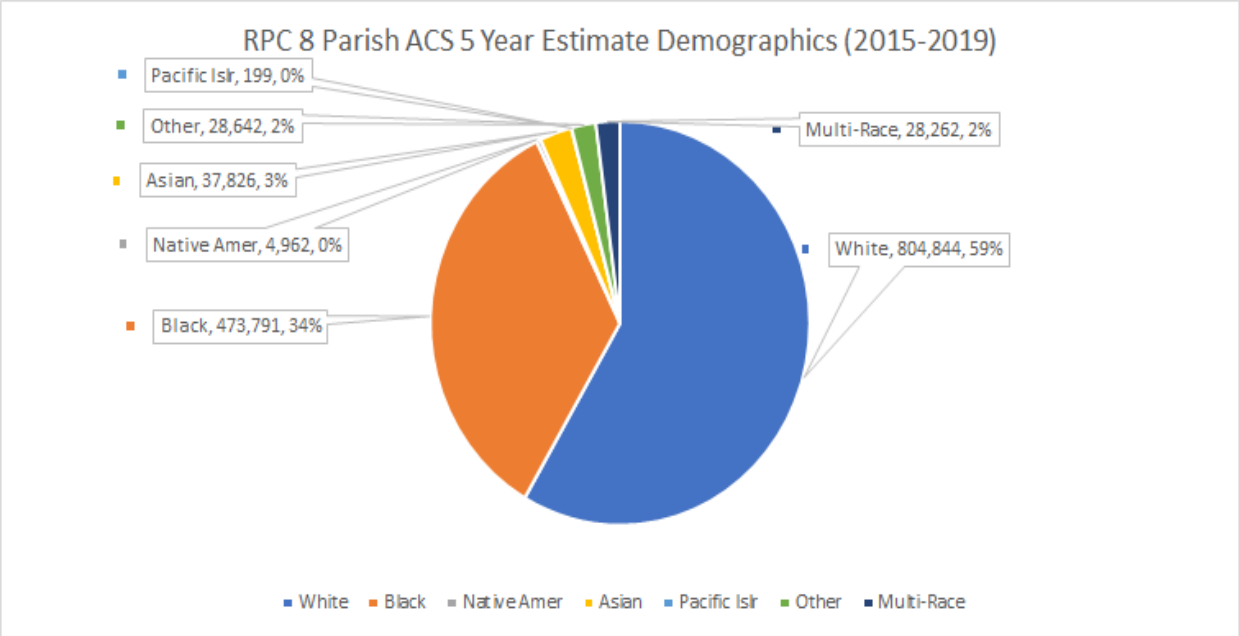


Regional Demographics

Population data is very useful when forecasting EV trips and the likelihood of EV ownership in the region. As early as 2015, the National Academy of Sciences began to analyze who was purchasing EVs in the market. In their report Overcoming Barriers to Deployment of Plug-in Electric Vehicles (2015), their analysis found that early adopters of EVs in the U.S. were generally more affluent, white, well-educated men.[9] As EVs become more mainstream, the emphasis of EV readiness planning to ensure an equitable approach that is more inclusive of race, age, and income becomes increasingly important. Analyzing Southeast Louisiana's regional data with a strong focus on targeting low-income communities, communities of color, and communities otherwise impacted by environmental justice issues or with low mobility access are key to ensuring an equitable and broad approach in the transition to electric vehicle transportation systems that meet the needs of all people in our region.

Demographics

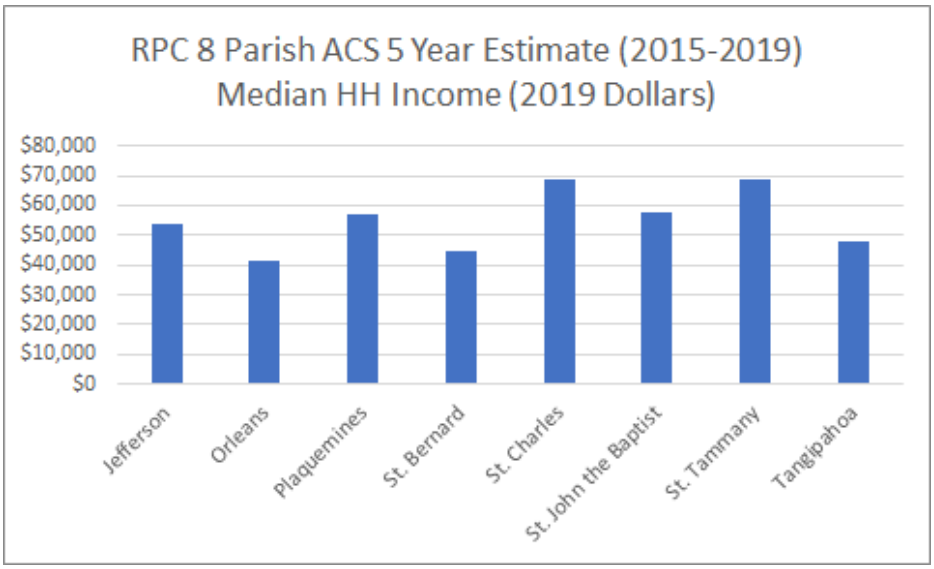
Using the American Community Survey (ACS) 5 Year estimates from 2015-2019, approximately 29.55% of Louisina's population resides in the parishes of the Regional Planning Commission (Jefferson, Orleans, Plaquemines, St. Bernard, St. Charles, St. John the Baptist, St. Tammany, and Tangipahoa). There are 1,378,526 residents with 58.38% White, 41.62% minority, and 8.47% Hispanic/Latino ethnicity of any race.

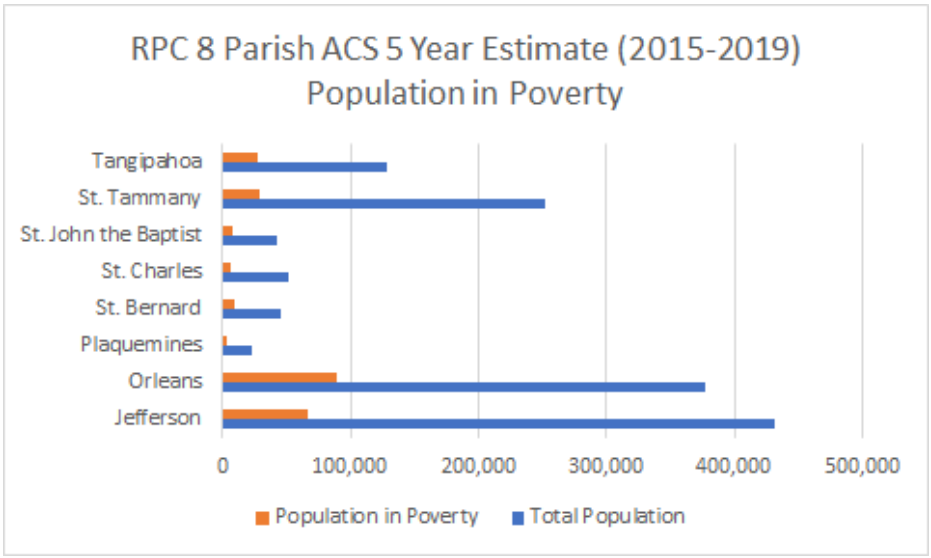


[9] The National Sciences: Engineering, Medicine, "Overcoming Barriers to Deployment of Plug-in Electric Vehicles", 2015, https://www.nap.edu/catalog/21725/overcoming-barriers-to-deployment-of-plug-in-electric-vehicles

Household Income

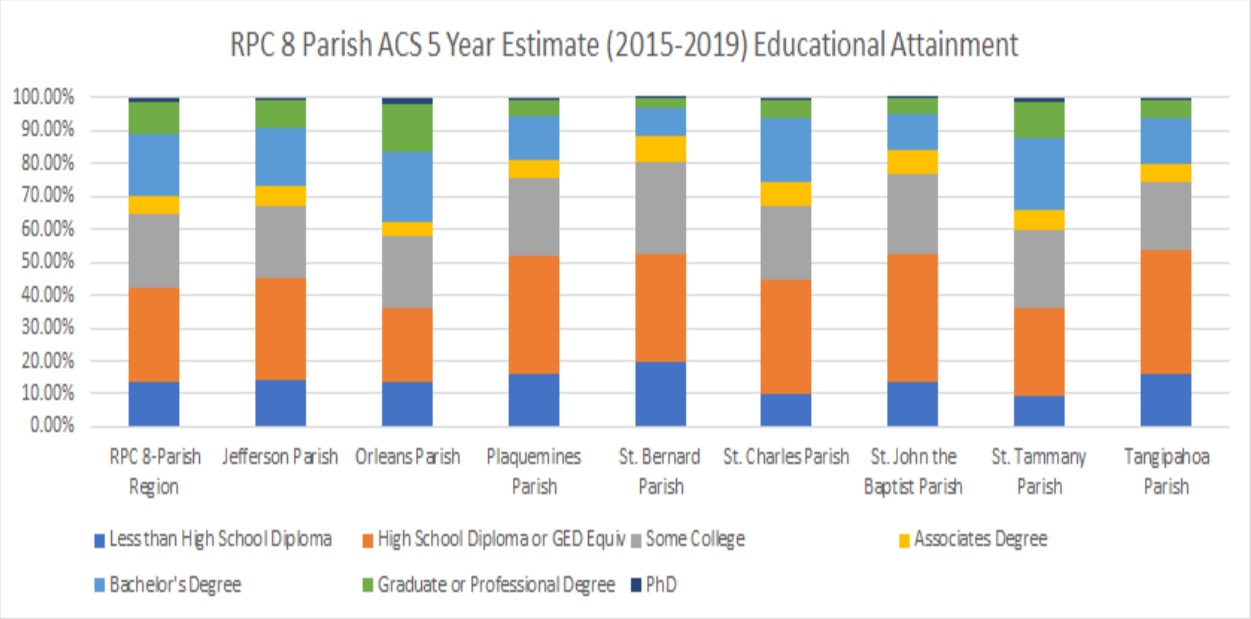
According to the ACS 5 Year Estimate (2015-2019), the average median income of the region is $55,086 per household and approximately 18% of the total regional population lives in poverty. This high rate of poverty is a concern when considering an effective EV Readiness strategy. An accessible transition to electric vehicles and cleaner transportation options that meets the needs of all residents will be key to the region's success.





Educational Attainment

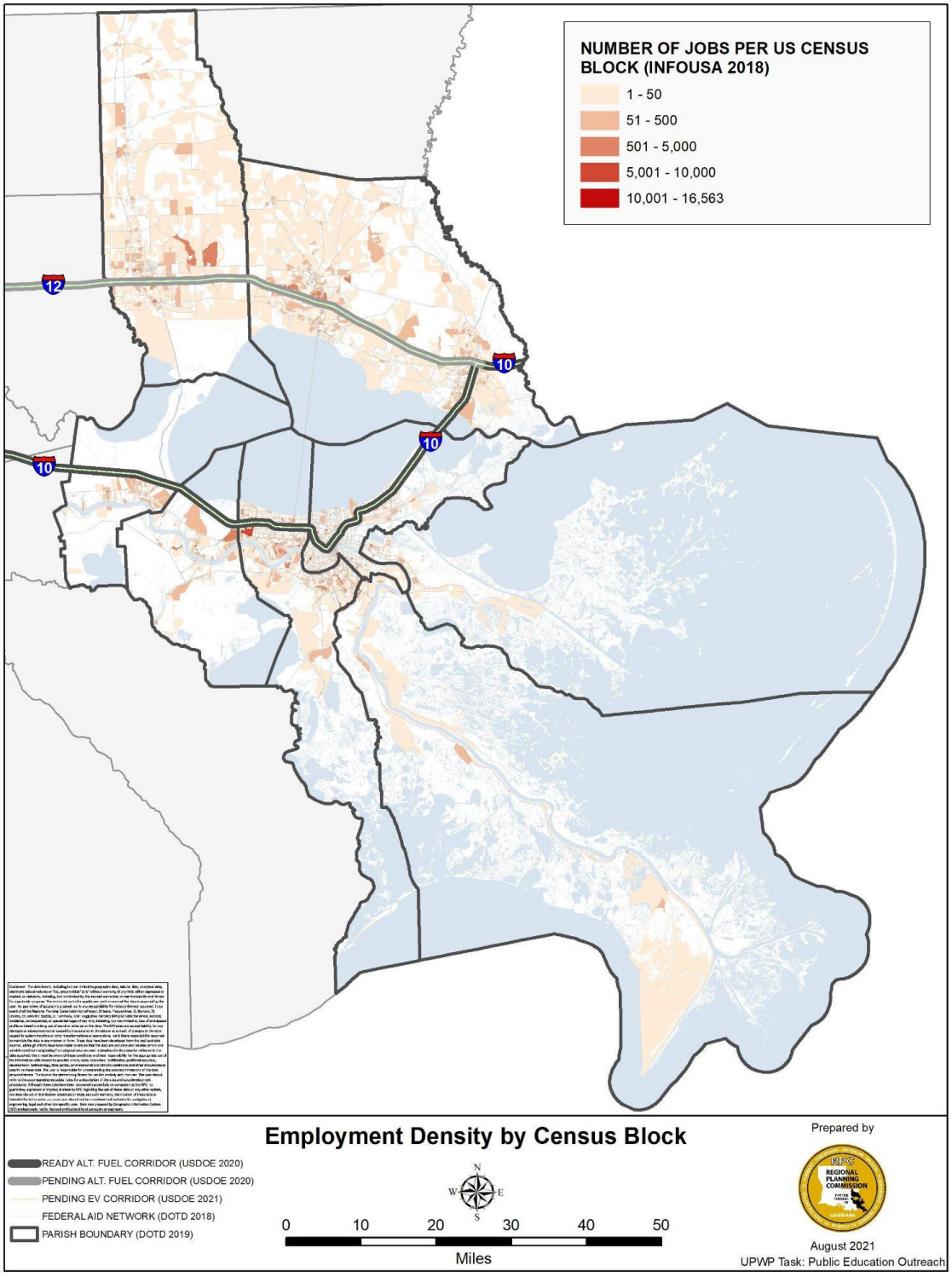
One of the early factors many U.S. communities considered when developing their transition to EV readiness was the percent of well-educated individuals. Educational attainment is closely tied to household income and spending capabilities. For the RPC region according to the ACS 5 Year Estimate from 2015-2019, 22.40% of the population has some college education, with 18.68% gaining a bachelor's degree, 9.76% with a graduate or professional degree, and 1.2% with a PhD.



Employment Centers

Another factor to analyze when planning EVSE locations is where people travel to work in Southeast Louisiana. Southeast Louisiana's economy is multifaceted, focused on manufacturing and the industrial production of oil and gas with a strong cultural and tourism economy and an emerging medical industry. These job centers are located across the entire 8 parish region. Future placement of EVSE should be placed equitably within these employment centers to ensure there are always convenient charging opportunities.

Regional Employment Centers

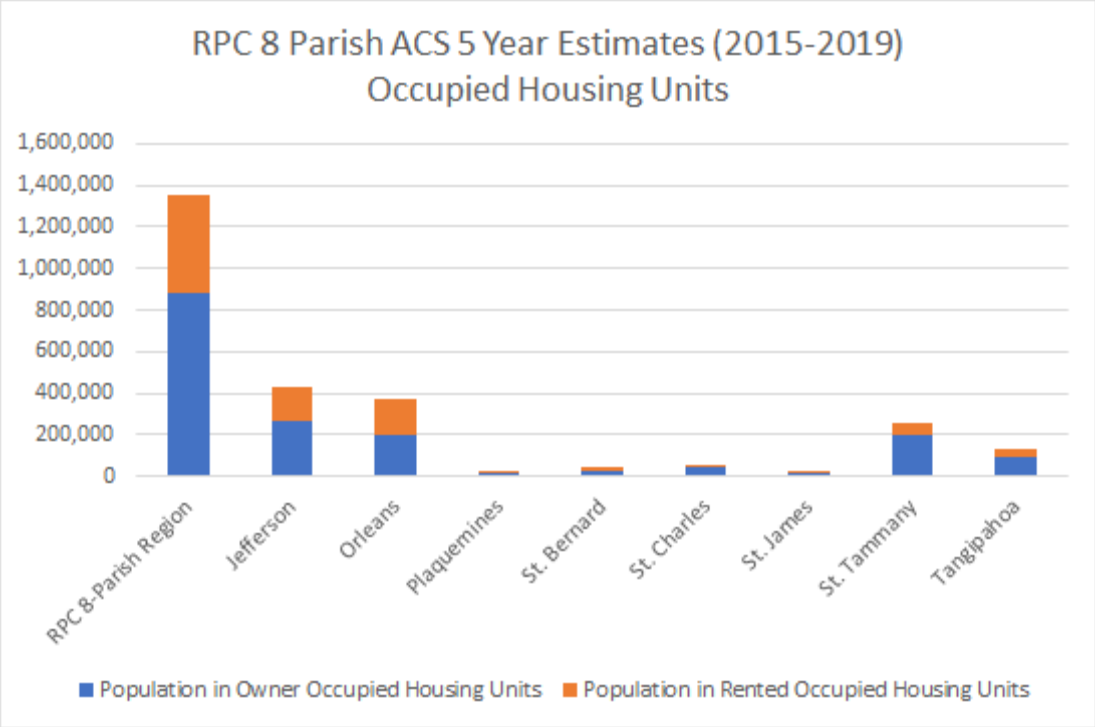


This data are subset from a business source database purchased by the Regional Planning Commission for traffic modeling and economic development analysis following the parameters of the licensing agreement. The data was received and spatially enabled by the RPC. The data is available for purchase from InfoGroup, Inc.

Housing Market Characteristics

Occupied Housing Units

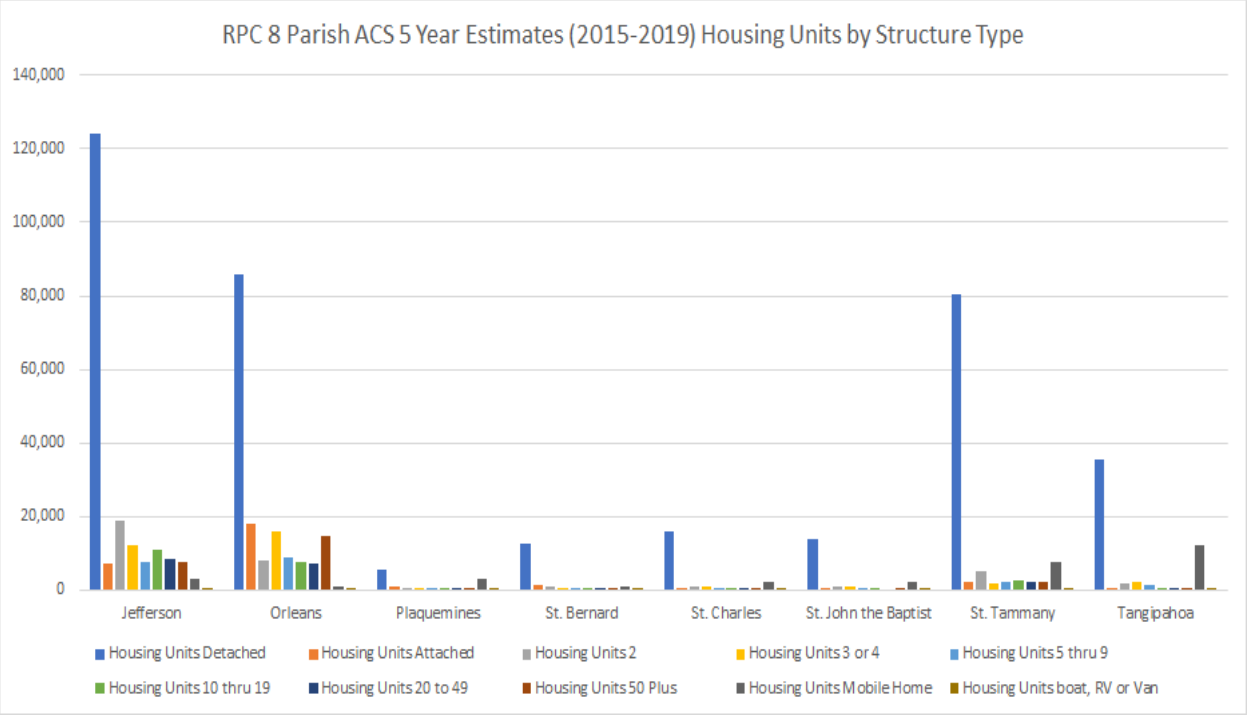
Home EV charging is the most popular way people who own EVs charge their cars.[10] At home, people have the ability to charge overnight and usually benefit from lower utility rates by using the energy during off-peak hours. Whether a person owns their own home or rents impacts their ability to install their preferred EVSE as well. According to the ACS 5 Year Estimates (2015-2019), within the RPC region 65.32% of people live in units they own and 34.68% live in rental units.



Multi Unit Dwellings (MUDs)

Within the 8 parish region, the majority of units (61.74%) are detached single units; but there are a significant amount of multi unit dwellings (MUDs), particularly in New Orleans and Jefferson Parish, with a growing number in St. Tammany and Tangipahoa. With residential charging being the predominant method of charging EVs, it will be key to ensure that we are not only aware of electrical grid impacts on single unit dwellings, but also how to encourage enough charging stations at the growing number of MUDs.

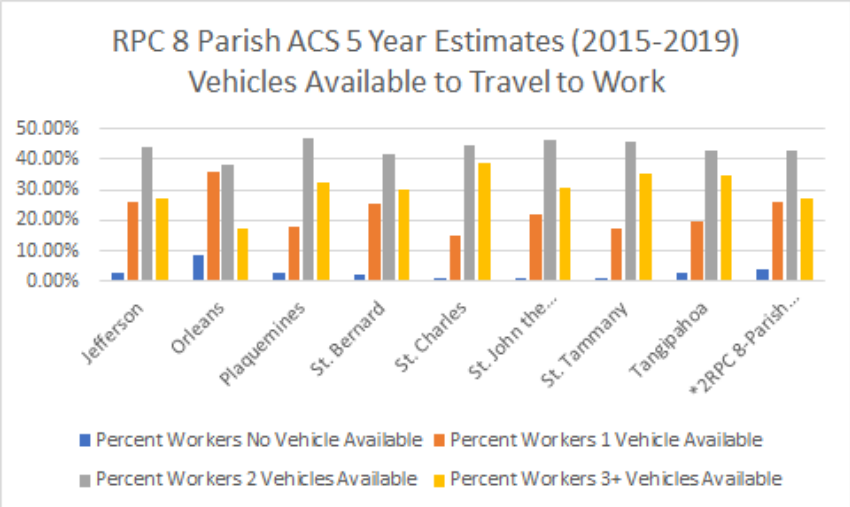
[10] Valderrama, Patricia, National Resources Defense Council, "Electric Vehicle Charging 101", July 10, 2019, https://www.nrdc.org/experts/patricia-valderrama/electric-vehicle-charging-101



Travel Trends

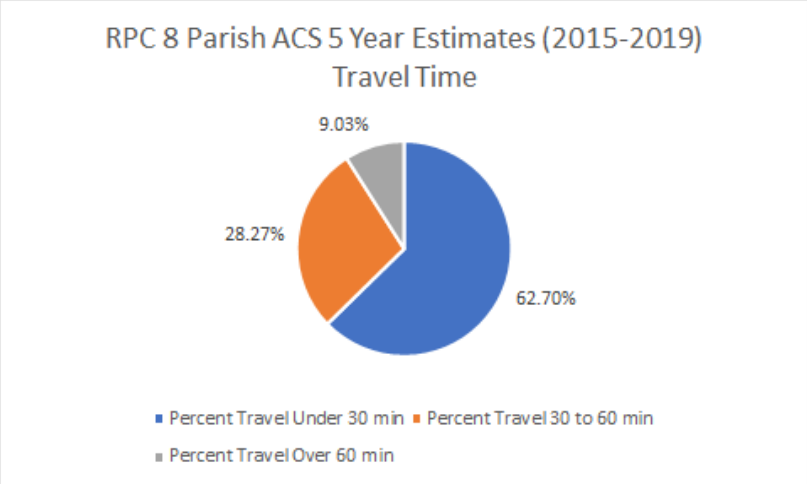
Vehicle Access

According to the ACS 5 Year Estimates from 2015-2019, 26% of the 8-parish region population's workers ages 16 and up have at least 1 vehicle available, 42.64% with 2 vehicles available, and 27.25% with 3 vehicles available. This indicates that driving by personal vehicle is the predominant mode of transportation in the region. In order to address the environmental impacts of all these vehicles on the road, policymakers need to assist with transitioning our region's workforce to drive electric vehicles, which will greatly improve the region's air quality and reduce on road emissions.



Travel Time

The time and distance of a person's commute to work is another weighting factor of a person's likelihood to convert to an electric vehicle. The ACS 5 Year Estimates (2015-2019) for the RPC region indicates that 62.70% of the region's travel-to-work population spends under 30 minutes commuting, 28.27% spend between 30 to 60 minutes traveling to work, and 9.03% spend over 60 minutes traveling to work. For an EV driver, if travel time is less than 30 minutes and they are driving an EV with a range of 225 kilometers and use an average of 37 Kilowatts per hour, then they will have approximately 6 hours of driving time before they need to recharge.[11] This leaves plenty of time to commute to and from work and still have time for smaller trips that are likely to occur closer to home such as grocery shopping, daycare or school drop off and pick ups, or for entertainment or health purposes.



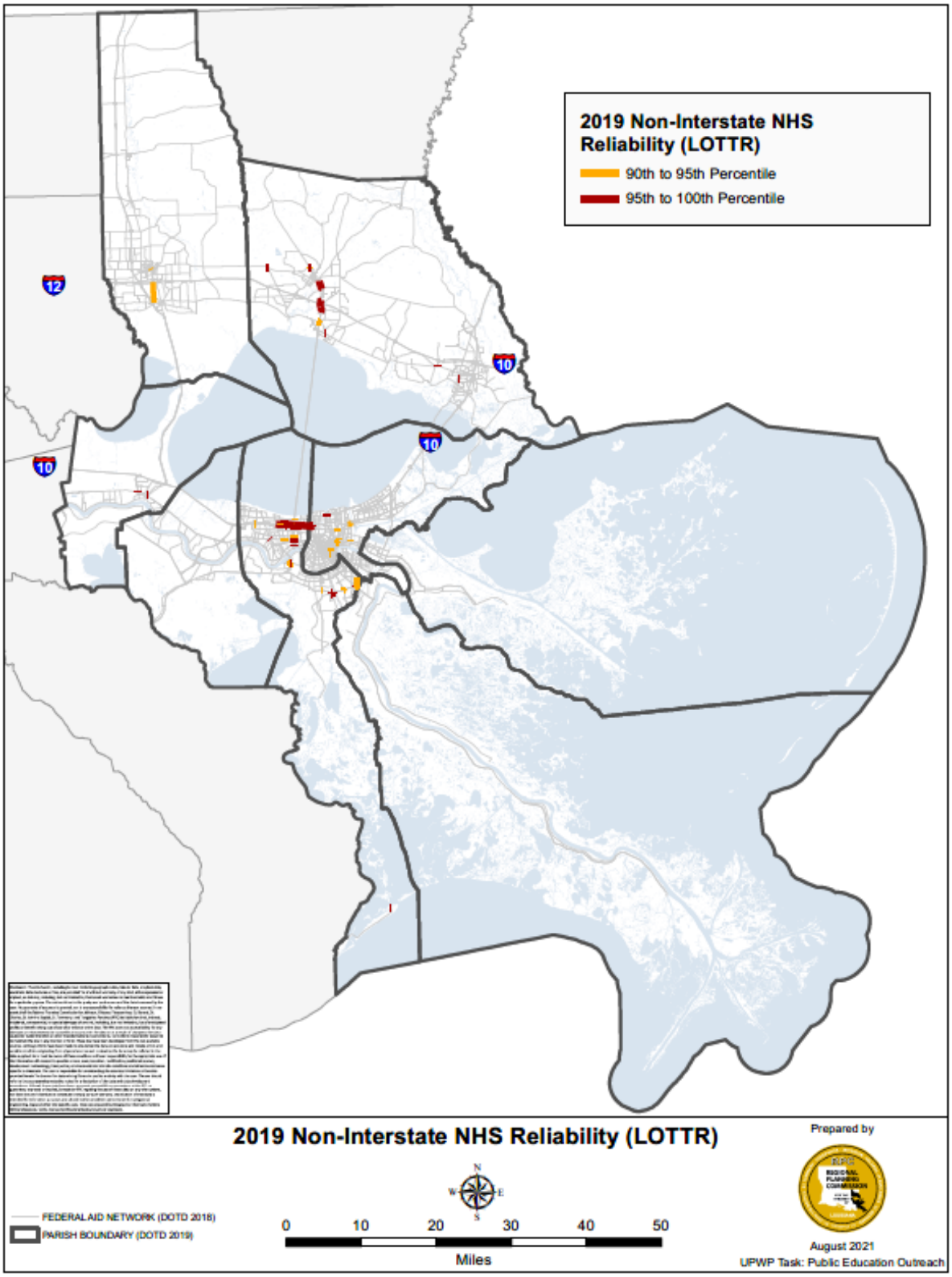
High Traffic Corridors

The RPC maintains and monitors numerous data sources to better understand where traffic is flowing, where there are areas of congestion, and where there are areas on our transportation network that are stressors, such as areas of concern for safety or potential areas of more GHG emissions due to traffic. For the purposes of EV readiness planning, analyzing high traffic corridors helps in the placement of publicly accessible EVSE. This analysis also targets the goals of improving the environmental quality standards and building a more resilient transportation system.

Photo Courtesy Associated

[11] Electric Vehicle Database, https://ev-database.org/car/1106/Nissan-Leaf

Regional Non-Interstate Congestion Hotspots



Transportation Energy Burden

Total annual household expenses for fuel at the gas pump can often cost just as much, if not more, than the annual costs of paying household bills for electricity or gas. The proportion of a household's income spent on energy is referred to as energy burden, and this cost can disproportionately impact lower income households. The U.S. DOE Argonne National Laboratory recently identified areas with the highest transportation energy burden by analyzing 2018 ACS population data, 2017 National Household Survey (NHS) travel data, and publicly available vehicle fuel efficiency and gas price data.[12] The analysis found that on average American households spend 3.3% of their income on transportation fuel, and that transportation energy burden is highest in low income rural areas where people are typically required to travel farther distances.[13] Within the RPC region, Plaquemines Parish has the highest average household transportation energy burden at 4.09%, and Orleans Parish has the lowest at 2.40%.[14] These regional transportation energy burden disparities, along with income, travel time, and mobility, are all important when evaluating the different strategies for promoting EV adoption. Households with high transportation energy burdens may see a financial benefit to switching to an EV if strategies are in place to make the transition possible.

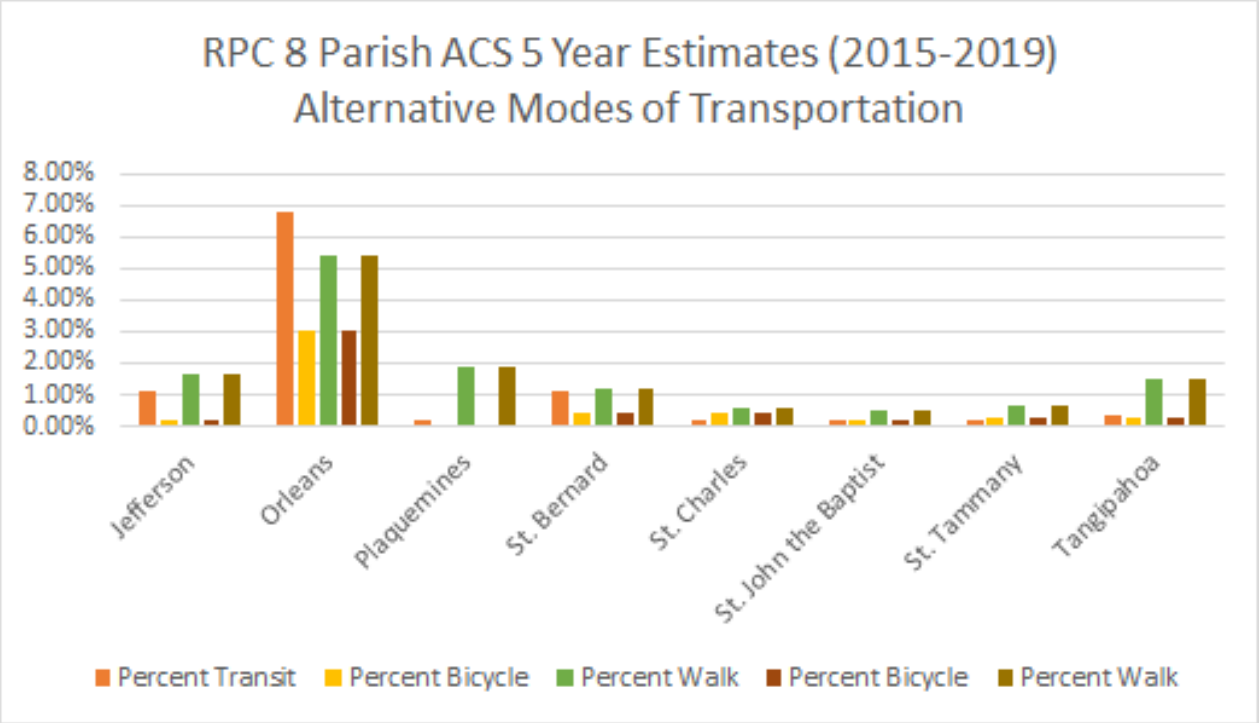
RPC 8 Parish Average Household Transportation Energy Burden (U.S. DOE Argonne National Research Laboratory, 2020)

Parish	Average of Household Annual VMT	Average of Annual Fuel cost	Average Energy Burden
Jefferson Parish	15361.97	$1,648	2.62%
Orleans Parish	13629.09	$1,404	2.40%
Plaquemines Parish	19367.33	$2,237	4.09%
St. Bernard Parish	17990.26	$2,013	3.67%
St. Charles Parish	22450.56	$2,466	3.52%
St. John the Baptist Parish	18922	$2,070	3.39%
St. Tammany Parish	21671.88	$2,325	2.93%
Tangipahoa Parish	17805.86	$1,962	3.58%

[12] Zhou, Yan, Spencer Aeschliman, David Gohkle, Energy Systems Division, U.S. Dept. of Energy Argonne National Research Laboratory, "Affordability of Household Transportation Fuel Costs by Region and Socioeconomic Factors", December, 2020, https://publications.anl.gov/anlpubs/2021/01/165141.pdf
[13] Ibid.
[14] Ibid.

Alternative Modes

EV readiness planning is heavily focused on the transition to personal EVs and less focused on how to invest in cleaner transportation systems like electric buses or electrified bike share programs that could help meet more of our region's population who have very little or no access to personal vehicles. According to the ACS 5 Year Estimates (2015-2019), of all commute trips to work in the RPC 8 Parish region 2.4% of the population takes transit, 1.04% bicycle, and 2.44% walk. This is a significant portion of the population that could become more mobile by implementing a well thought out electrified transportation system network. The ACS 5 Year Estimates (2015-2019) also reports that 4.41% of the 8 parish region working population works from home. As company cultures change and an increasing amount of the population transition to work-from-home, it is important for any EV readiness planning to take into consideration how this will impact EVSE infrastructure needs and placements. This new trend will impact not only how we plan for public EVSE, but how quickly we need to prepare our residential buildings for increased energy demands and improved energy efficient standards.



4. Identified Barriers and Best Practices to Overcome Them

The Southeast Louisiana Electric Vehicle Readiness Guide is intended to aid the transition to EVs in the region by addressing barriers to EV adoption. The U.S. DOE Alternative Fuel Data Center's report entitled "A Guide to the Lessons Learned from the Clean Cities Community Electric Vehicle Readiness Projects" identified consumers' "range anxiety" and lack of access to charging infrastructure as two of the most significant barriers to widespread adoption of electric vehicles.[15] These barriers to EV adoption can be overcome with smart and well planned commitments from local governments and state agencies.

Photo Courtesy SLCFP

This section takes a closer look at our regional municipal commitments to EV adoption, equity and inclusion considerations, permitting processes, and the support by our local utilities for EVs. As part of the preparation of this guide, select regional parish planning agency personnel who participate in the RPC's Technical Advisory Committee (TAC) were surveyed regarding their municipalities' EV readiness. Many of the survey responses are incorporated into the findings of local barriers in below sections.

Policies

In a recent report issued by the LSU Center for Energy Studies (July 2021), they found that Louisiana's greenhouse gas (GHG) emissions accounted for an average 4.2% of all U.S. GHG emissions between 2008 to 2018.[16] Louisiana's GHG emissions were beginning to trend down from 2000 to 2008, but have had a steady increase in recent years.[17] The largest contributor to our high rate of GHG emissions is the industrial sector at 61%, but because of the large amount of industry related to oil and gas refinement, this is directly related to the state's transportation system.[18] Together these two sectors total over 80% of all GHG emissions in the state. Investing in EVs presents a promising opportunity to greatly reduce these GHG emissions, improve regional air quality and help combat the negative effects of climate change.

In the survey to the identified RPC TAC members, respondents were asked to explain any foreseeable barriers to EV adoption, and one respondent explained, *"I think as a Parish it will be easy*

[15] U.S. DOE, "A Guide to the Lessons Learned from the Clean Cities Community Electric Vehicle Readiness Projects", January 2014, https://afdc.energy.gov/files/u/publication/guide_ev_projects.pdf

[16] Dismukes, David E., Ph.D., "Louisiana 2021 GHG Inventory: Update and summary of preliminary findings.", July 29, 2021, https://gov.louisiana.gov/assets/docs/CCI-Task-force/JuneMtgs/GHG-INVENTORY_FINAL-DRAFT-REPORT_CTF_final.pdf

[17] Dismukes, David E., Ph.D., "Louisiana 2021 GHG Inventory: Update and summary of preliminary findings.", July 29, 2021, https://gov.louisiana.gov/assets/docs/CCI-Task-force/JuneMtgs/GHG-INVENTORY_FINAL-DRAFT-REPORT_CTF_final.pdf

[18] Dismukes, David E., Ph.D., "Louisiana 2021 GHG Inventory: Update and summary of preliminary findings.", July 29, 2021, https://gov.louisiana.gov/assets/docs/CCI-Task-force/JuneMtgs/GHG-INVENTORY_FINAL-DRAFT-REPORT_CTF_final.pdf

to adopt electric vehicle policies but the current push to initiate this is fairly low because we are a smaller parish and we don't see big level projects all the time." Adopting EV policies can seem like a big lift, but passing legislation and developing a commitment to reducing greenhouse gas emissions costs nothing and will bring immense benefits to residents by improving air quality, health outcomes, and overall quality of life standards for the long term.

In early 2021, the Biden Administration issued an Executive Order with an ambitious new target to make half of all new vehicles sold by 2030 zero-emissions.[19] Governor Bel Edwards has also committed to the reduction of Louisiana GHG emissions by signing Executive Order JBE 2020-19, formally creating the Climate Initiatives Task Force (CITF) to make recommendations for how Louisiana could play its part in reducing the greenhouse gas (GHG) emissions.[20] The Task Force set ambitious GHG Emission reduction goals including:

- By 2025, reduce net greenhouse gas emissions by 26-28% of 2005 levels;
- By 2030, reduce net greenhouse gas emissions by 40-50% of 2005 levels; and
- By 2050, reduce greenhouse gas emissions to net zero[21]

Local policies can be an impactful first step at the local level to meet these ambitious federal and state goals.

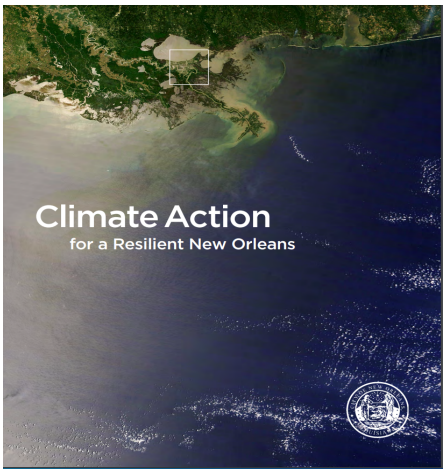


Image Courtesy of City of New Orleans

In Practice: Climate Action for a Resilient NOLA

Currently, the City of New Orleans is the only regional entity that has issued public commitment to reduce GHG emissions. Their Climate Action for a Resilient NOLA strategic plan outlines strategies, such as reducing dependence on fossil fuels, increasing alternative modes of transportation access, and enforcing energy efficiency standards, to reach the goal of reducing GHGs by 50% by 2030.

[19] U.S.White House Briefing Room, "FACT SHEET: President Biden Announces Steps to Drive American Leadership Forward on Clean Cars and Trucks", August 5, 2021, https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/05/fact-sheet-president-biden-announces-steps-to-drive-american-leadership-forward-on-clean-cars-and-trucks/

[20] Louisiana Governor's Office, "State of Louisiana Executive Department Executive Order Number JBE 2020-19: Coastal Resilience", https://gov.louisiana.gov/assets/ExecutiveOrders/2020/JBE-2020-19-Coastal-Resilience.pdf

[21] Louisiana Governor's Office, "State of Louisiana Executive Department Executive Order Number JBE 2020-19: Coastal Resilience", https://gov.louisiana.gov/assets/ExecutiveOrders/2020/JBE-2020-19-Coastal-Resilience.pdf

Local Leadership

Memorandum of Understanding (MOU)s for Public EVSE

A memorandum of understanding (MOU) is often a critical first step for local, regional, and state partners to consider or adopt an EVSE infrastructure process. MOUs are typically non-binding contracts by legal parties of their agreement, scope of work, and roles and responsibilities of each party. MOUs are helpful when implementing public charging stations in partnership with both utilities and private companies. MOUs across jurisdictional boundaries aid in mapping EVSE along major corridors, like state and federal highways, and critical infrastructure points, like dams, water management facilities, and ports.

In Practice: City of Baltimore MOU with Baltimore Gas and Electric Company

A recent publicly available example of an MOU is available with the City of Baltimore. Baltimore entered into a MOU with the Baltimore Gas and Electric Company in May 2020 to install EV chargers in the city.

Electrifying the City Fleet

One of the simplest ways to boost EV adoption in Southeast Louisiana is for parish and municipal leadership to take the lead. Integrating EVs into public fleets demonstrates the market readiness of EVs to the public. Investing in EVSE for municipal use also saves the community money on taxes, fueling costs and maintenance repairs over the lifecycle of the electric vehicles compared to older combustion engine fleets.

The cost of investing in charging infrastructure depends on equipment, installation, and operation and maintenance costs. EVSE single connector unit costs range from $400 to $6,500 for Level 2 and $10,000 to $40,000 for DCFCs. Installation costs range from $600 to $12,700 for Level 2 and $8,000 to $51,000 for DCFCs.[22] Operation and maintenance costs vary based on factors, such as the cost of electricity, demand charges, and any annual charging network fees, but are generally only a few hundred dollars a year for the lifespan of the charger.

As battery life and more chargers become more readily available, range anxiety for relevant city departments, including transportation, streets, transit, and sustainability departments will also dissipate. Overall, municipal fleets will benefit from both time and costs saved with electric vehicles.

[22] https://afdc.energy.gov/fuels/electricity_infrastructure_development.html

Image Courtesy of SLCFP

In Practice: St. Bernard Parish Government Purchases a Nissan Leaf

St. Bernard Parish Government (SBPG) and the RPC applied for the U.S. DOE Clean Technology (CTF) Fund to add an all-electric vehicle to their fleet. With the funding granted in 2019, SPBG was able to offset the costs to replace a 14-year old Chevy Cobalt, which traveled 14,000 miles annually, with a new, zero-emission Nissan LEAF.

In Practice: St. Louis, MO Executive Order to have 100% Electric Municipal Fleet

In early winter 2021, Mayor Lyda Krewson of St. Louis, MO signed an Executive Order to require the city purchase electric vehicles to replace older ICE fleet vehicles. The goal is to convert the entire St. Louis municipal fleet to 100% electric.

Electrifying Freight Fleets

Converting medium and heavy duty fleets to EV has various factors and context of the vehicle application. Industry stakeholders are working together to facilitate the electrification of trucks and buses and often are not choosing to use solely one alternative fuel technology over the other. For instance, there is much research being done to electrify truck chassis to help preserve energy for refrigerated items. Combining electrification of a chassis along with converting a medium or heavy duty vehicle to alternative fuel sources such as biodiesel, propane, or hydrogen will greatly help reduce emission rates and have equivalent, if not better mileage range.

In Practice: Freightliner Custom Chassis

Freightliner Custom Chassis is a subsidiary company of Daimler Trucks North America, LLC. They developed some of the earliest alternative fuel chassis for the freight market and recently introduced the hydraulic hybrid chassis for the walk-in van market and were the first to manufacture a non-plug-in hybrid-electric school bus chassis with their sister company, Thomas Built Buses.

Image Courtesy of Freightliner Custom Chassis

Public Charging Stations

Publicly available EVSE helps build out the network of available infrastructure to reduce range anxiety. Installing EVSE on publicly owned property means the local government has direct authority regarding infrastructure development. The most popular type of EVSE for public use is a Level 2 charger, which requires a 240v powered source. A Level 2 charger can provide about 15-25 miles of range per hour which is sufficient for most regional commuting needs. A DC fast charger allows for rapid recharging, with the capacity to add 50 to 170 miles of range in only 30 minutes depending on the vehicle capacity and power output of the station.[23]

Recharging an EV is substantially cheaper than the costs to refuel the average personal vehicle. Many municipalities have offered free charging at pilot charging locations to incentivise the public to convert to electric vehicles. Other public charging stations offer time-of-use (TOU) electric charging, where if the driver is charging during peak (work day) hours the rate to charge is higher than off peak.

The placement of public EVSE is also essential to ensure that the infrastructure is being used and brings awareness to the work a municipality is doing to encourage EV adoption. To plan for public EVSE many municipalities have also implemented scoring techniques to rank and then identify the key locations with the limited number of public EVSE budgeted to be installed.

In Practice: Southeast Louisiana Electric Vehicle Online Mapping Tool

As a companion resource to this guide, an online mapping resource is available for Regional Planning Commission of Greater New Orleans Technical Advisory Committee (TAC) members and for public use. This online ArcGIS mapping tool allows municipalities to overlay pertinent data sets, such as demographic information, employment centers, with other land use layers, enabling planners and engineers to identify locations for public charging stations where the need is greatest.

Working With Utilities

Utility companies are preparing to become the new fuel for EVs. At every step of the planning process, engaging with the two major utility providers in Southeast Louisiana, Entergy and Cleco, will make planning for EVSE easier and ensure transparent processes for regulation as EVs have larger impacts on the electrical supply grid. Developing an electric vehicle charging infrastructure (EVCI) rider package between a utility company and municipality is becoming more popular as it bundles together the installation, operation, and maintenance for a set period of time. Utility companies are finding this as a turn-key product and service that can expedite many of the permitting processes. Partnerships for purchasing and maintaining public charging stations can help reduce upfront costs for municipalities. Negotiating with these companies to offer time-of-use rates or other incentives for installation of at home and public charging infrastructure will help local consumers defer some of the costs of purchasing electric vehicles.

[23]Union of Concerned Scientists, "Electric Vehicle Charging: Types, Time, Cost and Savings", March 9, 2018, https://www.ucsusa.org/resources/electric-vehicle-charging-types-time-cost-and-savings

Currently, Louisiana's energy companies depend primarily upon fossil fuels to bring electricity to the region.[24] Any partnership with Louisiana's utility companies should include climate and emissions goals similar to those set by local governments. Looking at ways to use alternative energy resources like solar and/or wind to power EVSE will help meet both climate goals and reduce the impact EVs could have on the electric grid for years to come.

In practice: Entergy New Orleans to Install 30 to 50 EV Chargers with the City of New Orleans

Image Courtesy of Entergy New Orleans

As part of a rate case settlement between Entergy New Orleans and the City of Orleans, Entergy New Orleans agreed to supply between 30 to 50 Level 2 EV chargers in public locations across the City. In early 2021, a public survey was released to allow residents to select locations where they thought these locations could go. In total, over 400 sites were identified by the public. Entergy New Orleans also has a standard EVCI Rider available to non-residential customers that applies a monthly fee to the customers utility bill for a fixed term of 10 years. More about the Rider Agreement can be found on their website.

EV Deployment

Zoning, Ordinances, and Codes

Effective adoption of electric vehicles into communities is best done through a collaborative effort to ensure EVSE infrastructure is included in both existing and planned land uses. Development regulations, zoning, permitting, and codes all need to be cohesively aimed in the same direction.

Zoning ordinances govern the use of property within a jurisdiction. Ensuring that EVSE is defined in your zoning ordinances and municipal codes is an essential first step. Out of the 9 TAC survey respondents who were questioned whether their municipality had already required building permits to incorporate electric vehicle charging infrastructure, 8 of the respondents said no and 1 of the respondents was unsure. When asked if their municipalities allow private individuals and homeowners to install electric vehicle chargers in the public right of way, only 1 respondent said yes, 7 said no, and 1 was unsure.

[24] Popovich, Nadja and Brad Plumer, New York Times, "How Does Your State Make Electricity?", October 28, 2020, https://www.nytimes.com/interactive/2020/10/28/climate/how-electricity-generation-changed-in-your-state-election.html

Zoning regulations often get pushback from developers. Since EVSE charging infrastructure is still relatively new to the market, many best practice recommendations support setting EVSE zoning regulations as optional rather than mandating it. However, to advance policy and encourage quicker implementation of EVSE in our region, municipalities need to reduce legal and conceptual barriers. Recommendations for ordinance updates include adding language to residential utility service upgrades to allow for home EV charging to retrofit Level 2 (240v) charging capabilities. Comprehensive zoning should assist with implementing proactive site planning and design standards that anticipate higher electricity demand for new developments, with the potential of adding future vehicle battery charging capacity and eventually energy storage devices. Allotting for development bonuses is not only extremely helpful for promoting the benefits of EVs, but also smart growth planning in general.

In Practice: City of New Orleans EV Definitions

The City of New Orleans has been a regional leader in EV adoption. The New Orleans City Council approved definitions of electric vehicles and electric vehicle chargers into Municipal Code in Section 4 which is available online.

In Practice: The City of Methuen, MA Comprehensive Zoning Ordinance

City officials in Methuen, MA adopted an addendum to a pre-existing zoning ordinance to specify permissible use of EVSE in single- and multi-family dwellings as well as commercial or industrial zones (see page 40-42 of the document).

Permitting Considerations

Responses to the EV Readiness Survey by RPC TAC members indicate that there is a lack of EV permitting processes already set up in our region. Adopting specific EV-friendly ordinances and codes will speed up the process for regional EV adoption.

Detailed on the U.S. Department of Energy's Alternative Fuels Data Center's website are extensive samples of policy tools, including zoning, codes, and parking ordinances. The National Renewable Energy Laboratory also provides information on EV Infastructure Codes and Standards. It is important to note that EV and EVSE codes and standards are developed at the national level and typically reference consensus standards developed by standards-developing organizations. The two key bodies (and relevant codes) governing EVSE installation and inspection are the National Fire Protection Association (NFPA) who oversee National Electrical Code (NEC), and the International Code Council (ICC) who oversee the International Building Code (IBC) and the International Residential Code (IRC).

When developing municipal-specific land use policies, zoning recommendations or ordinances best practices municipalities need to account for the variety of different permitting needs for EVSE. For instance, it is important to identify if EVSE infrastructure will be wall mounted, on a pedestal, mobile, inductive. Signage and visibility for the equipment is also necessary to review, including required

text, standardardized branding, allowable advertisements. Installation requirements also need to be considered including adhering to ADA standards, energy requirements, and understanding impacts to the municipal grid. There also may need to be a variety of permitting types for businesses, home use, off street parking,on street parking, single family, multi-family, or mixed use. Many municipalities are also looking into alternative permitting requirements such as sidewalk cord cover permissions for areas that have little off street parking options. Simplifying the permitting process before implementing widespread EVSE is always recommended. As new technology becomes available it is also advised to keep policies and permitting processes flexible for easy revisions while the industry rapidly evolves.

In practice: NREL Resources

For more information on PEV and EVSE-related codes and standards, see the National Renewable Energy Laboratory's Electric Vehicle and Infrastructure Codes and Standards Citations (PDF) and Electric Vehicle and Infrastructure Codes and Standards Chart (PDF).

Equitable Mobility

Car ownership is a barrier in parts of Southeast Louisiana. According to the ACS Population in Poverty 5 Year Estimates (2015-2019), in Orleans Parish 25% of people do not own cars. The State of Louisiana prohibits car sharing companies from operating in the state as well. Advocating for more modern laws at the state level for car-share businesses to operate will provide essential access to new, cleaner vehicles for more of our region's residents. In cities like Los Angeles data has been released in recent years that show low income individuals often frequently use transportation network companies (TNCs) like Uber and Lyft.[25] The impact of TNCs on our transportation system and overall greenhouse gas emission rates is hard to quantify as there currently is a lack of transparent data sharing between companies and city and state agencies. Even without this data, we know TNCs are able to offer more vehicle passenger rides to people who wouldn't otherwise have access to a vehicle. Encouraging these companies to shift their passenger vehicle fleets to EVs will be an important step to improving community air quality standards and goals to reduce regional GHG emissions. It will also improve overall accessibility and mobility options for the region.

Electric Mobility as a Service (e-MaaS) Opportunities

Mobility as a Service (MaaS) is a proven planning strategy for communities to integrate transportation infrastructure, services, information, and payments seamlessly into one place primarily using Apps and mobile devices. MaaS enables enhanced ticket purchasing options, traffic monitoring, convenient routing or parking options, and the ability to integrate payment and personal preferences. MaaS is becoming a popular transportation planning strategy as communities become more reliant on technology to assist with their transportation needs.

[25] Brown, Anne Elizabeth, University of California Los Angeles, "Ridehail Revolution: Ridehail Travel and Equity in Los Angeles", 2018, https://escholarship.org/uc/item/4r22m57k

An example of standard MaaS is the integration of digital bus ticketing with other mass transit options, like bike share or light rail. Electric Mobility as a Service (e-MaaS) is the integration of Electric Vehicle technology into this integrated system. Examples include e-bike sharing, e-scooter sharing, e-car sharing, for-hire electric powered taxis, and even mass transit systems that integrate electric vehicle technology.

Image Courtesy of Blue Bikes New Orleans

Many municipalities within Southeast Louisiana are already considering these environmental and user-friendly transportation options. The City of New Orleans has launched a bike share program called Blue Bikes that offers e-bikes for rent, with options for discounted rates for low income community members. Thinking holistically about how to create a mobility ecosystem that integrates e-mobility can strengthen connectivity and accessibility for municipalities' residents. By demonstrating the inherent benefits from enhanced freedom of movement and ease within an integrated system, each successful rollout of these e-MaaS systems will make it substantially easier to quickly gain public support.

In Practice: Los Angeles Metro's LA Mobility Wallet

Metro is Los Angeles, California's public transportation agency. They developed a platform called TAPforce that can integrate with private mobility operators. This platform lets customers who already pay to ride buses and trains with TAP also use it for carshare, rideshare, ride-hail, shared scooters and bikes, and anything else with two to four wheels. Metro plans to pilot this "mobility wallet" concept in South L.A. through a partnership with the City of Los Angeles.

Rebates & Incentives for Low-Income Households and People of Color

In Southeast Louisiana a majority of low income residents are also people of color. According to a report released by the Data Research Center, the health burdens of climate change and poor air quality have had the most impacts on these communities.[26] Although early adopters of EVs across the U.S. have predominantly been white, middle to high income individuals, the urgency of addressing the climate crisis through accessible access to EVs for low income and people of color needs to be realized in an equitable and timely manner.

[26] Broussard, Danielle, Lisa Richardson, Maeve Wallace, Katherine Theall, Data Center Research, Institute of Women and Ethnic Studies, Tulane School of Public Health and Tropical Medicine, "Advancing health Equity in New Orleans: Building on Positive Change in Health", May 2018, https://s3.amazonaws.com/gnocdc/reports/prosperity_brief_broussard.pdf

Vehicle ownership in Southeast Louisiana is also less likely for low and moderate income households who are predominantly people of color. According to the Center for Neighborhood Technology (CNT) Housing & Transportation (H+T Index) a majority of this region's population spends 57% of their income on housing and transportation costs.[27] This is particularly burdensome for low income residents that do own vehicles, who must spend a large portion of their income on vehicle costs, including fuel and maintenance. If these poorer community members can have access to EVs, they will directly benefit from lower operating and maintenance costs, while improving regional air quality.

Currently, if an individual purchases a new EV they can take a federal tax credit of up to $7,500 per vehicle.[28] Property owners and businesses can take substantial additional federal tax credits to help defray the upfront costs of purchasing an EV. At this time, no credit is available for EVSE for renters. Advocating for state and local incentives specifically targeted at low-income community members and people of color will help mitigate some current inequities related to EV vehicle purchases. Although lowering upfront costs helps reduce barriers to EV ownership, these same communities need better legislation to protect them from historically predatory lending practices that have led to historic economic disparities in these communities.[29] Local leadership should evaluate ways to offer low- or no-interest loans to qualifying low income and people of color to provide assurance against predatory financial products. Additionally, working with local financial institutions with similar financial incentives for disadvantaged community members can improve access to financing.[30]

In Practice: California Clean Vehicle Rebate Project

The Clean Vehicle Rebate Project (CVRP) promotes clean vehicle adoption by offering rebates of up to $7,000 for the purchase or lease of new, eligible zero-emission vehicles, including electric, plug-in hybrid electric and fuel cell vehicles. The California Air Resources Board (CARB) approved the Fiscal Year 2015-16 Low Carbon Transportation Investments and the California Air Quality Improvement Program (AQIP) Funding Plan in late June 2015, which included several changes to the Clean Vehicle Rebate Project (CVRP) including an income cap for higher–income consumers and increased rebate levels for low– and moderate–income consumers. These changes were implemented on March 29, 2016. As of Fall 2021, these rebates were still in effect.

Used EVs

The National Center for Sustainable Transportation Research report, "Understanding the Distributional Impacts of Vehicle Policy: Who Buys New and Used Alternative Vehicles?" (2018), found

[27] Center for Neighborhood Technology, The Housing and Transportation (H+T Index) Affordability Index, https://htaindex.cnt.org/fact-sheets/
[28] Union of Concerned Scientists, "Fact Sheet: Amping Up EV Incentives", March 2021, https://www.ucsusa.org/sites/default/files/2021-03/amping-up-ev-incentives.pdf
[29] Union of Concerned Scientists, "Fact Sheet: Amping Up EV Incentives", March 2021, https://www.ucsusa.org/sites/default/files/2021-03/amping-up-ev-incentives.pdf
[30]Union of Concerned Scientists, "Fact Sheet: Amping Up EV Incentives", March 2021, https://www.ucsusa.org/sites/default/files/2021-03/amping-up-ev-incentives.pdf

that most people, especially communities of color and low-income families, purchase used vehicles in the U.S.[31] Rebates that are specifically for used EVs could improve access to cleaner mobility choices. In order to ensure that the cost of used EV models do not go up, capping the qualifying income based upon local and/or regional percentages of people living within or close to the low income threshold is considered a best practice. This targeted approach to purchase an EV should also be paired with similar incentives to purchasing EVSE infrastructure for home charging, including targeting multi family and affordable housing residential units.

Another type of incentive available to increase the amount of EVs in the used market is a "scrap and replace" program. This program provides cash incentives for retiring older, more polluting vehicles. While not exclusive to purchases of EVs, the value of the incentive can also be based on income or even paired with an alternative voucher that a person could apply to transit passes or other forms of shared mobility in an effort to reduce vehicle miles traveled.[32]

Image Courtesy of California Air Resources Board

In Practice: Peninsula Clean Energy Used EV Rebate Program

In San Mateo County California, the energy provider Peninsula Clean Energy has a program that offers rebates for the purchase of used electric vehicles. The Used EV Rebate Program allows EV owners to not only save money in fueling and maintenance over the EV's lifecycle, but also immediately at time of purchase.

In Practice: Clean Cars 4 All Program

The Clean Cars 4 All is a program through the California Climate Investments to lower-income California drivers to scrap their older ICE vehicles and replace them with a zero- or near-zero emission replacement. The program aims to focus the benefits to low-income and disadvantaged communities and has a heavy emphasis on consumer protections, education of the new technologies, and coordination with other clean transportation programs.

[31] Muehlegger, Erich and David Rapson, University of California, Davis Institute of Transportation Studies, National Center for Sustainable Transportation, "Understanding the Distributional Impacts of of Vehicle Policy : Who Buys New and Used Alternative Vehicles, February 2018, https://escholarship.org/content/qt0tn4m2tx/qt0tn4m2tx_noSplash_36244609f162444f3e55c550dfc22cad.pdf

[32] Union of Concerned Scientists, "Fact Sheet: Amping Up EV Incentives", March 2021, https://www.ucsusa.org/sites/default/files/2021-03/amping-up-ev-incentives.pd

5. Conclusion

Taking the Charge

Southeast Louisiana is at a critical junction point to implement solutions to improve our climate and make our communities more resilient. Preparing our policies and infrastructure to bring EVs to the mainstream will contribute to a more resilient region. It also makes great economic sense to transition to EVs as charging saves individuals and fleets money in the long term, especially during periods of fuel volatile market shifts. Plus, the timing couldn't be better. Much like the internet boom of the 90s, the electric vehicle market is growing exponentially. EV technology, software, and manufacturing are well established and market demand is rapidly increasing. The passing of the Bipartisan Infrastructure Law in November 2021 solidifies the country's commitment to the transition to electrified transportation options and is about to invest billions of dollars to make it happen.

Preparing for this transition at a regional and local scale has never been more urgent. The research and materials in the Southeast Louisiana Electric Vehicle Readiness Guide can be used as a framework for local municipalities to build upon. The guide can be utilized when reviewing and updating local codes and ordinances for commercial and residential development, as well as identifying potential funding mechanisms for electric vehicle charging infrastructure. The accompanying online regional ArcGIS Mapping Viewer is available to analyze pertinent data and assist with local decision making processes for future EVSE infrastructure implementation.

The next step for Southeast Louisiana to become EV ready is to start sharing resources at the regional level. Many of the participants of the RPC Technical Advisory Committee (TAC) have extensive knowledge of EV policies and EVSE procurement. Others may not have as much experience with EVs, but have worked in areas such as infrastructure, land use, zoning, and ordinance development. Others may have more insight to regional climate initiatives and other essential pieces of the puzzle that would move the pendulum closer to a transition to EV adoption in the region. All of this skill and knowledge can and should be shared. The SLCFP intends to continue to support EV Readiness planning. Our role will be to assist when needed locally, but think regionally to help support an intentional network of EVSE and electric vehicle adoption policies that lead to a cleaner environment and more efficient transportation system for generations to come.

Appendix A

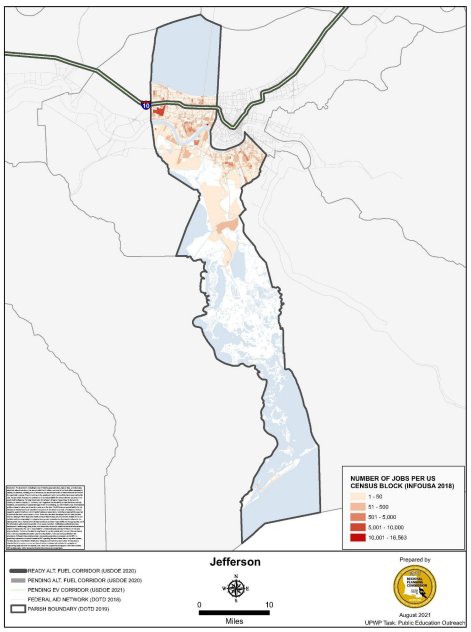
U.S. DOE Alternative Fuel Data Center List of Online EV Charging Network Providers Quarter 1 2021 [33]

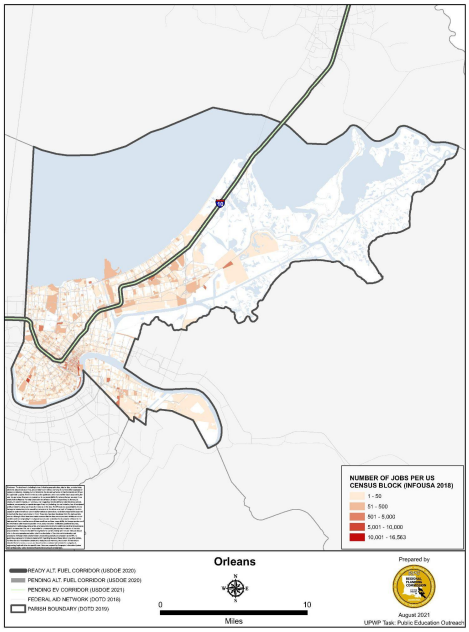
AmpUp (AMPUP)
Blink (BN)
ChargeLab (CHARGELAB)
ChargePoint (CPN)
Electrify America (EA)
EV Connect (EVC) • EV Charging Solutions (EVCS)
evGateway (EVGATEWAY) • EVgo (EVN)
Francis Energy (FCN) • FLO (FLO)
FPL EVolution (FPLEV)
Greenlots (GRN)
OpConnect (OC)
Powerflex (POWERFLEX)
SemaConnect (SCN)
Tesla Supercharger (TESLA)
Tesla Destination (TESLAD)
Volta (VLTA)
Webasto (WEB)
ZEF Network (ZEFNET)

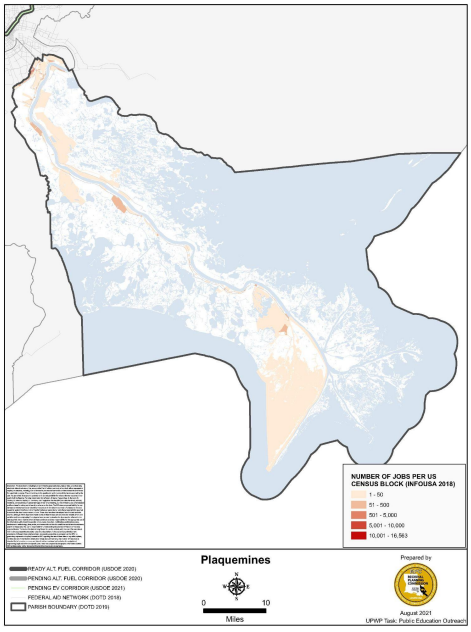
[33] U.S. DOE Office of Energy Efficiency & Renewable Energy, "Electric Vehicle Infrastructure Trends from the Alternative Fueling Station Locator: First Quarter 2021", https://afdc.energy.gov/files/u/publication/electric_vehicle_charging_infrastructure_trends_first_quarter_2021.pdf

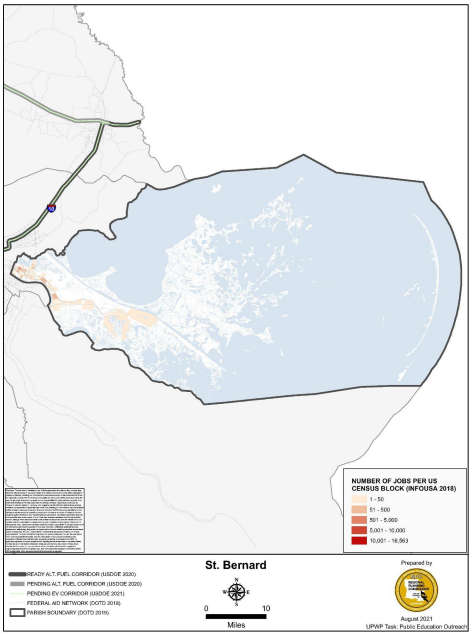
Appendix B

Regional Parish Employment Maps



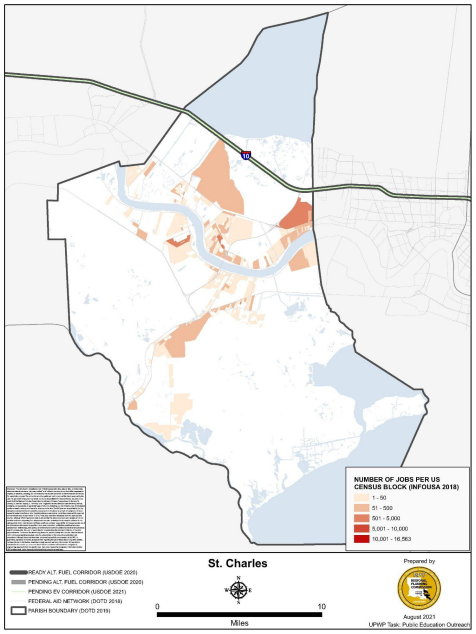


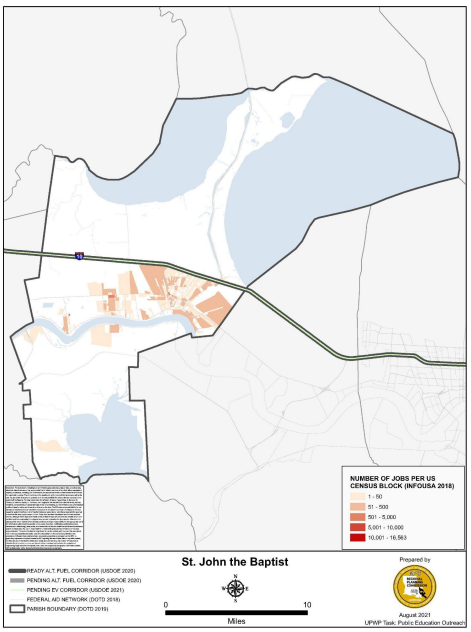


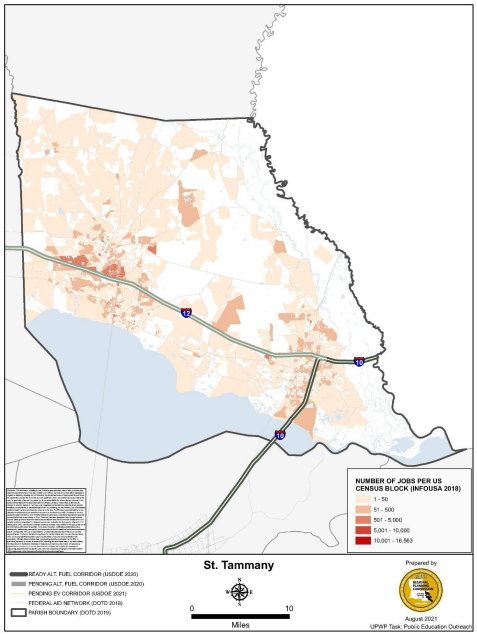


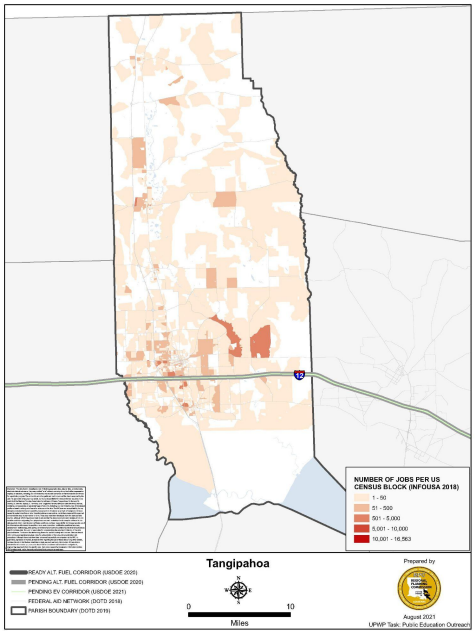
Appendix B Continued

Regional Parish Employment Maps



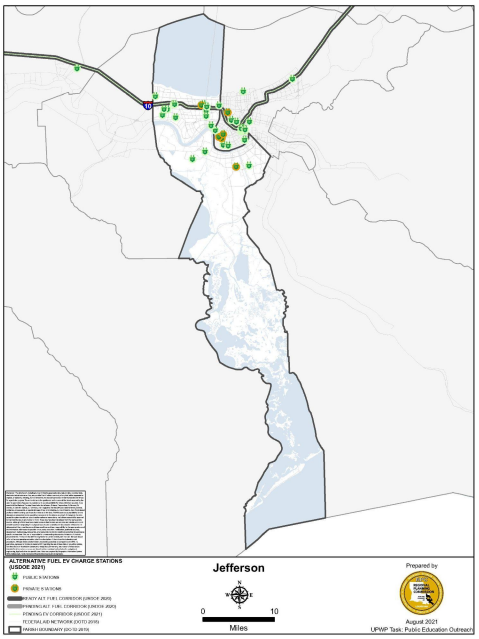


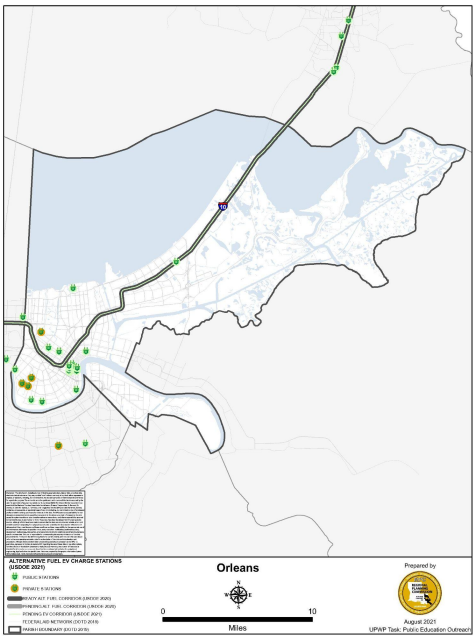


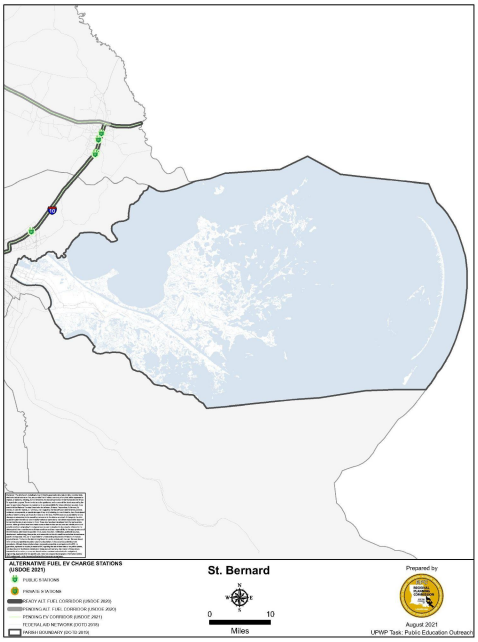


Appendix C

Regional Parishes With Existing EV Chargers

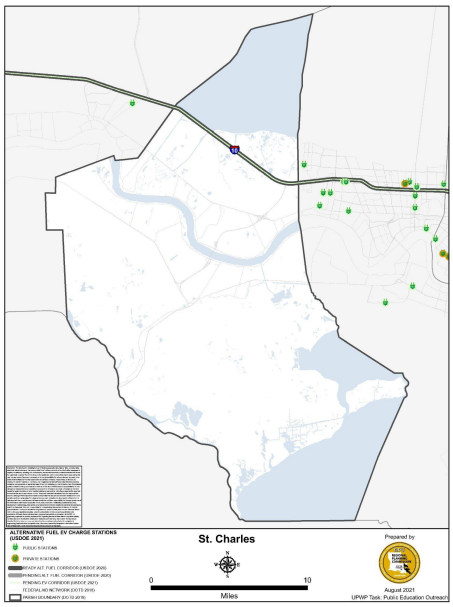


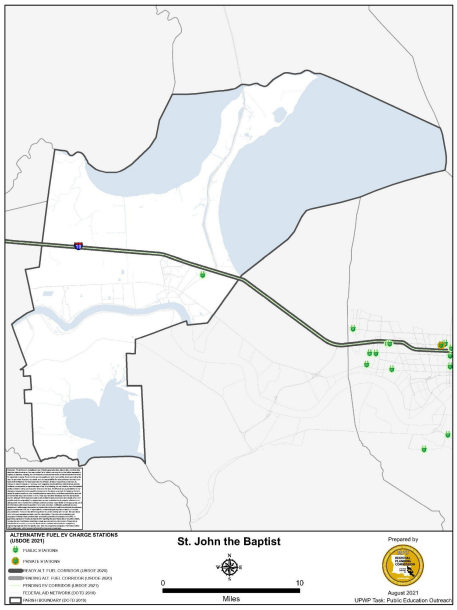


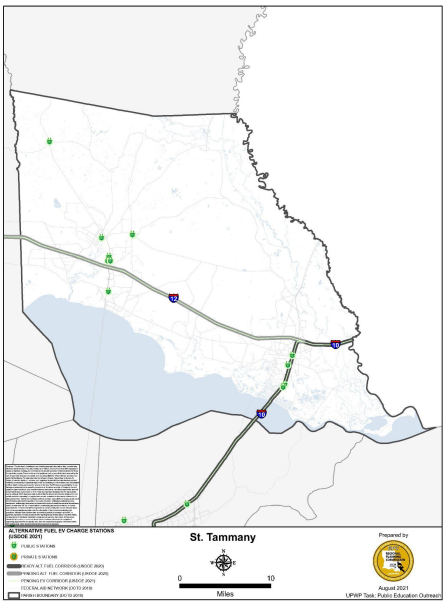


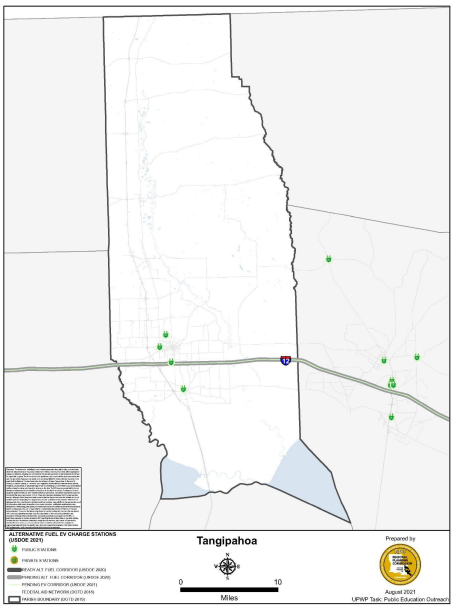
Appendix C Continued

Regional Parishes With Existing EV Chargers



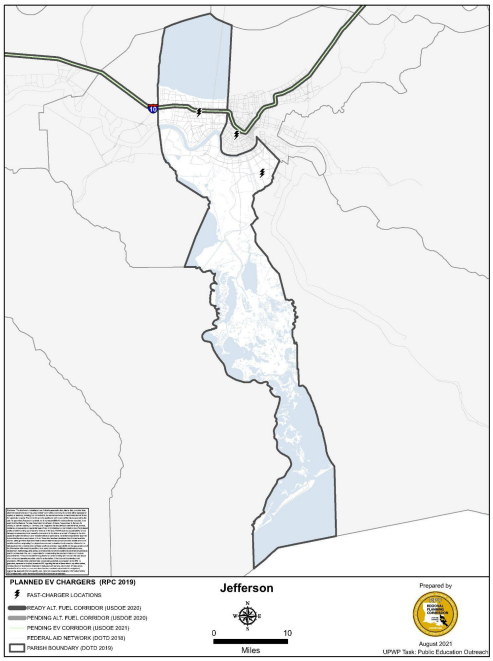


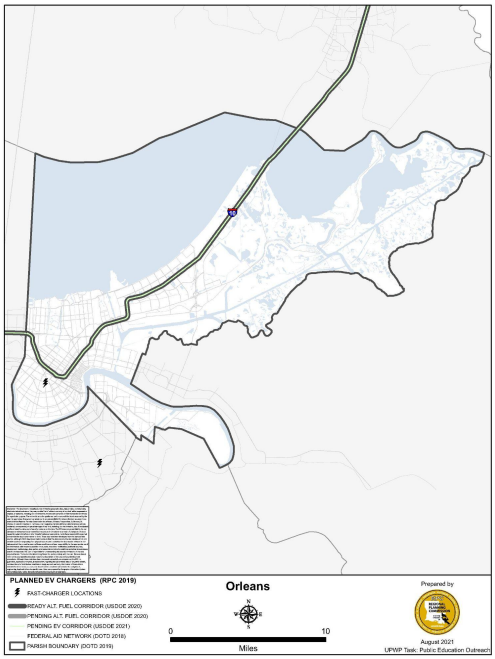


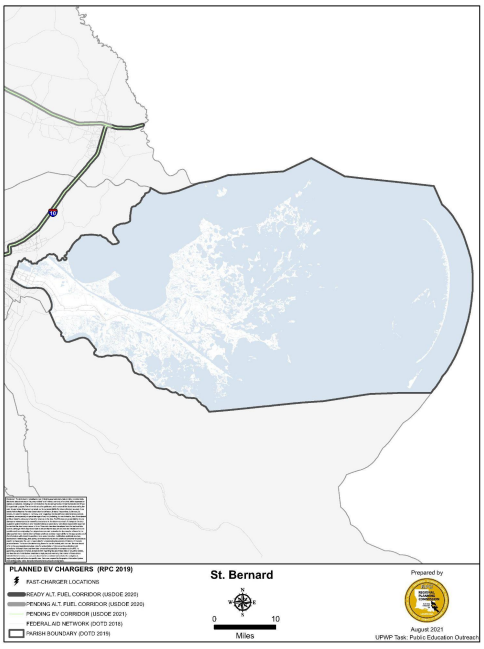


Appendix D

Regional Parishes With Planned EV Chargers

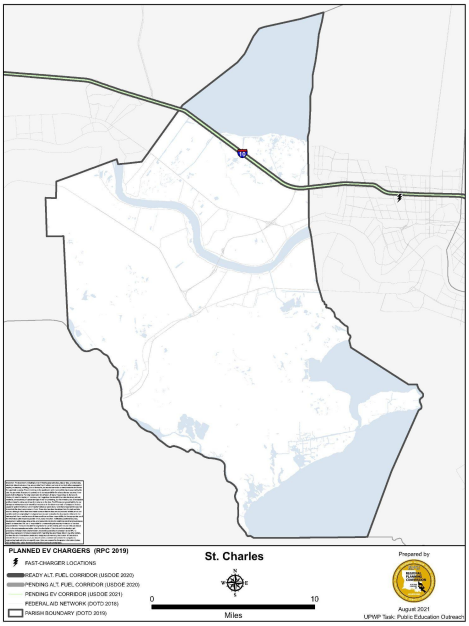


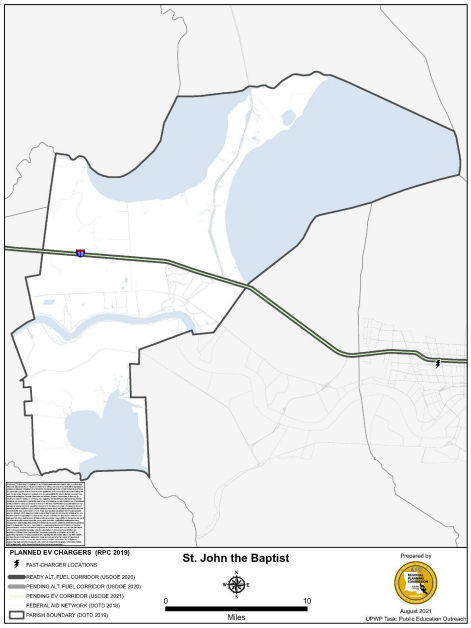


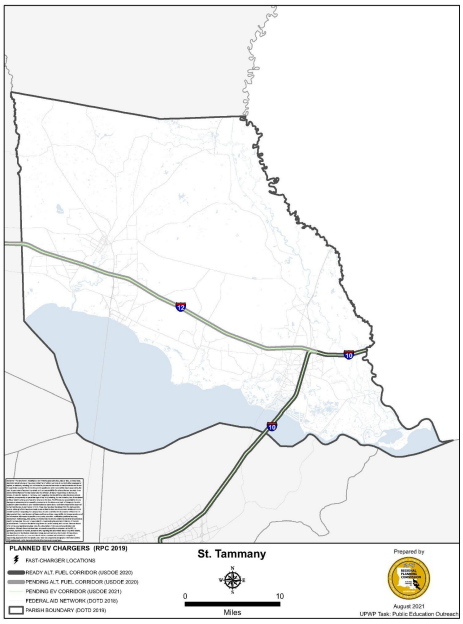


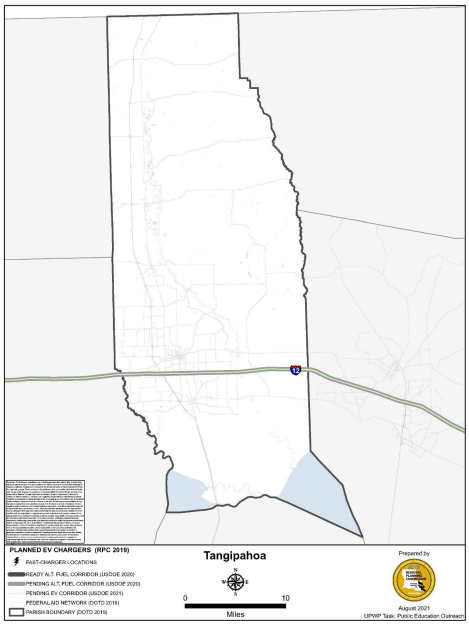
Appendix D Continued

Regional Parishes With Planned EV Chargers









Appendix E

Electric Vehicle Supply Equipment Manufacturers

Data Source: U.S. Department of Energy and National Renewable Energy Laboratory

Manufacturer	Website	Charging Offered	Manufactured in the U.S.	Additional Notes
EVExpress	http://www.evrus.net	DC Fast		
Paired Power	https://pairedpower.com/	DC Fast		
Tritium PTY LTD	http://tritium.com.au/products/veefil/	DC Fast		
Momentum Dynamics	https://www.momentumdynamics.com/	DC Fast, Wireless		
Delphi Automotive Systems	http://www.delphi.com/manufacturers/auto/hevevproducts	L1		
Dr. Ing. h. c. F. Porsche	http://www.porsche.com/usa/accessoriesandservices/	L1		
Kyungshin Corporation	http://www.kaica.or.kr/eng/industry/read.php?cmpny_idx=4&kevcode=&keyword=&page=9	L1		
Panasonic Corporation (Panasonic Electric Works Co. Ltd.)	http://panasonic.net/ecosolutions/	L1		
Shorepower	http://www.shorepower.com/electric-vehicle-charging-stations/	L1		
Tyco Electronics Corp	https://www.te.com/usa-en/home.html	L1		
Yazaki North America, Inc.	http://www.yazaki-na.com/en/product/	L1		
ClipperCreek	https://www.clippercreek.com/	L1, L2	Yes	All ClipperCreek EVSE are designed and manufacturer in the U.S. using components from American Companies. See: https://clippercreek.com/clippercreek-made-in-america/
Eluminocity	http://www.eluminocity.com/ev-charging-station/	L1, L2		
EVSE LLC (Control Module Ind.)	http://evsellc.com/	L1, L2	Yes	See http://evsellc.com/about-us/
GridBot, LLC	http://www.gridbot.us/	L1, L2		
Juice Bar LLC	http://www.juicebarev.com/	L1, L2	Yes	Some models, including the GEN 3 stations, are manufactured in the U.S. See https://www.juicebarev.com/products/charging-stations
Lear Corp.	http://www.lear.com/en/electrical/high-power.aspx	L1, L2		

Legrand/Pass & Seymour	http://www.legrand.us/electric-vehicle-chargers.aspx#.VKRPHHt6qiw	L1, L2		
Leviton	http://www.leviton.com/OA_HTML/SectionDisplay.jsp?section=37818&minisite=10251	L1, L2		
OpConnect	https://www.opconnect.com/Home/Welcome	L1, L2		
SemaConnect	http://www.semaconnect.com/	L1, L2		
Siemens Energy Inc.	https://new.siemens.com/us/en.html	L1, L2		
Telefonix, Inc	http://www.l1powerpost.com/	L1, L2		
Audi AG	https://www.audi.com/en/company/sustainability/core-topics/products-and-services.html	L2		
Bosch	https://www.bosch.us/products-and-services/	L2	Yes	Some models, including the EV400 Series and EV 800 Series, are manufactured in the U.S. See https://www.boschevsolutions.com/charging-stations
CarChargingGroup	http://www.carcharging.com/	L2		
Electric Vehicle Institute	http://www.ev-institute.com/	L2		
eMotorWerks	https://evcharging.enelx.com/	L2		
EVoCharge	https://www.evocharge.com/	L2	Yes	See https://www.evocharge.com/about.html
KebaAG	http://www.keba.com/en/product-catalog/energy-automation/wallboxes-for-ev-s/	L2		
Lite-On Clean Energy Technology, Corp	http://liteoncleanenergy.com/	L2		
meritCharge (eVergo)	http://www.meritcharge.com/	L2		
Milbank	http://www.milbankmfg.com/powergen/electric-vehicle-supply-equipment-evse/index.aspx	L2	Yes	All products are manufactured in the U.S. See https://milbankworks.com/about
NovaCharge	https://www.novacharge.net/	L2		
PEP Stations, LLC	http://www.pepstations.com/	L2		
Poulsen Hybrid, LLC.	http://poulsenhybrid.com/	L2		
Power Charge	https://www.powerchargeev.com/	L2		
Revitalize Charging Solutions	https://www.revitalizechargingsolutions.com/	L2		
Shanghai Viasystems EMS CO LTD	http://www.viasystems.com/	L2		

WattZilla	https://wattzilla.com/	L2	Yes	See https://www.wattzilla.com/about/index.htm
Webasto/Aerovironment	https://www.evsolutions.com/	L2		
ABB	https://new.abb.com/ev-charging	L2, DC Fast		
AddEnergieTechnologies	http://addenergietechnologies.com/en/our-products/	L2, DC Fast		
Blink (Car Charging Group)	https://www.blinkcharging.com/	L2, DC Fast		
BTCPower	http://www.btcpower.com/	L2, DC Fast	Yes	Some models manufactured in the U.S. See http://www.btcpower.com/index.php?action=aboutus
ChargePoint	https://www.chargepoint.com/	L2, DC Fast		
Delta Electronics Inc	https://www.deltaww.com/Products/CategoryListT1.aspx?CID=08&hl=en-US	L2, DC Fast		
Efacec	https://www.efacec.pt/en/	L2, DC Fast		
Enel X (JuiceBox)	https://evcharging.enelx.com/store	L2, DC Fast		
EVBox	https://evbox.com/us-en/	L2, DC Fast	Yes	Some models manufactured in the U.S. See https://www.evbox.us/about
Freewire Technologies	https://freewiretech.com/	L2, DC Fast	Yes	See https://freewiretech.com/faq/
Schneider	https://schneider.com/	L2, DC Fast		
Tellus Power	http://telluspower.com/	L2, DC Fast		
Tesla Motors	http://www.tesla.com/	L2, DC Fast	Yes	Majority of products manufactured in the U.S. See https://www.tesla.com/factory
Volta Charging	http://www.voltacharging.com/#1	L2, DC Fast		
Evatran	https://www.pluglesspower.com/	Wireless	Yes	See https://www.pluglesspower.com/gen2-tech-specs/
Proterra	https://www.proterra.com/	DC Fast	Yes	Proterra charging systems are compliant with Federal Buy America requirements. See https://www.proterra.com/energy-services/charging-infrastructure/

Appendix F

City of New Orleans Electric Vehicle Charger Ordinance Code

Source: PART II - CODE Chapter 146 - STREETS, SIDEWALKS AND OTHER PUBLIC PLACES ARTICLE VI. - OBSTRUCTIONS, CUTTING INTO AND USE OF STREETS DIVISION 4A. ELECTRIC VEHICLE CHARGERS New Orleans, Louisiana, Code of Ordinances

DIVISION 4A. ELECTRIC VEHICLE CHARGERS

Sec. 146-561. Definitions.

The following words, terms and phrases, when used in this division, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Dwelling means a structure, or portion of a structure, designed or used exclusively for permanent residential purposes, including single-family, two-family, townhouse, and multi-family dwellings, but not including trailers, hotels/motels, rooming houses, or automobile

Electric vehicle means any motor vehicle, licensed for operation on public streets in the State of Louisiana, which receives locomotive power from a battery or other storage device that receives and stores electricity from an external source such as a charger. This definition includes plug-in hybrid electric vehicles.

Electric vehicle charger means a device that permits the transfer of electric energy (by conductive or inductive means) to a battery or other storage device in an electric vehicle.

Operating permit means the city-issued authorization to install, operate, and maintain an approved electric vehicle charger occupying a portion of the right-of-way immediately adjacent to a dwelling.

Permittee means the person or business entity issued an operating permit for the installation, operation, and maintenance of an approved electric vehicle charger occupying a portion of the right-of-way immediately adjacent to a dwelling.

Right-of-way means that portion of the street between the curb lines or the lateral lines of a roadway and the adjacent property lines intended for use by pedestrians or as a landscaped buffer between pedestrian and vehicular traffic.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-562. Operating permit required.

Use of any right-of-way for installation, operation, or maintenance of an electric vehicle charger shall be unlawful without an operating permit issued pursuant to this division.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-563. Operating permit requirements.

(a) For purposes of enforcing this division, operating permits shall be considered an extension of a dwelling on publicly owned property and any violation of this division shall be attributable to the owner of such adjacent dwelling.

(b) Operating permits shall only be issued as accessory and subordinate uses to dwellings.

(c) Operating permit eligibility shall be limited to the owner or occupant of a dwelling that does not and cannot provide off-street parking on the lot on which the dwelling is situated, in a manner compliant with the Comprehensive Zoning Ordinance.

d) Electric vehicle chargers shall be monitored and controlled by the permittee at all times and may only be utilized for private, non-commercial use. Fees, gratuities, or other remuneration may not be received by the permittee for use of the charger.

(e) All improvements associated with the installation, operation, and maintenance of electric vehicle chargers shall be compliant with the adopted construction codes of the City of New Orleans, and certified as compliant by the director of safety and permits.

(f) Cords shall be retractable or have a place to hang the connector and cord sufficiently above the pedestrian surface. Any cords connecting the charger to a vehicle shall be configured so that they do not cross a driveway, sidewalk, or passenger unloading area.

(g) Issuance of an operating permit for installation, operation, and maintenance of an electric vehicle charger on the right-of-way does not create a private or reserved parking space for the permittee on the right-of-way. A sign shall be affixed to the electric vehicle charger indicating that the presence of the charger does not constitute a private or reserved parking space, the dimensions and text of which shall be determined by the director of safety and permits.

Appendix F continued

(h) The electric vehicle charger shall be removed by and at the expense of the permittee or owner of the associated real property if the owner or permittee no longer owns or resides at the associated dwelling or upon non-renewal or cancellation of the operating permit. If a subsequent

owner or renter of the property is desirous of taking possession of the electric vehicle charger for usage purposes, however, he/she must apply for a permit before expiration of the permit.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-564. Authority to issue permit.

The director of the department of safety and permits shall authorize operating permits only for residential uses that fully comply with the requirements of this division. Such permits shall be issued only after consultation with and the positive recommendation of the director of the department of public works. An operating permit is a privilege, not a right, and may be revoked, suspended, or not renewed based on non-compliance with the requirements of this division.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-565. Application, documents and requirements.

(a) Any natural person seeking an operation permit for the installation, operation, and/or maintenance of an electric vehicle charger in the right-of-way shall file a written application with the director of safety and permits on a form to be provided for that purpose.

(b) In addition to the application form, the following documents shall be submitted for review for an application to be considered complete:

1. A plan shall be submitted on 8½" × 11" paper or in digital format. This plan does not need to be to scale, but shall show exact length and width dimensions of entire right-of-way abutting the subject property. This plan shall include the location and size of the EV charger (including the stored cord), as well as all existing encumbrances on and underneath the public way including, but not limited to, driveways, parking meters, fire hydrants, bike racks, light poles, water, sewer, drain, and other utility lines, underground streetlight conduit and traffic signal conduit, and trees. A written narrative may accompany the plan.

2. Photographs depicting the proposed site where the electric vehicle charger will be installed and the relationship between the proposed electric vehicle charger and the surrounding public right-of-way.

3. If the applicant is not the owner of the adjacent real property or their designee, written authorization of the property owner shall be required as part of the application.

4. A permittee shall maintain an insurance policy that covers any risk for any injury or damage resulting from the installation, operation, and/or maintenance of the electric vehicle charger, and the property owner shall agree to indemnify and hold the city harmless from any claims arising from the installation, operation, and/or maintenance of the electric vehicle charger to the extent permitted by law.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-566. Standards and criteria for application review.

(a) The following standards and criteria shall be used in reviewing the application and design drawings to determine if the proposed location is suitable and will not obstruct free and proper use of the public right-of way.

1. The right-of-way width shall be of sufficient width to accommodate the proposed electric vehicle charger while maintaining a clear path of travel that is:

    a. At least four feet in width on sidewalks of eight to ten feet in width.

    b. At least six feet in width on sidewalks greater than ten feet in width.

    c. In areas of congested pedestrian activity, the reviewing agencies are authorized to require a wider pedestrian path to ensure the free and proper use of the right-of-way by pedestrians.

2. A clearance of at least 15 feet shall be maintained between any electric vehicle charger and a fire hydrant, or fire department sprinkler/standpipe connection.

3. A clearance of at least 20 feet shall be maintained between any electric vehicle charger and an intersection or crosswalk.

4. A clearance of at least three feet shall be maintained between any electric vehicle charger and a driveway or other curb cut.

5. A clearance of at least ten feet shall be maintained between any electric vehicle charger and a public transit pole or CPNC stand.

Appendix F continued

6. Locations of electric vehicle chargers are restricted to the area immediately adjacent to the dwelling being served and may not project in front of neighboring properties or vacant lots.

7. The location shall avoid interference with vehicular sight lines at street corners or driveways and minimize the removal of vegetation.

8. The electric vehicle charger shall be installed no closer than 18" from the edge of the roadway, unless otherwise approved by the director of the department of public works.

9. Verification that the property has no outstanding taxes or property liens.

10. In local control historic districts, the historic district landmarks commission staff shall have approval jurisdiction over the design of electric vehicle chargers.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-567. Permit issuance.

(a) Upon satisfactory submission of the required documentation and completion of review by all necessary agencies, the director of the department of safety and permits may issue an annual operating permit. Said permit shall contain:

(1) The address of the adjacent property to which the electric vehicle charger is accessory;

(2) The name of the permittee;

(3) The permit number and any additional usage limitations which may be imposed as a condition of approval;

(4) Dates the permit is valid.

(b) In addition to the permit placard, the director of safety and permits shall issue an approved site plan, which graphically describes the placement of approved electric vehicle charger.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-568. Permit renewal.

The operating permit shall be valid one year from the date of issuance. Renewal permits shall be issued in the same manner as initial permits, and requires:

(a) Providing the department an updated copy of any of the documents required by section 146-565;

(b) Providing a revised or updated site plan, if changes to an approved plan are requested; and

(c) Proof of payment of all applicable taxes and fees as required by law.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-569. Approved equipment.

(a) Equipment shall be certified to UL Standard 2202 by a nationally recognized testing laboratory (such as UL or ETL) and listed and approved for electric vehicle use.

(b) Equipment shall comply with Society of Automotive Engineers (SAE) J1772-2009 standards, or a comparable standard as determined by the director of safety and permits, including safety features between the electric vehicle charger and the electric vehicle. These safety features include, but are not limited to:

(1) Ground fault circuit interrupter(s).

(2) Proximity detection and signaling.

(3) Power may only be supplied from the electric vehicle charger after the device has determined a proper and safe connection between the electric vehicle charger and the electric vehicle.

(c) Types of electric vehicle charger authorized:

(1) Level 1 Chargers with a power level of 110 to120 VAC and/or up to 20 Amps.

(2) Level 2 Chargers with a power level of 208 to 240 VAC and/or up to 100 Amps.

(3) Level 3 Chargers and Fast DC Chargers with a capacity of up to 50kW.

Appendix F continued

(d) Power shall, under no circumstance, be provided to an electric vehicle parked on the right-of-way via extension cord that is run from a dwelling across a sidewalk and to the right-of-way. Such configuration constitutes a public nuisance and is in violation of the city's adopted construction codes.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-570. Authorized and prohibited locations.

(a) Electric vehicle chargers shall be permitted only in conjunction with a permitted residential use in a legally occupied dwelling.

(b) No property or parcel may have more than one electric vehicle charger installed in the right-of-way adjacent to such property or parcel.

(c) Installation, operation, and/or maintenance of electric vehicle chargers within the right-of-way shall be prohibited in the Vieux Carré, as defined in Chapter 166 of this Code.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-571. Conditions and restrictions.

(a) Operating permits are subject to modification, suspension or revocation by the City of New Orleans at any time during the period of validity if the city requires the subject right-of-way area cleared for street, sidewalk, or utility repair or other public purposes.

(b) Operating permits are non-transferrable and may not be assigned or granted to any other person or business which may occupy the dwelling to which a permit has been issued. A subsequent owner or renter of a property with an electric vehicle charger may submit a permit application before expiration of the permit. The requirement to remove the electric vehicle charger will be postponed while the new permit application is reviewed. Upon approval of such application, a transfer fee will be assessed in addition to any permit fees which may be due.

(c) The permittee accepts the prevailing site conditions including, but not limited to, loading and passenger zones, loading zones, obstructions within the right-of-way, active residential permit parking zone restrictions and permitting requirements, street cleaning parking restrictions, and automobile traffic.

(d) Operating permits shall be automatically suspended for periods two hours before and two hours after a carnival parade for locations on parade routes.

(e) The director of safety and permits may suspend operating permits without prior notice in the event of permitted special events where crowd control is likely to be necessary.

(f) The departments of police and fire and any other emergency response agency may require immediate removal, deactivation, or relocation of the electric vehicle charger in emergency situations.

(g) The City of New Orleans, its officers, agents, or any private utility company operating pursuant to a franchise granted by the city council, their officers, agents, or employees shall not be responsible for electric vehicle charger components relocated during emergencies.

(h) Issuance of an operating permit does not grant, convey, or infer any vested right to the use of the right-ofway by the permittee nor does it constitute a deed, grant of easement, or servitude by the city. The city retains the right to deny the issuance or renewal of an operating permit for noncompliance with the provisions of this division, the City Code, or the comprehensive zoning ordinance.

(i) No area of the right-of-way shall be painted, modified, or altered in any way without prior written approval of the director of the department of public works. No part of the right-of-way shall be obstructed, blocked, or otherwise reserved for a permittee's use of the approved electric vehicle charger. The public right-of-way shall remain available for parking of the general public at all times when the location is not legally occupied by the permittee's vehicle.

(j) The city and/or its agents may schedule general cleaning and maintenance operations. If such work is scheduled, the city and/or it agents shall give notification of its scheduled cleaning times in advance of such operations to permittees if the city expects such cleaning or maintenance will effect the permitted electric vehicle charger. Each permittee in the affected area shall remove, or cause to be removed, electric vehicle chargers so that they do not inhibit the scheduled cleaning, repair, and/or maintenance operations.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-572. Fees.

(a) Upon initial submission of an application for an operating permit, a non-refundable application fee of $100.00 shall be remitted to the department of safety and permits.

(b) Fees for initial issuance of an operating permit, a non-refundable permit fee of $300.00 shall be remitted to the department of safety and permits, which shall be sufficient to administer and enforce the regulations of this division and to compensate the city for use of public property:

Appendix F continued

(c) A non-refundable operating permit fee of $100.00 shall be remitted to the department of safety and permits for the annual renewal of an operating permit.

(d) Operating permit fees shall be payable at the time of permit issuance or renewal and are non-refundable in the event of suspension, revocation, or surrender of the sidewalk use permit during the term of validity.

(e) Upon approval of the transfer of an existing operational permit to a new property owner or rental tenant, a non-refundable transfer fee of $300.00 shall be remitted to the department of safety and permits, in addition to any other fees which may be due under the provisions of this division.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-573. Penalties.

Any violation of this division may subject a violator to any remedy, legal or equitable, available to the city. Remedies include, but are not limited to: revocation or suspension of the operating permit, daily fines, property liens, and/or discontinuance of electrical service. Hearings for violations of this division shall be conducted in accordance with Chapter 6, Article II of this Code.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-574. Denial, revocation, or suspension of permits.

(a) The director of the department of safety and permits may deny an application for a operational permit if, in the investigation of the application it is determined:

(1) That the proposed installation cannot meet the standards of this division; or,

(2) Upon recommendation of denial from the director of the department of public works that the location is unsuitable for installation, operation, and/or maintenance of an electric vehicle charger on the public right-of-way due to pedestrian congestion, traffic, existing obstructions on the sidewalk, or any other reason that would result in an unsafe or substandard condition.

(b) Penalties for non-compliance with the provisions of this division may result in fines, suspension of the sidewalk use permit for a period not to exceed 180-days, or revocation of the sidewalk use permit.

(1) Hearings shall be conducted in accordance with the provisions of Chapter 6 of this Code.

(2) In the case of revocation, no operating permit may be issued at the same location for a period of two years from the date of such revocation.

(M.C.S., Ord. No. 27545, § 1, 9-28-17, eff. 10-1-17)

Sec. 146-575. Reserved

Appendix G

City of Baltimore MOU with Baltimore Gas and Electric Company for EV Charging Station Installations

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE MAYOR AND CITY COUNCIL OF BALTIMORE
AND
BALTIMORE GAS AND ELECTRIC COMPANY
FOR INSTALLATION OF ELECTRIC VEHICLE CHARGING STATIONS

THIS MEMORANDUM OF UNDERSTANDING (the "MOU"), is entered into this 26th day of May, 2020, by and between the Mayor and City Council of Baltimore, a municipal corporation of the state of Maryland, acting by and through its Department of Transportation (collectively, the "City") and Baltimore Gas and Electric Company ("BGE"), a public utility duly organized and existing under the laws of Maryland.

WHEREAS, the City desires to promote the use of electric vehicles in the City and to improve the City's electric vehicle charging infrastructure through installation of publicly-available electric vehicle charging stations and related equipment (collectively, "EV Stations") at various locations on City owned property and right of way; and

WHEREAS, BGE has implemented the EVsmart program to encourage the usage of electric vehicles in the City and elsewhere throughout BGE's electric distribution service territory; and

WHEREAS, BGE owns EV Stations and wishes to install them in City-approved locations throughout the City in accordance with the terms of this MOU and the directives of the Maryland Public Service Commission; and

WHEREAS, the City is willing to permit the installation, maintenance and operation of EV Stations by BGE on City property pursuant to this MOU, and in the event of installations on City right of way and Recreation and Parks' property provided BGE obtain a franchise as required by the City Charter, the cost of which, if any, is to be determined by the City Board of Estimates; and

WHEREAS, the City and BGE desire to enter into this MOU to set forth the terms and conditions by which BGE may install, maintain and operate its EV Stations in the City

NOW, THEREFORE, for and in consideration of these premises and the mutual covenants herein contained, it is agreed by and between the parties hereto as follows:

I. Purpose of MOU

The purpose of this MOU is to establish a framework for BGE to provide EV Stations at agreed locations in the City on a no-cost, turnkey basis for the City (the "Project"). The Project includes installation, supplying electric power, technical and labor support as well as data analytics and monthly reporting, and maintenance and repair of the EV Stations. The EV Stations must be made available to the public on a first come, first served basis 24 hours per day, seven days a week for a period of five (5) years unless the Project is terminated sooner in accordance with this MOU or by the Maryland Public Service Commission.

1

II. Payments, Source of Funding

BGE agrees to:
1) Fund the entire Project; and
2) Refrain from billing the City for any portion of the Project.

III. Term

The term of this MOU shall commence upon approval of the Baltimore City Board of Estimates and last for a period of five (5) years beyond the date of completion of the last of the EV Stations, unless terminated sooner in accordance with the terms of this MOU.

IV. Obligations of BGE

1) BGE shall comply with all City Standard Specifications (Green Book), rules and regulations for installation and operation of each EV Station. Design drawings and specifications must be approved in advance by the City. In addition to the requirements of the Green Book, BGE shall comply with those requirements of the Baltimore City building code which are more stringent, but only to the extent of such requirements. All work, equipment and material shall comply with the National Electric Code and all local codes. All EV Stations shall bear an Underwriters' Laboratories (UL) label. If it is not possible for an EV Station to be furnished with a UL label, BGE shall have a certified testing agency certify that the equipment is acceptable to UL Standards.

2) EV Stations may only be installed at locations designated or otherwise approved by the City. The City agrees to cooperate with BGE in the selection and approval of locations. Pursuant to section VI (1) of this MOU, BGE shall provide the City with advance notice of an intended installation in a specific location. The City may be present and observe the installation process at its discretion.

3) The term, "Equity Zone", as used in this MOU means an area designated by the City and determined by the City as requiring equitable access to and installations of EV Stations in underserved areas of the City.

4) BGE shall obtain, at its sole expense, all permits, authorizations and approvals needed in order to install and operate EV Stations, shall give all necessary notices, and pay all governmental taxes, fees, and other costs in connection with the installation and operation of EV Stations.

5) BGE shall be solely responsible for all aspects of the installation of the EV Stations and connecting the EV Stations to a power source that shall be separately metered and not part of any City metered power sources or usage. BGE shall be solely responsible for the payment of all electric usage charges for each EV Station installed and the

City shall have no obligation to pay for electric usage or pay for any other charges associated with the EV Stations.

6) At its sole cost and expense, BGE shall design and erect appropriate signage at installed EV Stations which are acceptable and approved by the City.

7) BGE shall be permitted to charge users of EV Stations at rates set by the Maryland Public Service Commission and shall be solely responsible for the charges, billing procedures and collection and the City shall have no responsibility for setting the rates to be charged, billing procedures, collections or any other aspect of BGE's process for charging for the use of the EV Stations. After the first year of the EV Station installation and subject to approval by the Maryland Public Service Commission, BGE must establish and implement a process by which any vehicle which is parked at an EV Station and has achieved full battery charge, will be billed at a modest amount approved by the Maryland Public Service Commission per minute above the normal billing rate required by BGE (the "Idling Fee"). Certain EV Stations may be exempt, in whole or in part, from the Idling Fee requirement if approved by the City.

8) The Parties agree that the City reserves the right to charge a reasonable excise tax for parking at EV Stations at a rate approved by the Mayor and City Council of Baltimore.

9) BGE shall repair, remove or replace any broken or damaged EV Station within 48 hours after notification to BGE or discovery by BGE of the broken or damaged EV Station. In the event that a broken or damaged EV Station also poses a hazard to members of the public or users of the EV Station, BGE shall immediately upon notification or learning of the hazard to the public, deactivate, deenergize and render safe the EV Station. BGE shall repair, remove or replace the hazardous EV Station within 48 hours after notification to BGE or discovery by BGE of the hazardous EV Station. In the event that BGE fails to comply with the provisions of this Section IV (9), the City shall have the immediate right to terminate the City's approval and use of the broken or damaged EV Station at issue. Upon termination the shut down and removal provisions of Sections VII and VIII of this MOU shall apply the EV Station at issue.

10) In the event that any user of an EV Station lodges a complaint with the City, BGE shall be notified by the City and BGE shall respond to the user, with a copy to the City, within three (3) days after receipt of the complaint. If BGE receives a complaint directly from a user, it shall reply within three (3) days after receipt of the complaint and provide a copy of the complaint and response to the City.

11) In the event that BGE removes an EV Station from its approved location and does not replace the EV Station, BGE shall, at its expense, restore all City-owned property

(public right-of-way or off-street) back to its original (pre-installation) condition or better.

12) In the event a parking lane in the right-of-way is re-purposed for other activity such as a dedicated bus or bicycle lane and there is a BGE EV station present, BGE shall be responsible for removal of the EV Station at their own cost and the City shall not be responsible for the loss of revenue or service coverage. The City will work with BGE to locate in an expedited manner a suitable alternative location for installation of the previously-removed EV Station.

13) BGE shall provide and file with the City a five-year repair and maintenance plan for the EV Stations.

V. Data Reporting

BGE shall implement, at its sole expense and cost, for each of the EV Stations permitted by this MOU a process of data collection that will record the number of users per EV Station on a daily basis, the time(s) of day that an EV Station is in use charging a vehicle, the regular charging usage fee. Such reports shall be provided to the City, on a monthly basis, in a format usable by the City. BGE will manage the data collection, aggregation, and warehousing relating to the use of the EV Stations for the five (5) year term of this MOU. After the expiration of this MOU, BGE shall provide a final program report to the City and cease all data collection, unless given written permission by the City.

VI. City's Obligations

1) The City shall designate Equity Zones in which EV Stations are to be located to ensure that all areas of the City shall have access to EV Stations.

2) Upon notification from BGE, any member of the public, City official or police officer that a vehicle is parked illegally at an EV Station, the City shall make reasonable efforts to respond to the location and cite and tow the offending vehicle.

VII. Termination for Cause

If through any cause, BGE fails to fulfill in a timely and proper manner its obligations under this MOU, including securing permission from the Public Service Commission to charge an idling fee as provided in Section IV (7) of this MOU, or if BGE violates any of the terms and conditions of this MOU, the City shall thereupon have the right to terminate this MOU, after giving written notice to BGE, of its intent to terminate the MOU and specifying the grounds of termination.

BGE shall have thirty (30) days from receipt of notice of intent to terminate to cure the default. If the default is cured within the stated time, the MOU shall continue, as if no default had occurred. But, if BGE has not cured the default within the said thirty (30) days, the MOU shall terminate without further notice. Upon termination, BGE shall immediately shut down all

EV Stations. BGE shall remove all EV Stations and restore the City property or right of way to its original condition as required by section IV (8) of this MOU. Removal of all EV Stations must be completed within a reasonable amount of time.

VIII. Termination for Convenience

The City shall have the right to terminate this MOU at any time during the term of the MOU, for any reason, including without limitation, its own convenience, upon thirty (30) days' prior written notice to BGE. Upon receipt of a termination for convenience notice, BGE shall immediately shut down all EV Stations. BGE shall remove all EV Stations and restore the City property or right of way to its original condition as required by section IV (8) of this MOU. Removal of all EV Stations must be completed within a reasonable amount of time.

IX. Indemnification

Notwithstanding any other provisions in the MOU, BGE shall indemnify, defend, and hold harmless the City, its elected/appointed officials, departments, employees, agents and volunteers (collectively, "the Indemnified Parties") from any and all claims, demands, suits and actions, including reasonable attorney's fees and court costs connected therewith, brought against the Indemnified Parties ("Claims") arising as a result of any willful or negligent act or omission of BGE, its employees, agents, and volunteers in the performance of the Project, except for Claims arising out of the willful or negligent act or omission of the Indemnified Parties. This indemnification provision shall survive termination of this MOU.

X. Insurance

BGE shall continue to maintain during the life of this MOU Workers' Compensation coverage as required by the State of Maryland, as well as coverage required for this work by applicable Federal or other state law.

In lieu of Commercial Insurance, BGE may elect to self-insure for any of its requirements under this Agreement. If BGE elects to self-insure risks for which commercial insurance is required under the provisions of this Agreement, BGE shall provide a statement documenting its equivalent coverage through self-insurance.

XI. Right of Entry

The City represents and confirms that it is the fee simple owner of the locations and rights of way shown on Exhibit A (the "City EV Locations") and that the City has the full right and authority to enter into this MOU and permit entry upon the City EV Locations for the duration of the Project. Subject to the terms and conditions of this MOU, the City hereby grants to BGE the right to enter upon the City EV Locations in order to stage and mobilize for construction, install, construct, and do all things necessary to complete the Project. The parties agree that this MOU shall be the only document necessary to grant BGE full access to the City EV Locations for the duration of the Project and that no further agreements or documents need to be executed to effectuate full access rights. Execution of this Agreement by the City shall not constitute a right of entry for BGE to enter or work anywhere but the City EV Locations. The parties agree that the right of entry granted herein does not convey any right, title or interest in and to any City property

other than the right to enter onto City EV Locations pursuant to this MOU.

XII. Representations and Warranties

BGE is a corporation duly organized, validly existing, and in good standing under the laws of Maryland, with full power and authority to conduct its business as it is now being conducted, to own or to use the properties and assets that it purports to own or use, and to perform all of its obligations under this MOU.

XIII. Notice

All notices required or permitted hereunder to be given by either party to the other shall be in writing and shall be sent via United States certified mail, return receipt requested, or hand delivered to the parties at the addresses below:

To the City:

With copies to:

To BGE:

Director of Strategy
2 Center Plaza
110 West Fayette Street, 15th Floor
Baltimore, Maryland 21201

With a Copy to:

BGE Legal Department
2 Center Plaza
110 West Fayette Street, 12th Floor
Baltimore, Maryland 21201

XIV. Maryland Law Prevails

The law of Maryland, exclusive of its conflicts of laws rules, shall govern the interpretation and enforcement of this MOU.

XV. MOU Binding on Successors and Assigns

1

This MOU shall bind the respective successors and assigns of the parties.

XVI. Assignment or Transfer

BGE may not sell, transfer, or assign any of its obligations under this MOU, or its rights, title, or interest in this MOU, without the prior written consent of the City.

XVII. Amendments to MOU

No amendment to this MOU is binding unless it is in writing and signed by both parties.

XVIII. Merger

This MOU and attached Exhibit(s) embody the whole agreement and understanding of the parties. There are no promises, terms, conditions, or obligations referring to the subject matter other than those contained herein or incorporated herein by reference.

XIX. Severability

If any provision of this MOU is deemed unlawful or unenforceable, all remaining provisions of this MOU shall continue in full force and effect.

(THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK)