

Facilitating Electric Vehicle Adoption among Used Car Buyers and Low- to Middle-Income Community Members in Tompkins County

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Final Report

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Abstract

Electric vehicles (EVs) are becoming more popular but are still prohibitively expensive for many consumers. However, to meet the State’s emission reduction goals, availability to low- and moderate-income (LMI) buyers will be required. This report outlines efforts undertaken in Tompkins County to develop a business model for the secondary market of used EVs. The project also helped facilitate EV usage among LMI community members across various transportation modes such as public transit and carshare, while increasing awareness, understanding, and exposure to EVs for all residents of the county.

Keywords

Electric vehicle (EV), low- and moderate-income (LMI), business model, used cars, education and outreach

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Acronyms and Abbreviations

ACDC	Automotive Career Development Center
AFCU	Alternatives Federal Credit Union
AMI	Area Median Income
BEV	Battery electric vehicle
CCCNYS	Clean Communities of Central New York
CCETC	Cornell Cooperative Extension of Tompkins County
DCFC	Direct Current Fast Charger
EV	Electric vehicles
GHG	Greenhouse gas
ICE	Internal combustion engine
kWh	Kilowatt-hours
LMI	Low- and moderate-income
NYS	New York State
NYSERDA	New York State Energy Research and Development Authority
OEM	Original Equipment Manufacturer
PHEV	Plugin hybrid electric vehicle
TCAT	Tompkins County Area Transit
U.S DOE	United States Department of Energy

Executive Summary

This project is intended to increase awareness of electric vehicles (EVs) and to encourage adoption particularly among low- and moderate-income (LMI) residents in Tompkins County, New York. The project team was led by Energetics and included Cornell Cooperative Extension of Tompkins County (CCETC), the Center for Community Transportation (d/b/a Ithaca Carshare), and Clean Communities of Central New York in partnership with the local used dealership, Ridge Road Imports. The project team developed an understanding of the barriers currently limiting the ability of LMI drivers to purchase EVs and supported solutions and approaches to address those barriers. The project team conducted outreach and introduced community members to EVs through in-person events and the addition of two EVs to the Ithaca Carshare fleet. In addition, Energetics researched opportunities for financing options and extended warranties that could be made available to LMI community members interested in purchasing an EV. Energetics and Ridge Road Imports worked together to market the dealership's EV knowledge and inventory through updates to their website and advertisements as well as enhancing EV service training for two of their mechanics.

1 Introduction

Energetics and the project team (Cornell Cooperative Extension of Tompkins County, Center for Community Transportation d/b/a Ithaca Carshare, Clean Communities of Central New York, and Ridge Road Imports) established a business model for the expansion of the secondary car market for used electric vehicles (EVs) and facilitated EV usage among low- and moderate-income (LMI) community members while increasing awareness, understanding, and exposure to EVs for all Tompkins County residents.

Supported by a prior agreement with the New York State Energy Research and Development Authority (NYSERDA), EVTompkins, a community-led initiative in the county, facilitated by Energetics, established a model EV Accelerator Community. Through this program, the county provided more charging ports and EVTompkins worked with local stakeholders, community members, dealerships, municipalities, and others to bring together the necessary elements of an electrified transportation system. Under this prior effort, EVTompkins primarily focused on new car sales that could take advantage of the Federal Tax Credit and New York Drive Clean Rebate and generated enthusiasm with the technology advancements and new vehicle models coming to market. The outreach also targeted likely new car buyers that would be most interested in EVs. That project identified a gap in EV availability and awareness among many car owners who typically purchase used vehicles or have lower income, which this follow-on project sought to address.

The project began in November 2020 and was impacted significantly by the COVID-19 pandemic. Not only did it impact the project team's ability to conduct the planned in-person outreach activities, but also significantly limited the number of EVs Ridge Road was able offer for sale due to vehicle supply chain challenges.

1.1 Project Objectives

The objectives of the project were to:

- Understand the barriers that prevent LMI drivers from purchasing EVs.
- Develop solutions and approaches to address the barriers to EV adoption by LMI drivers such as: lower interest or higher limit car loans, access to charging, and extended warranties to ensure the longevity of their vehicle.
- Create a used EV market in Tompkins County with a used car dealership that regularly stocks and markets EVs to generate sustainable demand for used EV sales.

- Facilitate EV use for services that are used by people that don't own cars such as carshare and transportation services.

1.2 Project Team

The project team was made up of:

- **Energetics**, as the Prime Contractor, served as the project manager, developed the business model and marketing approach, conducted research on potential financing options, led the mid-project and final project evaluations, and supported outreach efforts led by partners.
- **Cornell Cooperative Extension of Tompkins County (CCETC)** led outreach efforts, conducted interviews and surveys to assess project barriers, and hosted education sessions on vehicle ownership.
- **Center for Community Transportation (d/b/a Ithaca Carshare)** led EV carshare ridership efforts and supported outreach efforts.
- Clean Communities of Central New York (CCCNy) supported outreach efforts.
- **Ridge Road Imports** served as the dealership partner, stocking and marketing EVs as possible; supported business model and marketing efforts; and supported outreach efforts.

1.3 Project Scope

The project consisted of nine tasks completed over a 36-month period. Below is the list of tasks and summary of the task objectives and specific activities.

1. **Project Management and Progress Reporting**—Energetics coordinated the work of staff and subcontractors, ensured control over budget and schedule, and provided reporting to the NYSERDA project manager.
2. **Used EV Dealership Business Model Preparation**—Energetics collaborated with Ridge Road Imports to develop and establish a sustainable business model for used EVs in Tompkins County. This included analyzing availability and quality of used EVs that Ridge Road Imports could offer potential buyers, training Ridge Road Imports mechanics on EV maintenance, and installing an EV charging station. In addition, Energetics researched potential extended warranties for used EV to provide additional assurances to potential buyers.
3. **Finalizing Marketing Approach for LMI Drivers**—Energetics collaborated with CCETC to conduct interviews and hold discussions with leaders in the LMI community and organizations serving LMI community members to gauge drivers' understanding of EVs and document concerns and barriers to EV adoption. The findings of these activities informed the development of messaging and outreach efforts.
4. **Explore Financing for LMI and EV Purchasing**—Energetics researched potential loan and rate structures that could be made available specifically for LMI customers.

5. **Used EV Marketing and Sales**—Ridge Road Imports' mechanics took part in an EV training course and Energetics provided the dealership with incentives to stock both all-electric and plug-in hybrid vehicles. Energetics collaborated with Ridge Road Imports to implement a marketing campaign to promote their available EVs that included updates to their website, along with some print and radio advertising.
6. **Increase EV Usage Among LMI Drivers**—Energetics facilitated EV use and adoption through activities that raised awareness and addressed barriers. This included providing Ithaca Carshare with a stipend to incorporate EVs into their operations in locations that serve LMI communities, facilitating meetings with local taxi and shuttle services to encourage EV use, and coordinating efforts with Tompkins County Area Transit (TCAT) to use positive media coverage about their new electric buses to increase awareness of EVs. In addition, Energetics contributed to outreach activities such as EV exhibits and ride-and-drives.
7. **Mid-Project Evaluation**—Energetics reviewed the progress midway through the project and proposed adjustments to increase the project's impact for the remainder of the project period.
8. **Final Project Evaluation**—Energetics reviewed the project progress and discussed how the effort could continue beyond the project period and potentially be replicated in other areas of the State.
9. **Final Report and Project Completion Meeting**—Energetics prepared a final report covering all aspects of the work performed as a part of this project. This report includes discussions of the observations, findings, and recommendations; discussions of the replicability of used EV sales and LMI outreach throughout the state; discussions of the project results and lessons learned regarding configuration, capabilities, and benefits of the project; and environmental and economic benefits and implementation scenarios.

2 Project Barriers

In addition to the barriers to EV adoption, specifically for LMI communities, the project team was aware at the start of the project, that the continuation of the COVID-19 pandemic throughout the project period severely hindered two aspects of its approach and tasks.

The first was the low vehicle inventory. Due to supply chain issues, the chip shortage, and decreases in household income, demand for used vehicles, including EVs, was extremely high.¹ These types of disruptions can have an even greater impact on used EVs, which has an already smaller pool of inventory available. This caused difficulty for Ridge Road Imports in procuring used vehicles for their dealership and many EVs at auctions were priced too high for the local market.

The second unforeseen barrier caused by COVID-19 was the limited ability of the project team to conduct the intended in-person outreach activities. The team participated in outdoor events where possible, especially in the first year of the project and reimaged some of the planned activities as virtual events to ensure participants' health, safety, and comfort.

¹ As chip shortage goes on, cars are scarce and prices are up, T. Krisher, ABC News.
<https://abcnews.go.com/Business/wireStory/chip-shortage-cars-scarce-prices-77645971>

3 Outreach Activities

3.1 Understanding Barriers to Electric Vehicle Adoption in Low- and Moderate-Income Communities

Throughout the first phase of the project, the team led by CCETC, conducted interviews and discussions with community members and leaders throughout the county. The team documented concerns and barriers to EV adoption generally and specifically for LMI community members. This initial work provided valuable insights and helped develop and deliver appropriate messaging and activities for outreach throughout the remainder of the project. Individual interviews represented community action groups, advocacy groups, food pantries, and the local housing authority.

The interviews produced key takeaways that helped shape outreach activity. First and foremost, the project team recognized that the LMI community or population is not a monolithic demographic and includes a range of access and ability to purchase a vehicle. Solutions to address adoption barriers may work for some and not others within the community. The team further discovered that there was a wide range of transportation issues that face the Tompkins County community. There was also a need for increasing general awareness of the technology and addressing concerns around cost and access to charging infrastructure. Solutions to these barriers should include improvements to financing, affordability of vehicles, reliability of used vehicles, accessibility to charging, etc. Other takeaways from community interviews are summarized below.

3.1.1 Reaching People with Low- And-Moderate Income Levels

- There are different levels of poverty and of people considered “LMI.” Many people don't have the ability to buy a vehicle (“many have a hard time purchasing a bus pass”), but often someone in their family does.
- Identify approximate income bracket that could most benefit from owning an EV and still be able to realistically afford one.
- Many people have long-term goals of owning a vehicle and create plans to do so (often with the help of social service agencies, local credit union, etc.).
- The City and Town of Ithaca have ambitious climate-related goals, including reducing transportation greenhouse gas (GHG) emissions, that are underpinned with a strong need to work with disadvantaged communities and ensure that LMI community members are engaged in the process.

- Important to connect with people already working with “target” population:
 - Social service agencies (e.g., Tompkins Community Action, Ithaca Neighborhood Housing Authority, United Way).
 - Food pantries
 - School programs, especially rural
 - Child Development Council
 - Advocacy Center
 - Catholic Charities
 - Rural libraries
 - Local financial institutions
 - Tompkins County (area) Mutual Aid

3.1.2 Barriers in Transportation and EV Adoption

- LMI community members already have lots of transportation challenges. Rural communities often don’t have bus stops nearby (common for the nearest bus stop to be more than five miles away). Further, bus schedules often don’t align with their needs.
- The inability to afford a dependable car often results in larger future maintenance or repair expenses (many people in this income bracket don't have extra money to make car payments; when they do purchase a vehicle it's often an old clunker that needs constant upkeep, which can amount to a car payment).
- Charging access is a major issue, especially for those who do not have access to home charging.
- Lack of awareness/education about EVs among public generally. Individuals don’t know options, don’t know difference between hybrid, plug-in, all-electric, charging infrastructure. Many people think EVs are out of their reach. Technology is daunting; don't really want to learn about new tech. Lack of awareness of economic benefits of EVs (savings compared to gas vehicles).
- Lack of EVs available locally (especially used but also new).
- Some (especially rural) LMI community members can do some maintenance and repairs on vehicles, but unlikely to be able to do so on EV (except things like brakes). On the other hand, EVs are less likely to have mechanical issues (engine, transmission) and don’t require as much regular maintenance.
- There’s a need to include local LMI population in any workforce opportunities (and a strong need to expand local workforce to service EVs).
- Need to work with local lenders to consider EVs in their existing vehicle ownership programs, provide assistance to LMI community members (reduced credit requirements, higher loan approvals for EVs based on lower cost of ownership).

3.2 Outreach Activity

The findings from interviews informed the development of the Outreach Plan that was used throughout the project. The Outreach Plan outlined outreach opportunities and types of engagement the team could use. The general approach to outreach was to engage with and meet community members “where they’re

at.” This meant both physically connecting with them (1) in locations where they are going for other programs or services and (2) in ways that intersect with their other interests and/or needs.

The project team participated in 24 unique events and engaged with an estimated 11,000 individuals. Below is a table that lists each event that was conducted during the project period.

Table 1. Event and Outreach Summary Table

#	Event	Date	Event Partner
1	Welcoming EVs to CarShare fleet at Subsidized Housing (210 Hancock).	6/12/2021	Ithaca Neighborhood Housing Services (INHS)
2	Second Event: Welcoming EVs to CarShare fleet at Subsidized Housing (210 Hancock).	7/21/2021	INHS
3	Ellis Hollow Fair	9/12/2021	
4	StreetsAlive!	9/26/2021	
5	Apple Fest	10/3/2021	
6	First-Time & 'TuneMeUp" Car Buyer Class(es)	10/12/2021	Alternatives Credit Union, Ithaca Housing Authority, TCAction
7	First-Time & 'TuneMeUp" Car Buyer Class(es)	10/13/2021	Ridge Road Imports, TCAction, Ithaca Housing
8	EV Presentation @ Kendal	10/19/2021	NA
9	National Drive Electric - Earth Day events	4/23/2022	TCAT, Maguire Auto, Ridge Road Imports
10	Tune Me Up Car Buyers - Finance class	4/7/2022	Alternatives Federal Credit Union
11	Streets Alive!	5/1/2022	Way2Go
12	Ithaca Festival Parade	6/2/2022	Way2Go
13	Ithaca Festival all day tabling	6/4/2022	CCETC Energy Team
14	NorthSide Neighborhood Block Party (Tabling event)	7/9/2022	Well Being and NorthSide Neighborhood
15	Tune Me Up Car Buyers - Finance class	7/19/2022	
16	Newfield Old Home Days	7/30/2022	
17	Hasbrook Grad Student Resource Fair	8/23/2022	Cornell University
18	Trumansburg Fireman's Parade - Zero Emissions Segment	8/24/ 2022	Trumansburg Library
19	Ellis Hollow Fair	9/10/ 2022	
20	Tune Me Up Car Buyers - Finance class	3/12/2023	Alternatives Federal Credit Union
21	CCE blog + social media	4/22/2023	CCETC communications
22	Ithaca High School Climate Expo	5/21/2023	Ithaca High School
23	Ithaca Festival Parade	6/1/2023	Ithaca BikeShare, BikeWalk Tompkins
24	TCAT bus featuring traveling art gallery	June-Aug 2023	TCAT, Ithaca City School District secondary school teachers

Midway through, the project team set outreach targets for the remainder of the project that included total number of events, people exposed (total number of attendees), and people engaged (total number of attendees that engaged with CCETC event staff). One of the goals of setting these new targets was to ensure that outreach was impacting the target LMI community in Tompkins County. Of the 24 events, 15 were able to track the number of attendees who were LMI members. Below is a summary of those 15 events and total outreach impact.

Table 2. Outreach Engagement Metrics Summary

Metric	Total (Completed)	Estimated LMI Reach (portion of total)
Events	15	14
People Exposed to Outreach (indirect)	338,230	3,000
People Engaged During Outreach	11,000	1,725
Follow-up with Individuals as Result of Outreach	90	75
Media Coverage for Activity	9	4

Outreach Event Highlight–“TuneMeUp” Car Buyer Class. CCETC, Alternatives Federal Credit Union, and Ridge Road Imports co-hosted a two-part class for first-time or out-of-practice car buyers. The first session focused on financing a vehicle purchase and the second on regular maintenance and repairs. The series was offered five times throughout the project period and had approximately 30 attendees at each offering.

3.3 Outreach Materials

Wherever possible, the project team used existing outreach and educational materials at events. Existing materials from CCETC, carshare, and other community partners like Way2Go Tompkins, BikeShare, and others had plenty of existing materials related to sustainable transportation that were used at events. Through initial outreach and community interviews, it was identified that community members needed access and exposure to information on EVs. CCETC updated their website to include information on EVs and EV charging technology to serve as a resource that will be continually updated. At the start of the project, a two-page summary of EV models from 2016–2020 was developed to summarize the prices for popular EVs. However, it was difficult to maintain as available models increased and thus was not used in the later half of the project.

Figure 1. Outreach Flyer—EV Value Guide

Plug-In Electric Vehicles 2016 – 2020 Value Guide

The list below represents a sample of EVs that were originally manufactured between 2016 - 2020. Specifications are sourced from the U.S. Department of Energy's fueleconomy.gov All models are currently available, but the specifications are for the model year noted. Kelley Blue Book (KBB) Value was calculated with each vehicle having 36,000 mileages the base prices style, standard equipment, white color, good condition, and the private party value.

PLUG-IN HYBRID ELECTRIC VEHICLES (PHEVS)

	CHEVROLET VOLT	FORD FUSION ENERGY	HYUNDAI SONATA	AUDI A3 E-TRON
2016	MSRP: \$33,170 MPG Electric: 53 KBB Value: \$24,097	MSRP: \$33,900 MPG Electric: 53 KBB Value: \$24,097	MSRP: \$34,600 MPG Electric: 53 KBB Value: \$24,097	MSRP: \$33,900 MPG Electric: 53 KBB Value: \$24,097

Plug-In Electric Vehicles 2016 – 2020 Value Guide

BATTERY ELECTRIC VEHICLES (BEVS)

2017	FORD FOCUS ELECTRIC MSRP: \$22,995 MPG EQUIVALENT: 112 Electric Range (miles): 62 KBB: \$8,050	MITSUBISHI I-MIEV MSRP: \$22,995 MPG EQUIVALENT: 112 Electric Range (miles): 62 KBB: \$8,050	FIAT 500E MSRP: \$31,800 MPG EQUIVALENT: 112 Electric Range (miles): 84 KBB: \$9,932	CHEVROLET SPARK EV MSRP: \$25,120 MPG EQUIVALENT: 119 Electric Range (miles): 82 KBB: \$12,108	KIA SOUL ELECTRIC MSRP: \$31,950 MPG EQUIVALENT: 105 Electric Range (miles): 93 KBB: \$12,593
2018	HYUNDAI IONIQ MSRP: \$32,500 MPG EQUIVALENT: 112 Electric Range (miles): 107 KBB: \$12,560	NISSAN LEAF MSRP: \$30,680 MPG EQUIVALENT: 112 Electric Range (miles): 107 KBB: \$12,560	VOLKSWAGEN E-GOLF MSRP: \$30,495 MPG EQUIVALENT: 119 Electric Range (miles): 125 KBB: \$16,669	BMW I3 BEV MSRP: \$42,400 MPG EQUIVALENT: 124 Electric Range (miles): 81 KBB: \$18,090	CHEVROLET BOLT EV MSRP: \$36,620 MPG EQUIVALENT: 119 Electric Range (miles): 238 KBB: \$19,587
2019	CHEVROLET BOLT EV MSRP: \$36,620 MPG EQUIVALENT: 118 Electric Range (miles): 118 KBB: \$17,030	FORD FOCUS ELECTRIC MSRP: \$29,120 MPG EQUIVALENT: 107 Electric Range (miles): 118 KBB: \$17,030	HYUNDAI IONIQ MSRP: \$29,500 MPG EQUIVALENT: 136 Electric Range (miles): 124 KBB: \$18,176	HONDA CLARITY MSRP: \$36,620 MPG EQUIVALENT: 114 Electric Range (miles): 89 KBB: \$21,888	TOYOTA PRIUS PRIME MSRP: \$27,300 MPG EQUIVALENT: 133 Electric Range (miles): 25 KBB: \$26,347
2020	SMART EQ FORTWO COUPE MSRP: \$23,900 MPG EQUIVALENT: 108 Electric Range (miles): 58 KBB: \$13,061	NISSAN LEAF MSRP: \$29,990 MPG EQUIVALENT: 112 Electric Range (miles): 150 KBB: \$19,589	CHEVROLET BOLT EV MSRP: \$36,620 MPG EQUIVALENT: 119 Electric Range (miles): 238 KBB: \$20,135	HYUNDAI KONA ELECTRIC MSRP: \$36,950 MPG EQUIVALENT: 120 Electric Range (miles): 258 KBB: \$23,659	
2020	CHEVROLET BOLT EV MSRP: \$36,620 MPG EQUIVALENT: 118 Electric Range (miles): 259 KBB: \$24,097	HYUNDAI IONIQ ELECTRIC MSRP: \$33,045 MPG EQUIVALENT: 133 Electric Range (miles): 170 KBB: \$23,372	NISSAN LEAF MSRP: \$31,600 MPG EQUIVALENT: 111 Electric Range (miles): 149 KBB: \$22,196	MINI COOPER SE HARDTOP 2DR MSRP: \$29,900 MPG EQUIVALENT: 108 Electric Range (miles): 110 KBB: \$28,161	

Scan code to see full list of vehicles !

This document was developed for a project supported by the New York State Energy Research and Development Authority.

From these events, the project team learned:

- Events held where the people have already attended for other reasons, tend to be more successful.
- Display vehicles attract more potential customers.
- Local EV driver volunteers make good ambassadors for peer-to-peer sharing.
- Large events require clear messaging and materials to ensure project and event goals are understood.
- Relevant experts at events lead to strong engagement and positive responses from attendees.

4 Used Car Sales

To prepare for an increase in used EV sales, Energetics and Ridge Road Imports worked closely to address known barriers to adoption. Those barriers include:

- Less inventory at local auctions available for dealerships.
- High upfront vehicle cost for both dealership and consumer.
- Consumer uncertainty around technology, including battery life and availability of chargers.
- The dealership staff's unfamiliar with technology.
- High-risk to consumers in ensuring long-term reliability and potential repair costs.

Energetics developed a Used EV Business Model to outline possible solutions to those barriers.

Solutions included exploring loan and financing options, extended warranty options, and sales and marketing strategies.

Figure 2. Ridge Road Imports Storefront



4.1 Sourcing Inventory

Ridge Road Imports has decades of experience buying used vehicles from various sources and can use their expertise to find the best online or physical auctions to procure vehicles. As with any market, the used-vehicle market is susceptible to changes or disruptions in supply, as was the case during this project period (when new-car inventory was more limited, which placed more demand on used cars). Despite low inventory, Ridge Road Imports was able to source 23 used EVs to sell during the project.

Table 3. Summary of Vehicles Sourced and Sold

Acquisition Date	Year	Make	Model	Sold Date	Days on the lot
5/21/2021	2018	Nissan	Leaf	6/15/2021	25
6/18/2021	2018	Nissan	Leaf	10/27/2021	131
6/18/2021	2017	Chevy	Bolt	11/13/2021	148
6/25/2021	2018	Nissan	Leaf	8/20/2021	56
9/20/2021	2017	Toyota	Prius Prime	10/11/2021	21
10/29/2021	2013	Toyota	Prius Plug-in	11/3/2021	5
11/5/2021	2018	Nissan	Leaf	11/11/2021	6
11/5/2021	2018	Kia	Soul	11/18/2021	13
11/17/2021	2017	Toyota	Prius Prime	12/2/2021	15
11/19/2021	2018	Honda	Clarity PHEV	12/22/2021	33
11/26/2021	2019	Nissan	Leaf	2/26/2022	92
12/27/2021	2018	Toyota	Prius Prime	3/29/2022	92
4/8/2022	2018	Honda	Clarity PHEV	5/16/2022	38
6/25/2022	2020	Toyota	Prius Prime	8/6/2022	42
10/14/2022	2018	Honda	Clarity PHEV	12/22/2022	69
12/1/2022	2016	BMW	i3	12/22/2022	21
1/20/2023	2018	Nissan	Leaf	2/14/2023	25
3/3/2023	2021	Toyota	Prius Prime	4/1/2023	29
3/10/2023	2022	Nissan	Leaf	4/3/2023	24
3/31/2023	2021	Nissan	Leaf	5/17/2023	47
5/12/2023	2017	Toyota	Prius Prime	9/25/2023	136
5/19/2023	2020	Nissan	Leaf	7/6/2023	48
5/19/2023	2021	Nissan	Leaf	8/22/2023	95

4.2 Financing and Extended Warranty Options

While EVs offer reductions in fuel and maintenance costs, the initial price of an EV is currently higher than a similar vehicle with an internal combustion engine (ICE). Some banks and lenders are establishing “clean energy” or “green” loans to help reduce the total cost of ownership on new technology that may have higher upfront costs with lower cost of ownerships than the conventional option. Energetics explored existing options for more favorable used EV loans across the United States and conducted outreach to local lenders. A summary of the example loan programs was developed, Summary of Exemplary Financing Structure and Existing Local Programs, which outlined components of “green” loans. The report also summarized the loan options available in Tompkins County. While there was not a specific clean energy loan, the project team was able to highlight that local lender, Alternatives

Federal Credit Union (AFCU), which offered a loan program that works with people with low to no credit and was willing to refinance every six-months to lower payments as credit improved. Offering an EV specific loan was not possible for AFCU at the time, but Ridge Road Imports uses them as a preferred lender and can offer customers the low or no-credit loan program.

Used car buyers incur some risk on their purchase if the vehicle is outside of the manufacturer’s warranty and this may be especially concerning to customers considering EVs due to the uncertainty and potential high cost of batteries. Aftermarket extended warranties can give owners a sense of security and reassurance when choosing to purchase a vehicle with a significant upfront cost. Providing an extended warranty for used EVs could help assuage customer concerns about battery life and thus encourage sales. The following chart shows that most manufacturers have extended warranties on their battery packs that extend to any owner.²

Table 4. Battery Degradation Warranties

Source: Exner, 2017

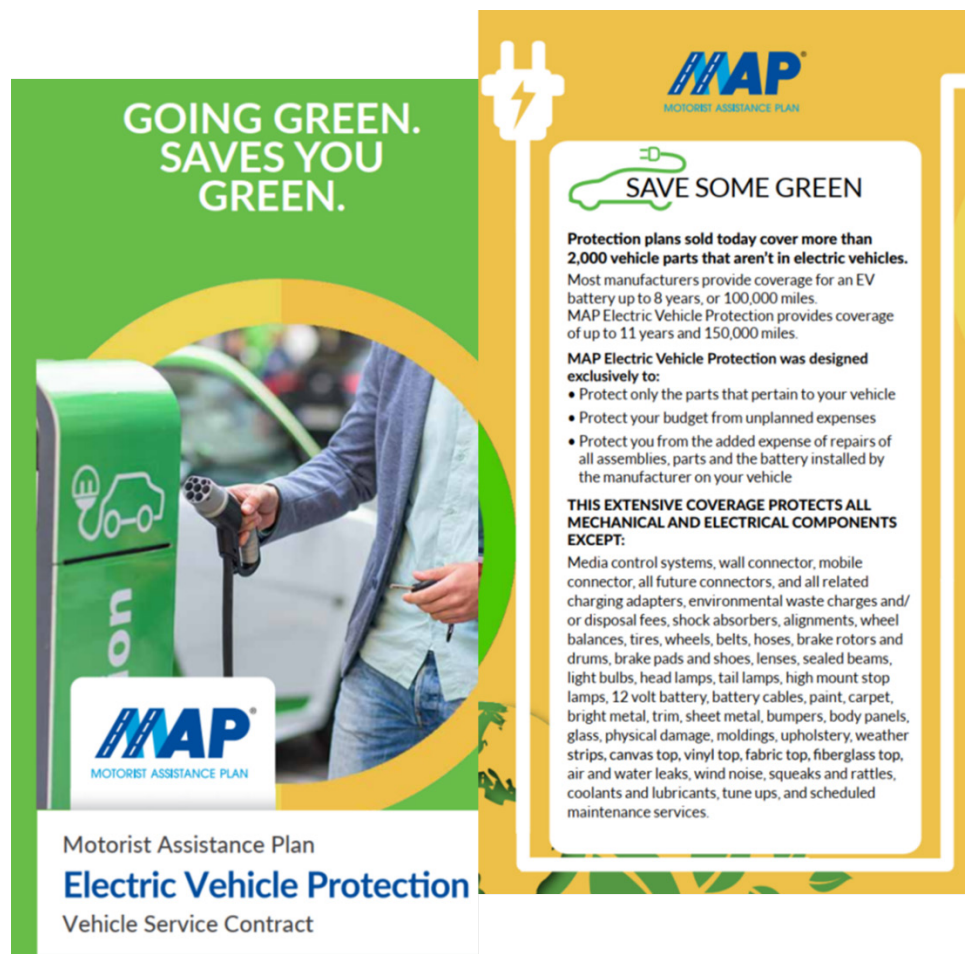
Model	Period	Capacity
BMW i3	8yr/100K miles	70%
Chevrolet Bolt EV	8yr/100K miles	60%
Fiat 500e	<i>None - degradation specifically excluded</i>	
Ford Focus Electric	<i>None - degradation specifically excluded</i>	
Kia Soul EV	10yr/100K miles	70%
Mercedes B250e	8yr/100K miles	70% **
Mitsubishi I-MiEV	<i>None - degradation specifically excluded</i>	
Nissan Leaf (24 kW)	5yr/60K miles	9 bars *
Nissan Leaf (30 kW)	8yr/100K miles	9 bars *
Tesla (all)	<i>None - degradation specifically excluded</i>	
smart fortwo electric	unknown or not specified ***	
Volkswagon e-Golf	8yr/100K miles	70%

² Exner, 2017

To help address customers’ concerns related to battery life, Energetics researched current market options for an extended warranty to adopt. The project team set out to find an extended warranty that would cover EVs and help address concerns customers may have on the battery life and other electric motor systems concerns. The team found just three options to choose from as summarized in the Extended Warranty Options for PVs Summary Report.

Following this research, Ridge Road Imports made an effort to pursue the best option for an extended warranty—EFG Companies’ MAP Electric Vehicle Protection. The MAP Electric Vehicle extended warranty offered coverage for a vehicle battery beyond the original equipment manufacturer (OEM) warranty and covers components only specific to EVs (rather than parts or systems only found in internal combustion engines (ICE) vehicles). Ultimately Ridge Road Imports did not enter a contract with EFG due to lack of communication from the warranty company. It should be noted that extended warranty providers may not find it advantageous to work with smaller sized dealerships.

Figure 3. EFG Motorist Assistance Plan Electric Vehicle Warranty Flyer



4.3 Sales and Marketing Strategies

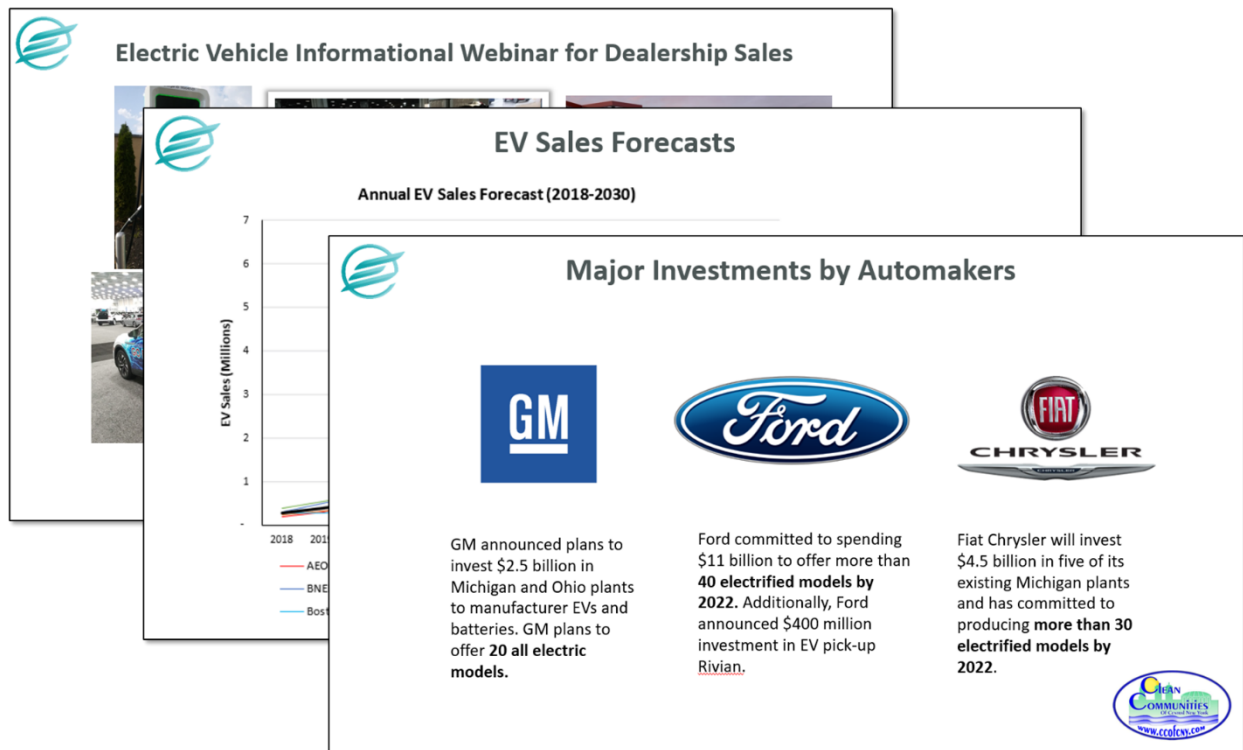
Hesitancy from customers to purchase an EV is a common barrier that dealerships face.

Addressing concerns around battery life, range anxiety, electricity prices, and charging availability are all important messages that the Ridge Road Imports sales team must be prepared to answer. The project team developed the Used EV Marketing Plan, which outlined strategies for Ridge Road Imports and other dealerships to use to increase used EV sales.

4.3.1 Dealership Training

Energetics helped identify training options for both dealership sales staff and technicians. For sales staff, Energetics and project partner Clean Communities of Central New York (CCCNY) collaborated to develop a training for sales staff that would provide education on EV technology and strategies for communicating with customers about EV technology. The training was provided to Ridge Road Imports and other area dealerships as a free webinar. The webinar was recorded and sent to local dealerships, along with a written guide to the webinar.

Figure 4. Example Slides from EV Sales Training for Dealerships



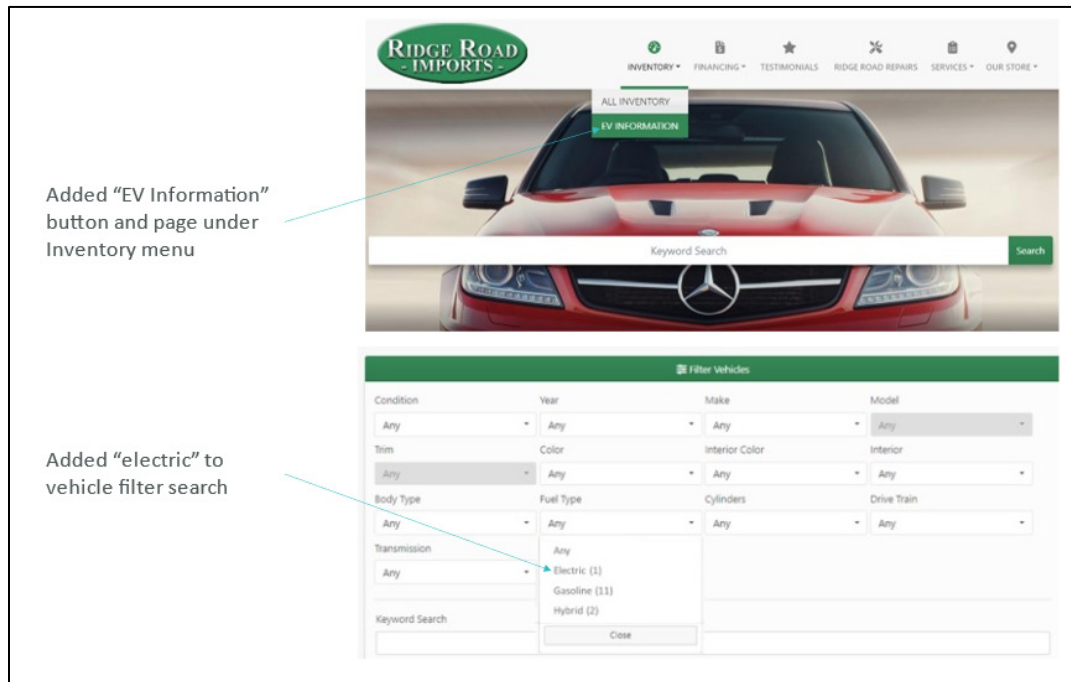
The project team also researched options for Ridge Road Imports technicians. Through this research, the Automotive Career Development Center (ACDC) was identified as the best option. ACDC's training was available as pre-recorded webinars, which were cost-effective and could be completed during a technician's downtime. Especially for smaller dealerships, it can be difficult to send a technician to an in-person training, which could leave the dealership understaffed. Additionally, it is not always feasible for a dealership or service shop to pay for the training or a technician's time while being trained, so the technician might lose wages while at the training, which can be discouraging.

4.3.2 Website Updates

A major focus of the marketing plan and related efforts were updates to Ridge Road Imports' website. Potential customers and people considering purchasing an EV will browse local dealership websites before going in-person. This consumer behavior presents an opportunity for Ridge Road Imports and other dealerships to capture customers and establish themselves as a resource for current and future EV drivers. This included the addition of an "EV Information" page with basic information on owning and maintaining EVs and allowing interested buyers to search specifically for EVs available in the dealership's inventory. In addition, the updated website connected to Alternative Fuels Data Center's interactive charging station map so potential buyers could see the availability of charging and allowed potential customers to indicate an interest in a specific model. Below is a list of the recommended changes to Ridge Road Imports' website.

- Add an "EV Information" button.
- EV Information Page with "EV 101" material.
- Online form to request EVs on website.
- Add special banner to photos to highlight EVs in stock.
- Add "Plug-in EV" filter to vehicle search.

Figure 5. Ridge Road Imports Website Home Page, Changes Highlighted



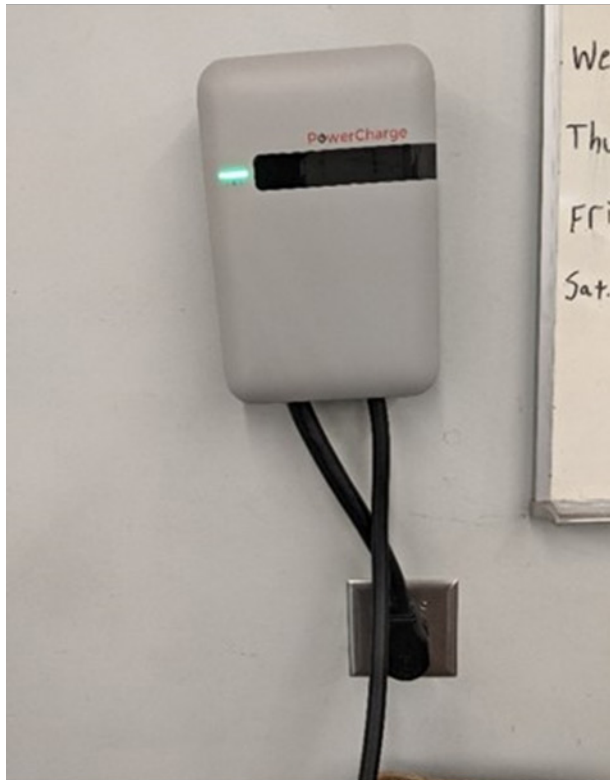
4.3.3 On-Site Dealership Information

Like online information found on a dealership's website, on-site information is beneficial both for those customers already interested in purchasing an EV and those who have not considered it as an option. Energetics worked with Ridge Road Imports to create a display of information that customers could engage with when visiting their dealerships. Materials included:

- U.S. DOE "At a Glance: Electric Vehicles."
- U.S. DOE "Electric Vehicles for Consumers."
- U.S. DOE "Plug-In Electric Vehicle Handbook."
- NYSERDA "Charge Ready NY Publications."
- Information from local transportation advocacy organizations (Way2Go Tompkins County, Cornell Cooperative Extension Tompkins County, etc.).

Ridge Road Imports also installed an EV Charging Station at their dealership that is used to charge vehicles for sale but also as an example of at-home charging. The station is in a visible spot in the service garage, and Ridge Road Imports has noted it has become a useful tool to demonstrate how to use an EV.

Figure 6. Ridge Road Imports EV Charging Station and Example Education Flyers



Electric Vehicles in New York

New York State is accelerating EV adoption by awareness and creating an EV-friendly environment. This is a critical first step in moving transportation electrification beyond a niche product and into a dominant and ubiquitous technology.

Ridge Road Imports is proud to serve the Tri-State area as your one-stop-shop for EVs. Ask one of our experts about our current inventory of EVs, and see why they're the perfect choice for you.

EVs are easy
 EV drivers save time by avoiding trips to the gas station with convenient home vehicle charging overnight.

EVs are for everyone
 EVs require less maintenance, such as fewer oil changes and reduced brake wear.

EVs are affordable
 EV technology variants (plug-in hybrid and all-electric) provide viable options for all driving needs.

EVs are easy
 New York State has over 2,700 public charging stations available to enable long distance travel.

EVs are affordable
 EV drivers save time by avoiding trips to the gas station with convenient home vehicle charging.

EVs are for everyone
 EVs require less maintenance, such as fewer oil changes and reduced brake wear.

EVs are affordable
 Increasing models of plug-in hybrid and all-electric vehicles provide an option for most driving needs.

EVs are for everyone
 New York State has over 900 public charging stations available to enable long distance travel.

EVs are affordable
 EVs are eligible for a Federal tax credit up to \$7,500 plus a New York State rebate up to \$2,000.

EVs are for everyone
 Electricity costs to drive electric are about 1/3rd of a combustion engine using gasoline.

RIDGE ROAD IMPORTS
 The place for EVs

5 EV Access through Carshare

5.1 Carshare Preparation

To increase exposure and use of EVs to Ithaca area residents that do not own vehicles, Carshare purchased two new 2021 Chevy Bolt vehicles and secured two host site locations for them. Details on the Chevy Bolts purchased are below:

- “Amp”—2021 Blue Chevy Bolt
- “Joule”—2021 White Chevy Bolt

When considering “home base” locations for Amp and Joule, Carshare looked for areas in Ithaca that would be convenient hosts and serve the Ithaca LMI population. The first selected location, 210 Hancock Street Apartments, is operated by Ithaca Neighborhood Housing and is a mixed income rental and for-purchase apartment complex. The rental apartments are available to households earning 30% of the Area Median Income (\$24,600 for a family of four), up to 100% of AMI (\$75,600 for a family of four). The seven for-sale townhomes are restricted for purchase by moderate-income households earning no more than 80% of AMI, or \$60,500 for a family of four. The second selected location, “West State/MLK Jr. at Corn,” is near Diane’s Automotive, located downtown and home to an existing direct current fast charger (DCFC). Unfortunately, the DCFC located at Diane’s Automotive broke and did not operate during the project despite efforts made by the project team to troubleshoot the station and replace it. Carshare continued to operate the second EV near Diane’s because of its ideal downtown location. Carshare staff switched vehicles between the 210 Hancock Street Apartments location (where there was a charging station) and Diane’s to manage charging. This solution wasn’t ideal, but Carshare was able to make it work for their small fleet of EVs.

Figure 7. Ithaca Carshare EVs ("Amp" and "Joule")



5.2 Operations

The EVs in Carshare’s fleet were booked through their online booking tool just as any other vehicle in the Carshare fleet. When selecting one of the EV home-base locations, the booking tool notifies the member that they are booking an all-electric vehicle. Additionally, the search tool allows members to search for EVs to book for their reservation.

Figure 8. Ithaca Carshare Booking Tool

New Bookings

Pick up at:

Return by:

My Favorite Locations
 Search All Cars
 What's up at...?

Select location from list:

Or type an address:

Or choose a car location:

[search](#)

Vehicle Types: [chevrolet](#)
[bolt ev](#)

Required Features: [\(select\)](#)

[clear all filters](#)

2 vehicles matched your search criteria.

← →

	Thursday July 1, 2021																											
	12a	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p	12a	1a		
	Ithaca - Downtown and Southside																											
★ West State/MLK Jr. at Corn Amp, a Chevrolet Bolt EV																												
	Ithaca - Fall Creek and Northside																											
★ Adams at 1st Joule, a Chevrolet Bolt EV																												

← →

After picking up a reserved EV for the first time, Carshare provides members with educational materials to help drivers that were inexperienced with EVs to understand operation and how to charge.

Ithaca Carshare also has a portion of members that sign up as “Easy Access Members,” which is an income qualifying membership of income up to 150% of U.S. Federal Poverty Guideline to qualify. See more at the following address: <https://www.ithacacarshare.org/easy-access/>

5.3 EV Usage and Driver Feedback

Through the project, Carshare tracked booking data for each selected location. Carshare saw no significant trend in bookings for the EVs, and most months booking for EVs were on trend with the rest of the fleet.

Ithaca Carshare and Energetics worked together to develop a survey for Carshare members to provide feedback on the Carshare EVs. The survey included questions on why a member choose to book (or not book) a plug-in EV, and their experience using one. This survey was only sent to members that used an EV, and Carshare offered a chance to win a \$25 driving credit for completing the survey. It should be noted that this survey was sent to any member that booked an EV, which includes EVs not located at the home-base locations selected for this project.

Overall, the feedback from carshare members was very positive and most members enjoyed driving the EVs. Although there was an instruction manual in each Carshare EV, there were still several members that felt they needed more information on how to use the vehicles successfully. Carshare companies rolling out EVs in their fleet might want to consider prompting members to participate in or read through an orientation on EV technology and how to charge.

Consistent with the rest of the carshare fleet, most of the EVs were used for around-town driving, and whether a member booked a battery electric vehicle (BEV) or plug-in hybrid electric vehicle (PHEV) (previously incorporated into the Carshare fleet) did not seem to impact the driving distance. Most members indicated that they booked an EV out of sheer convenience.

Lack of knowledge around charging and range anxiety was the most common concern among drivers, citing that the EV range and charging the vehicle was a reason they may avoid booking an EV in the future.

5.4 Outreach and Events

Carshare supported outreach and education events to promote the new EVs in their fleet and support project goals, hosting two open house events and supporting other outreach that CCETC facilitated. The open house events were located at the 1st and Adams Street vehicle location, engaging residents as they walked by the event going to and from their apartments.

Figure 9. Ithaca Carshare Employee Charging Up at 1st and Adams Street Vehicle Location



6 Conclusion

New York State has aggressive goals for reducing greenhouse gas emissions in the transportation sector in the coming years and decades. To meet these goals, it will be necessary to transition a large portion of light-duty vehicles to cleaner alternatives in the form of hybrid, plug-in hybrid, and fully electric vehicles. This will require more than just new car sales to increase the number of plug-in hybrid and fully electric used cars on the roads in New York State.

With this context in mind, this project sought to increase sales of and familiarity with used EVs in Tompkins County, particularly among low- and moderate-income residents. This was done by first taking steps to understand the barriers that currently limit their adoption; then developing targeted solutions and approaches to address those barriers that included various outreach activities to increase knowledge and awareness and working with local dealership Ridge Road Imports to stock and market used EVs.

Many aspects of the project were successful. CCETC hosted several classes for first-time car buyers, or those who have not purchased a vehicle recently that was very well attended. Many other outreach events, especially those featuring various EV models for community members to see up close, were well attended and community members indicated that they learned a lot about EVs and their potential to meet their own transportation needs. Through this project, Ithaca Carshare was able to add two EVs to their fleet, further increasing the number of community members familiar with driving EVs. Ridge Road Imports made impactful improvements to their website that showcase their available EVs and provide useful information to potential EV buyers.

However, other areas, specifically those having to do with financing or warranties for LMI EV buyers were less successful. Energetics researched and explored the potential for Ridge Road Imports to offer special financing options to LMI customers seeking to purchase a used EV and connected them with a local financial institution, Alternatives Federal Credit Union. AFCU does offer low-interest auto loans for LMI customers and those with low credit scores that can be refinanced every six months but were not able to offer anything specific for EVs. Similarly, Energetics researched extended warranties that Ridge Road Imports could offer customers to assuage concerns specifically related to EV battery degradation. While this is something that is offered by larger used dealerships, it wasn't a feasible option for a small dealership like Ridge Road Imports.

6.1 Lessons Learned—Outreach

Projects like this, with a central goal of educating and building awareness in a community, require a commitment to comprehensive and up-to-date information. In the first half of this project, the team developed several pamphlets and information sheets to share with the community, including one that summarized the current prices for popular EVs. However, the information changed so rapidly that it quickly became outdated. For future projects, it would be best to create simple websites that could be accessed via a QR code at events so that information can be updated frequently and remain relevant for community members.

6.2 Lessons Learned—Used Car Sales

While the project team explored options both for extended warranties and alternative financing options for those purchasing an EV, neither was feasible during the project period. Companies that offer extended warranties were unmotivated to work with small dealerships. One potential avenue to overcome this barrier would be having multiple small dealerships work together to secure extended warranties for their customers. Similarly, Energetics did connect with a financial institution that provided loans to LMI buyers but were unable to develop an EV-specific loan program. The federal EV tax credit, however, now extends to used vehicles, making these vehicles more financially feasible for potential buyers.

Having mechanics on staff who are trained to service EVs is a valuable marketing tool for used dealerships, but it can hinder their business operations to send a technician to an in-person training. For this reason, the online training was an excellent option for Ridge Road Imports and could be replicated by other small dealerships easily.

Appendix A. Marketing Campaign Plan for Used EV Sales

Facilitating EV Adoption Among Used Car Buyers and LMI Community Members in Tompkins County

Marketing Campaign Plan for Used EV Sales



Prepared for:

New York State Energy Research
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Energetics
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1 Introduction

Energetics and Tompkins County used car dealership and Ridge Road Imports (Ridge Road) partnered to identify and implement strategies to market used electric vehicles (EVs). Example strategies and lessons learned through implementing these strategies were compiled into this marketing plan. The resulting plan is intended to provide Ridge Road Imports and other used car dealerships with recommended marketing strategies to increase their sales of EVs over the course of this project and beyond. While these methods and plans were designed specifically for Ridge Road Imports, these strategies could be implemented by other interested dealerships as well.

The Marketing Campaign Plan focuses on four areas in which we believe a concentrated marketing effort will have the biggest impact on Ride Road's EV sales. This includes:

1. Website updates
2. In-dealership information
3. Print advertising
4. Radio advertising

Below are detailed marketing plans for each of the areas listed above.

2 Ridge Road Proposed Website Changes

Potential customers and people considering purchasing an EV will browse local dealership websites before going into the storefront to purchase. This consumer behavior presents an opportunity for Ridge Road and other dealerships to capture customers and establish themselves as a resource for current and future EV drivers.

The recommended changes to the Ridge Road website are intended to highlight the dealership's EV inventory and the knowledge of the staff/salespeople and mechanics regarding electric vehicles. For potential buyers who are specifically interested in purchasing an EV, these updates will provide them with quick access to information regarding the dealership's current offerings; for those who have not considered an EV, it may demonstrate that an EV is a viable option for their transportation needs.

Energetics worked closely with Ridge Road to implement the proposed changes below. After requesting suggested changes, it was found there are some limitations in the website design and host that did not allow for all changes to be made. It is recommended that other dealerships attempt to make all changes suggested below.

Home Page Recommendations

Add "EV Information" Button

To help highlight EV specific information, it is recommended that Ridge Road add a button to the website page header that directs customers to information on EVs and EV charging. This EV information page would also direct customers to the current EV inventory that Ridge Road has in stock.



EV Information Page with “EV 101” material

Dealerships that want to establish themselves as a resource to the local community around EVs should consider a page on their website that reviews information on EV and EV charging technology. Providing information on their website can help to educate potential customers, show their commitment to staying informed on the latest technology, and keeping EVs in stock. Suggested text for this page can be found in section 2.2.

Online form to request EVs on website

Some car buyers will seek out specific make and models to purchase. This can be especially true for used-EV buyers, who usually research vehicle options before visiting dealerships. It is recommended that Ridge Road add a form to request a vehicle. This can help Ridge Road collect data on what consumers are looking for, and hopefully generate sales if the dealership is able to source the vehicle requested.

Add special banner to photos to highlight EVs in stock

Some car buyers may visit a dealership website without the intention of seeking out a plug-in electric vehicle and may not realize at first glance that a vehicle listed on a dealership website is plug-in electric. To help call attention to the EVs in stock, it is recommended that Ridge Road add a banner to images for PEV listings. Using a phrase to highlight the fuel savings of the vehicle may also be beneficial in catching the attention of car buyers that were not originally considering a PEV.

Add “Plug-in EV” filter to vehicle search

For customers that are looking for a PEV, it can be useful to include a filter in the inventory search that can filter by fuel type. Some dealerships include conventional hybrid vehicles (not plug-in) in the “electric” fuel type category—this can be especially confusing if a vehicle manufacturer has models by the same name offered as a hybrid OR plug-in hybrid (e.g.: Hyundai Tucson Hybrid and the Hyundai Tucson Plug-in Hybrid). For this reason, it is recommended that Ridge Road add a filter for electric fuel and include only plug-in electric vehicle models in that filter.



Final Website Changes

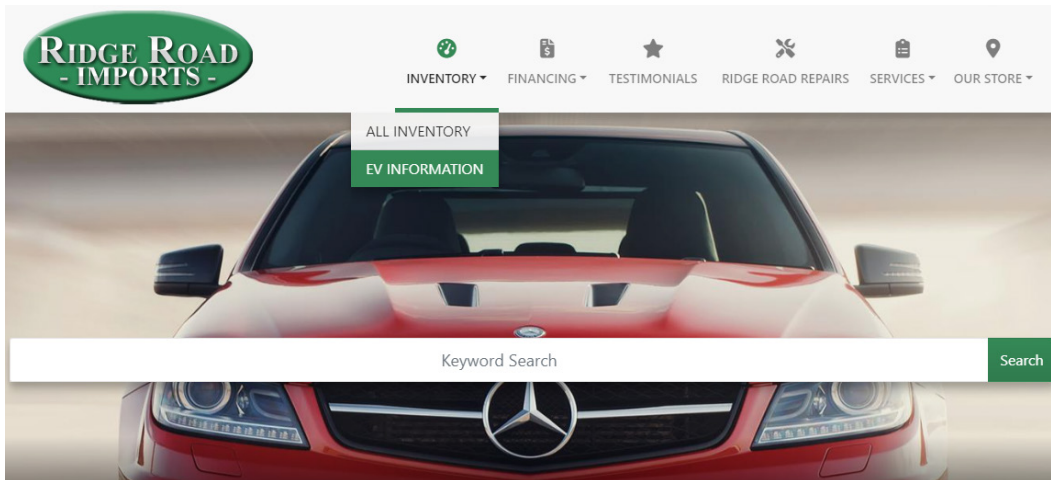


Figure 1 Dealership Homepage with added "EV Information" menu option

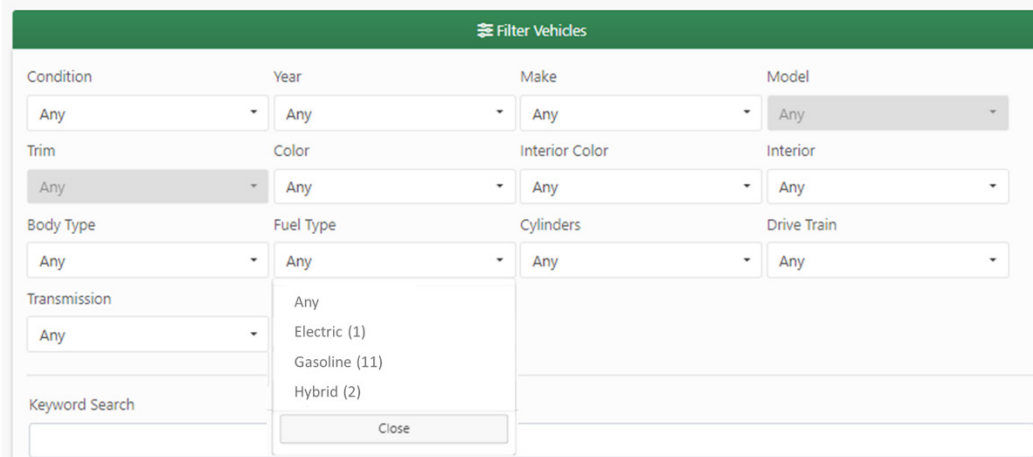


Figure 2. Vehicle Inventory Search with "Electric" search filter



Figure 3. Interactive Map of EV Charging Stations (AFDC) included on "EV Information Page"

Do you have an electric vehicle that you'd like to see at Ridge Road Imports? Request it below and our staff will notify you if we are able to find it for you!

First Name:

Last Name:

Email: *

Mobile Phone:

Home Phone:

Year:

Make:

Model:

ACKNOWLEDGMENT AND CONSENT:
 I hereby consent to receive text messages or phone calls from or on behalf of the dealer or their employees to the mobile phone number I provided above. By opting in, I understand that message and data rates may apply. This acknowledgement constitutes my written consent to receive text messages to my cell phone and phone calls, including communications sent using an auto-dialer or pre-recorded message. You may withdraw your consent at any time by texting "STOP".

Figure 4. Vehicle Request form for customers to request specific vehicles



EV Page Text

The recommended text below was added to the Ridge Road website to the new “[EV Information](#)” page. The page acts as a resource for customers interested in learning more about EVs. The website host software had limitations on text size, formatting, and could not include automatically updated list of EV inventory. The formatting of the text below differs slightly than what is found on the website today.

We sell and repair EVs!

Ridge Road Repair can service your EV, visit ridgeroadrepairs.com for more information.

Curious about electric vehicles? Ridge Road Imports has experienced and knowledgeable staff that can help answer your questions about electric vehicles. We try our best to keep plug-in electric vehicles stocked on our lot, and encourage anyone curious to come down for a test drive! With a quick pick-up and sharp control, electric vehicles offer a fun driving experience. When it comes to electric vehicles, to try it is to buy it!

Current EV Inventory

We are routinely bringing in more plug-in vehicles to our lot. Check out our current listings below!



Benefits of driving electric

There are many benefits to adopting an electric vehicle. They offer better efficiency than

Text continued next page.



- **Increased Efficiency and Lower Cost of Ownership**

Electric vehicles run at 90% efficiency, which is about three times more efficient than an internal combustion engine using gasoline. Further, the electricity used to power your vehicle is less expensive per mile driven than gasoline – adding up to significant savings! Consumer reports found that a typical driver will save between \$800 - \$1000 per year on fueling costs! In addition to fuel savings, the electric drive train has fewer moving parts than an internal combustion engine, which means less trips to the mechanic, and an estimated \$4,600 saved over the lifetime of the vehicle.

- **Less Emissions**

*Both all electric and plug-in hybrid electric vehicles have significantly less tailpipe and life-time emissions. All electric vehicles have **zero** tailpipe emissions, and so do plug-in hybrids when in all-electric mode! While the life-time emissions of a plug-in vehicle depend on the electric grid used to charge your vehicle, it has been that electric vehicles are cleaner to drive in all 50 U.S. states².*

- **Freedom and Convenience**

Using electricity to power your car reduces our dependency on foreign oil. Electricity is generated in the U.S., usually with cleaner sources than gasoline powers electric vehicles. In New York State, we have one of the cleanest grids with hydro and local renewable sources! By choosing electricity over gas, you can support cleaner domestic energy sources. Another benefit of driving electric? You can plug into any wall outlet! That means you can charge your car at home, or anywhere you have access to plug. All of our vehicles come with a standard SAE J1772 portable plug. More information on charging is below!

About EV Charging

One of the biggest concerns people have around adopting an electric vehicle is that there is no where to charge their vehicle! We are here to show you that isn't true!

- **EV Charging Basics**

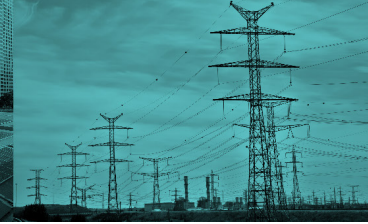
There are three levels of charging stations that you will find publicly. Each level offers a different level of power and will charge your vehicle at different rates. Level 1 and Level 2 charging deliver AC power to your vehicle, where it is converted to DC power on board

Text continued next page.



- **AC LEVEL 1**
 - *Best for 6 hour+ or overnight charging*
 - *Requires 120 volt supply at 12–16 amps*
 - *Alternating Current (AC) provided at 1.4–1.9 kW*
 - *Minimal peak load/demand charge impacts*
 - *Station hardware \$500–\$1,000 per port*
- **AC LEVEL 2**
 - *Best for 2–6 hour dwell times*
 - *Requires 208/240V supply at 20–80 amps*
 - *AC provided at 3.3–19.2 kW (6.6 kW most common)*
 - *Minimal peak/load demand charge*
 - *Station hardware \$600–\$5,000 per port*
- **DC FAST CHARGE**
 - *30-minute fast charging for high turnover contexts*
 - *Requires 3-phase 480 volt supply at 80–200 Amps*
 - *Direct Current (DC) provided at 40–100 kW*
 - *Station hardware \$7,000–\$50,000 per port*
- **EV Charging Availability**

New York and other states are committed to increasing charging infrastructure to it's drivers. In New York, there are over 7,000 charging ports. In Tompkins County, there are over 85 ports available³. Many stations offer free electricity, while others charge a nominal fee. Fees for charging your vehicle vary from station to station. There are several online maps where interested drivers can find stations near them. We recommend checking the Alternative Fuels Data Center map, embedded below.



On-site Dealership Information

As with updates to the website, on-site information is beneficial both for those customers already interested in purchasing an EV and those who have not considered it as an option. Educational materials should be kept on-site and on display for customers located in areas that visitors frequent like on the sales floor or near the front desk. Materials could include original documents that the dealership develops, or use existing materials like the ones listed below:

- U.S. DOE “[At a Glance: Electric Vehicles](#)”
- U.S. DOE “[Electric Vehicles for Consumers](#)”
- U.S. DOE “[Plug-In Electric Vehicle Handbook](#)”
- [NYSERDA Charge Ready NY Publications](#)
- Information from local transportation advocacy organizations (Way2Go Tompkins County, Cornell Cooperative Extension Tompkins County, etc.)

If a dealership has a charging station on site like Ridge Road Imports, it is recommended that the station is located in a visible spot at the dealership so visitors will notice it. If possible, consider locating a stand or table nearby with information on EV and EV charging to encourage engagement with this technology.

Energetics provided Ridge Road a display stand with printed materials to have on display in their lobby/waiting area. The team also created some mock designs for Ridge Road that could be printed and left on display.

Electric Vehicles in New York

New York State is accelerating EV adoption by generating technology awareness and creating an EV-friendly environment. This provides a critical first step in moving transportation electrification beyond a niche product and into a dominant and ubiquitous technology.

Ridge Road Imports is proud to serve the Tompkins County as your **one-stop-shop for EVs**. Ask one of our experts about our current inventory of EVs, and see how we can help you get started.

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EV drivers save time by avoiding trips to the gas station with convenient home vehicle charging

EVs are for everyone
EV technology variants (plug-in hybrid and all-electric) provide a variety of EV models to choose from provide viable options for most driving needs

EVs are easy
New York State has over 2,700 public charging stations available to enable long distance travel

EVs are affordable
Electricity costs to drive electric are about 1/3rd of a combustion engine using gasoline

RIDGE ROAD - IMPORTS -
The place for EVs

Electric Vehicles in New York

New York State is accelerating EV adoption by generating technology awareness and creating an EV-friendly environment. This provides a critical first step in moving transportation electrification beyond a niche product and into a dominant and ubiquitous technology.

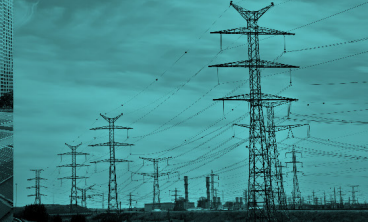
EVs are easy
EV drivers save time by avoiding trips to the gas station with convenient home vehicle charging

EVs are for everyone
Increasing models of plug-in hybrid and all-electric vehicles provide an option for most driving needs

EVs are affordable
EVs are eligible for a Federal tax credit up to \$7,500 plus a New York State rebate up to \$2,000

Electricity costs to drive electric are about 1/3rd of a combustion engine using gasoline

Figure 4. Sample Flyer (left) and Rack Card (right) for provided to Ridge Road to print and display



Dealership Staff

Sales Team

When visiting a dealership, it is important that customers inquiring about EVs can have their questions answered by dealership staff that have been trained and educate on EV technology. It is ideal if all dealership staff are trained for EV sales, but if that is not possible at least one full-time salesperson should be the point person for all EV customers. Other salespeople should have a basic working knowledge of EVs but do not need to have the same level of expertise.

It is recommended that dealership staff participate in a training on EV sales. Some resources that dealerships can make use of include:

- Sacramento Electric Vehicle Association [Electric Vehicle Consumer & Dealer Educational Videos](#)
- PlugIn America's "[PlugStar](#)" dealership training
- [The Automotive Training Academy](#) from Assurant

Dealerships should also explore local transportation advocacy organizations for other educational resources. Ridge Road Imports should explore resources from Way2Go Tompkins County, Cornell Cooperative Extension Tompkins County, Get Your Green Back Tompkins, and other organizations.

Energetics and Clean Communities of Central New York developed a dealership sales staff and presented live as a webinar for dealerships in Tompkins County. A recording of the live presentation was sent to all dealerships in the county, along with a guide on where to find specific training information in the recording (by time stamp).

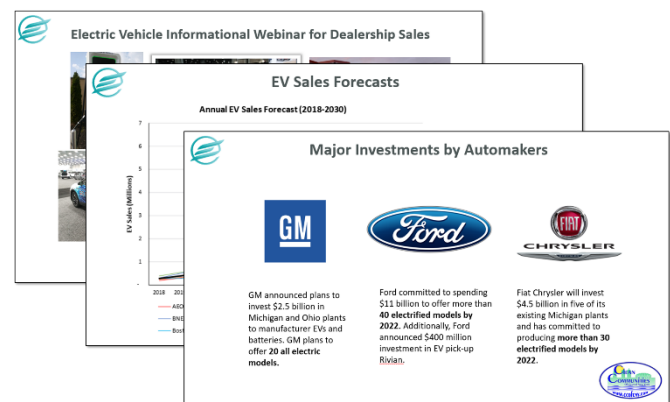
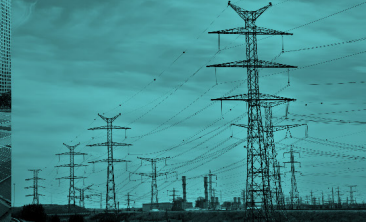


Figure 5. Slides from Dealership Sales Training

Service and Repairs

Dealerships that sell EVs should employ and/or train technicians to service EVs. Having trained technicians on staff will help to both attract and retain customers as more people switch to driving EVs. Furthermore, an EV-trained mechanic should be scheduled during times when the dealership has the highest customer volume and should be available to talk to customers about the maintenance of the vehicle they are considering as requested.

Providing PEV service and repairs is an opportunity to further promote a mechanic shop or dealership, as it will help shops stand out from other businesses that may not yet provide that service. It is recommended that this service for EVs be advertised on the dealership's website and in print materials.



Other Marketing Efforts

Businesses need to be creative and flexible when marketing their service. Some methods of advertising/marketing will work better than others, and dealerships should consider what has worked best in the past and if there is opportunity for other ways to market their offerings.

Print and Radio Advertisements

Local newspapers are an effective way to draw in new business and ensure potential customers are aware of the dealership's EV offerings. Print advertising should mimic the information developed for the website and highlight available EVs along with their other vehicles. To further establish that Ridge Road is a resource for EVs, marketing for Ridge Road should include a tagline or phrase related to EVs and be included in all marketing (newspaper ads, business cards, brochures, etc.).

Energetics recommends considering radio advertising as an additional avenue to reach potential customers. Again, while the advertisement will broadly encourage customers to visit the dealership, advertising Ridge Road as the place in the region to go for used EVs will be helpful in establishing their brand as a local PEV resource.

Social Media Marketing

Social Media continues to be a useful tool in reaching local community members. Dealerships like Ridge Road should explore online forums for reaching local community members. Social media platforms like Facebook, Instagram, and Twitter can provide opportunities for both advertisements and to build a following of local community members to routinely engage with.

It can take time to build a social media following and can require frequent and regular posts to attract new followers and keep up engagement. Before the project start, Ridge Road has been using Facebook to advertise new vehicles in stock and share industry news. It is recommended that the dealership continue to use the existing Facebook page to advertise new vehicles in stock and other activity (events, news, etc.). To help increase the total number of community members following Ridge Road on Facebook, it is recommended that Ridge Road encourage visitors to the dealership, existing, or potential customers "like and follow" their Facebook page. Providing an incentive to engage with the Facebook page could help increase its following, for example, "Like and follow us on Facebook to be the first to hear about new vehicles in stock!".

Participate in Local Events

Another method to set a dealership apart and establish itself as a resource for sourcing EVs is to participate in local events. Participating in events gives customers a chance to engage with a dealership in a low-pressure environment outside of a dealership sales floor. Repeated exposure to a dealership name at events, especially PEV specific events, will also help build the brand of a dealership that is establishing itself as a local resource for EVs.



It is recommended that Ridge Road pursue opportunities to participate in local events to help promote their EVs in stock. Local festivals and fairs are a great way to participate in events that already have a large audience and can result in high exposure. Even better would be to seek out energy or sustainability focused events that have an audience interested in sustainable energy technology. Additionally, dealerships should plan to participate in local Drive Electric Week events, which often have community members attend that are interested in purchasing a PEV.

During the project timeline, Ridge Road did not participate in local events due to having inconsistent EV inventory. Through the project, Ridge Road was able to form a relationship with Cornell Cooperative Extension which may lead to partnering in the future when EVs are a larger and more consistent portion of their inventory. Although outreach events were not possible for Ridge Road, they did participate in the “Tune Me Up! Used Car Buying Class” series, hosted by Cornell Cooperative Extension Tompkins County, where a technician from Ridge Road provided information and hands-on instruction of how to inspect a used car before purchasing. The technician that participated in the event was also trained on EV service and repair and was able to give information on buying a used EV.

Partner with Local Lender

Purchasing a vehicle can be a significant investment for many and car-buyers may seek out dealerships that offer special financing. Dealerships should pursue partnerships with local lenders that may be able to offer competitive financing options to help stand out from other dealerships. As a dealership that is routinely sourcing EVs, Ridge Road should explore working with a lender that is able to provide special deals for PEV purchases. Like other partnership opportunities, Ridge Road can leverage partnering with lenders that have their own marketing efforts that can also promote the dealerships offerings and lending program partnership.

Energetics worked to connect with local lenders to establish an EV-specific financing option that would benefit LMI community members. This outreach resulted in connecting with Alternatives Federal Credit Union (AFCU) and meeting with them about the potential for implementing an EV specific loan for LMI customers. The credit union was not able to establish a new loan program at the time of outreach, but AFCU has existing loan programs that make financing vehicles easier for LMI community members. Their loan programs work with most credit scores, provide refinancing options to community members with high-interest, predatory loans, and offer re-financing every six months as customers improve their credit score over time. AFCU is a lender that Ridge Road works with and customers can finance vehicle purchases with them.

Appendix B. Local Financing Options Summary Report



Local Financing Options–Summary

Report Part 2

Through the initial research of example loan programs, it was identified that an ideal program in Tompkins County would focus on used vehicle purchase and would work with customers with low credit scores. If a lender can provide a discounted interest rate for these purchases, it would help customers and provide a marketing opportunity for the lender, showing their commitment to support the environment and community members. Adopting this new loan rate may also give the lender a competitive advantage for offering a better rate than others. The project team reached out to local credit unions in Tompkins County to engage with them on starting a potential EV specific auto loan program.

Alternatives Federal Credit Union

The project team reached out to local credit unions in Tompkins County to engage with them on starting a potential EV specific auto loan program. After initial outreach, Alternatives Federal Credit Union (AFCU) became interested in partnering on this effort. After some discussion, AFCU shared they had previously offered a discounted interest rate for EV purchases in a previous program but no longer offered it because of low enrollment. Below is a summary of the typical interest rates AFCU offers on used vehicles.

Used 2014 to New 2021 Models	Credit Score	0-36 Months	37-48 Months	49-60 Months	61-72 Months
	740 and above	2.99%	3.74%	3.99%	4.24%
	680-739	3.49%	4.24%	4.49%	4.74%
	640-679	4.49%	5.24%	5.49%	5.74%
	600-639	6.99%	7.74%	7.99%	8.24%
	550-599	9.99%	10.24%	10.49%	10.74%
	549 and Below	14.99%	15.24%	15.49%	N/A



No credit financing

More useful to the project, was the no-credit financing option that AFCU is working to roll out. As a CDFI (Community Development Financial Institutions), AFCU works to expand economic opportunity in low-middle income communities by providing vital financial services. The program does not use credit score to decide interest rates, which in many cases can create more affordable payments for community members with poor credit. The lender also employs certified financial counselors, which can work with members of the community on improving their credit scores. The lender also offers 6-month refinancing to help continually bring down payment amounts.



With Energetics, AFCU developed language that has been approved to be included in future outreach materials:

*“As the only CDFI Credit Union in Tompkins County, AFCU’S purpose is to make financial products and services affordable and accessible for marginalized and underserved people and businesses in the communities we serve. **

We will not approve or deny a loan based on your credit score

Credit scores are inherently biased against BIPOC borrowers due to a history of economic racism. AFCU loan officers are also financial counselors. We focus on your whole picture, not your past. AFCU’S goal is to help you figure out how to move forward.

If you have had credit issues in the past, want to refinance a high-interest or predatory loan, or simply want to support economic justice....apply today.

We appreciate all of you!

All loans subject to approval.

**Service area includes the counties of Chemung, Steuben, Schuyler, Seneca, Cayuga, Cortland, Tioga and Tompkins”*

Using the approved language, Energetics will work with project partners to promote the loan program as needed. Some language will be included in marketing materials for Ridge Road, including paper materials and on their website. Ridge Road will also explore adding AFCU as an advertised lender that customers can work with.

Appendix C. Extended Warranty Options Summary



Extended Warranty Options for PEVs Summary Report

The Project team worked with Ridge Road to research and identify market options for an extended warranty to adopt. The project team set out to find an extended warranty that would cover PEVs and help address concerns customers may have on the battery life and other electric motor systems concerns. The team found just three options to choose from (summarized below) that offered coverage specific to EVs.

After reaching out to all three, EFG Companies “Map EV Protection Plan” was chosen as the best option to work with. The EFG option offered the best coverage for vehicles and allowed for customization on the contract with Ridge Road. The team connected Ridge Road and representatives of EFG to discuss the warranty options available. After considering, Ridge Road has decided to terminate the third-party warranty they currently offer for ICE vehicles and begin offering warranties for both PEVs and ICE vehicles through EFG. The two companies are in the process of creating a contract.

Summary of Extended Warranties for EVs

- [Assurant EV One](#)
 - o Assurant EV One Protection is a service contract created specifically for electric and hybrid vehicles. Offer a tailored protection product from Assurant Dealer Services is designed to help increase your attachment rates by aligning to the coverage needs of EVs and hybrid vehicles.
 - o Offers; wear and tear, mechanical repair (EV propulsion system), electrical components, emergency roadside
- [MAP Electric Vehicle Protection](#)
 - o Extended 11yr/150k warranty covering all assemblies, parts, and the manufacturer-installed battery. It also includes roadside assistance, rental reimbursement, and trip interruption coverage. Note: only covers vehicles made in the last 5 years.
 - o Chris Brown, vp,
- [X-Care EV Protection](#)
 - o Extended warranty for EV buyers. Specific coverage depends on the make/model of the car. Focuses on luxury EVs, but covers others as well and is transferable to future owners.



Warranty Comparison Matrix

	Year/Mileage	Battery	Wear & Tear	EV Propulsion System	Electrical Components	Cooling Systems	Emergency Roadside Assistance	Ride Hailing	Quote	Additional Notes
Assurant EV One			X	X	X	X	X			Difficult to reach someone (so far)
MAP EV Protection	11yr/150k m	X	?	X	X	X	X	X	TBD	Exclusionary coverage of all assemblies, parts and the battery installed by the manufacturer on vehicle.
X-Care	5yr/75k m 6yr/100k m 10yr/150k m		X			X	X	X	\$1620 - \$2076	Transferrable if vehicle is sold. Focused on Tesla/Luxury Vehicles

Appendix D. EV Informational Webinar for Dealerships



Electric Vehicle Informational Webinar for Dealership Sales

February 4, 2022



Your Hosts



Victoria McGarril

**Consultant
Energetics**



Barry P. Carr

**Executive Director
Clean Communities of CNY**



Accelerating EV Adoption in Tompkins County





Accelerating EV Adoption in Tompkins County

Support from NYSERDA to...

- Identify barriers to EV adoption among low-moderate income community members
- Continue to develop local EV Market
 - Encourage both new and used EV sales
- Work with dealerships to strengthen sales
- Collaborate with community partners to engage community members
- Promote EV use among local fleets and services



Cornell University
Cooperative Extension
Tompkins County



Ithaca
CARSHARE



This document was developed for a project supported by the New York State Energy Research and Development Authority.



Electric Vehicle Informational Webinar for Dealership Sales



Barry P. Carr

Executive Director, Clean Communities of CNY
A US Department of Energy Clean Cities Coalition





Supported by

- Energetics
- Clean Communities of CNY
- Cornell Cooperative Extension Tompkins County
- New York State Energy Research and Development Authority
- US Department of Energy
- Clean Fuels Ohio





AGENDA

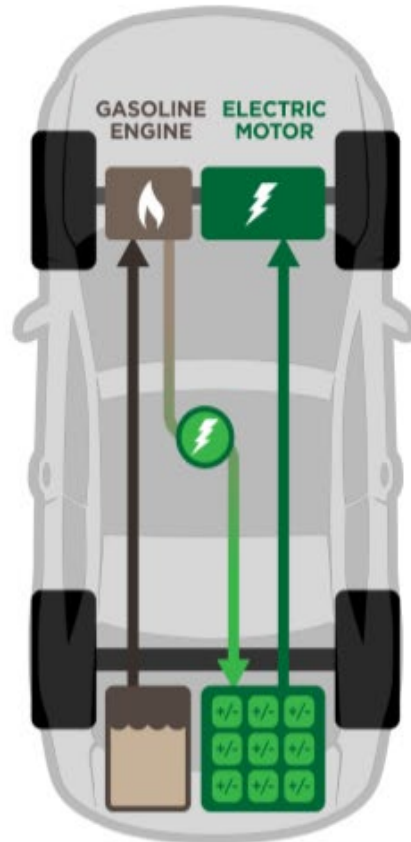
1. Electric Vehicle Technology
2. EV Chargers (EVSE)
3. Where is this Going?
4. Charging at Home / Charging on the Road
5. EV / EVSE Incentives
6. Utility Rates / Programs
7. Best Practices
8. Tools / Apps
9. Conclusions, Questions and Answers





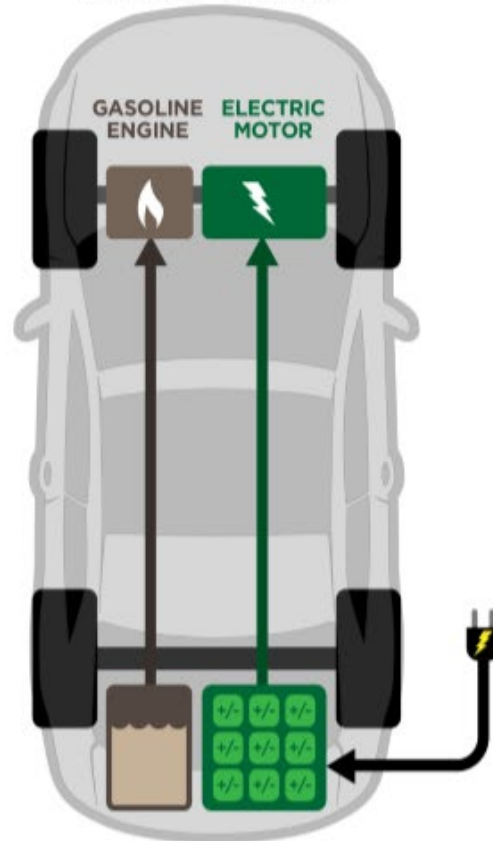
Types of Vehicles

Hybrid



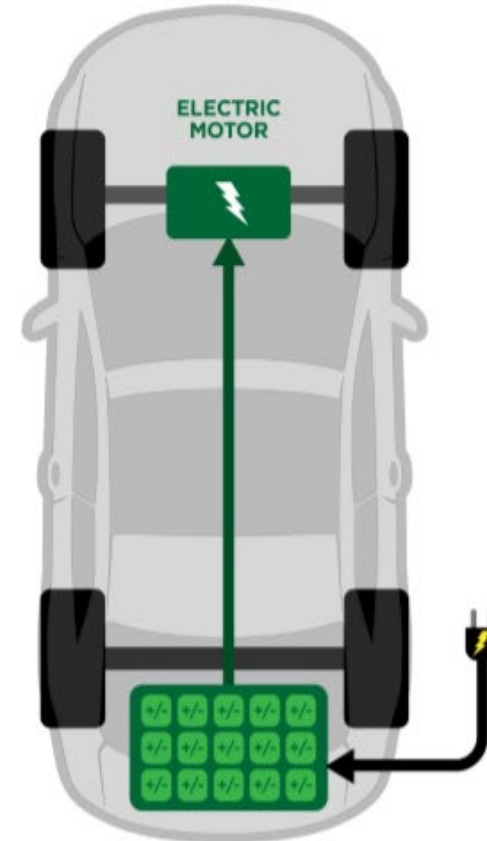
GASOLINE ENGINE RECHARGEABLE BATTERY PACK

PHEV-Plug-in Hybrid Electric Vehicle



GASOLINE ENGINE RECHARGEABLE BATTERY PACK

BEV-Battery Electric Vehicle



RECHARGEABLE BATTERY PACK





Types of EV Charging



Level 1 chargers use standard 120V electrical outlets. 120V circuits are also used by most home electronics.



← J1772

~5 Miles Per Hour of Charge



Level 2 chargers use 240V electrical circuits. 240V circuits are also used by electric dryers & electric stovetops

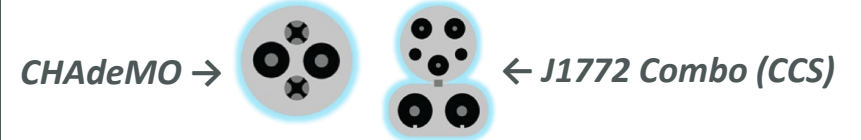


← J1772

~25 Miles Per Hour of Charge



Level 3 direct current fast chargers (DCFCs) use ultra high-power 480V circuits at public charging stations.



CHAdeMO →

← J1772 Combo (CCS)

40-100 Miles Per 10 Minutes

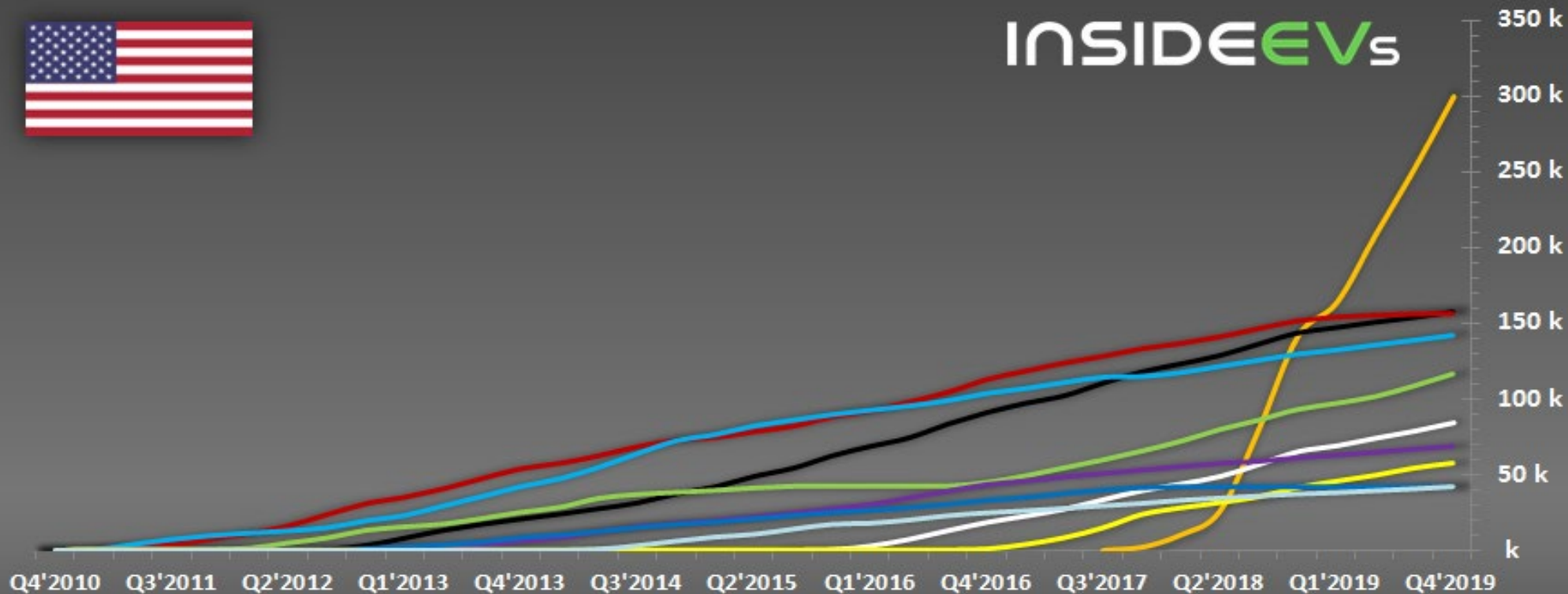


EV Sales – US: GOING UP!!

TOP 10 U.S. Plug-In Cars (cumulative sales)



INSIDEEVs



— Tesla Model 3

— Nissan LEAF

— Ford Fusion Energi

— BMW i3

— Tesla Model S

— Toyota Prius Prime/PHV

— Chevrolet Bolt EV

— Chevrolet Volt

— Tesla Model X

— Ford C-Max Energi



Major Investments by Automakers



GM announced plans to invest \$2.5 billion in Michigan and Ohio plants to manufacture EVs and batteries. GM plans to offer **20 all electric models.**



Ford committed to spending \$11 billion to offer more than **40 electrified models by 2022.** Additionally, Ford announced \$400 million investment in EV pick-up Rivian.



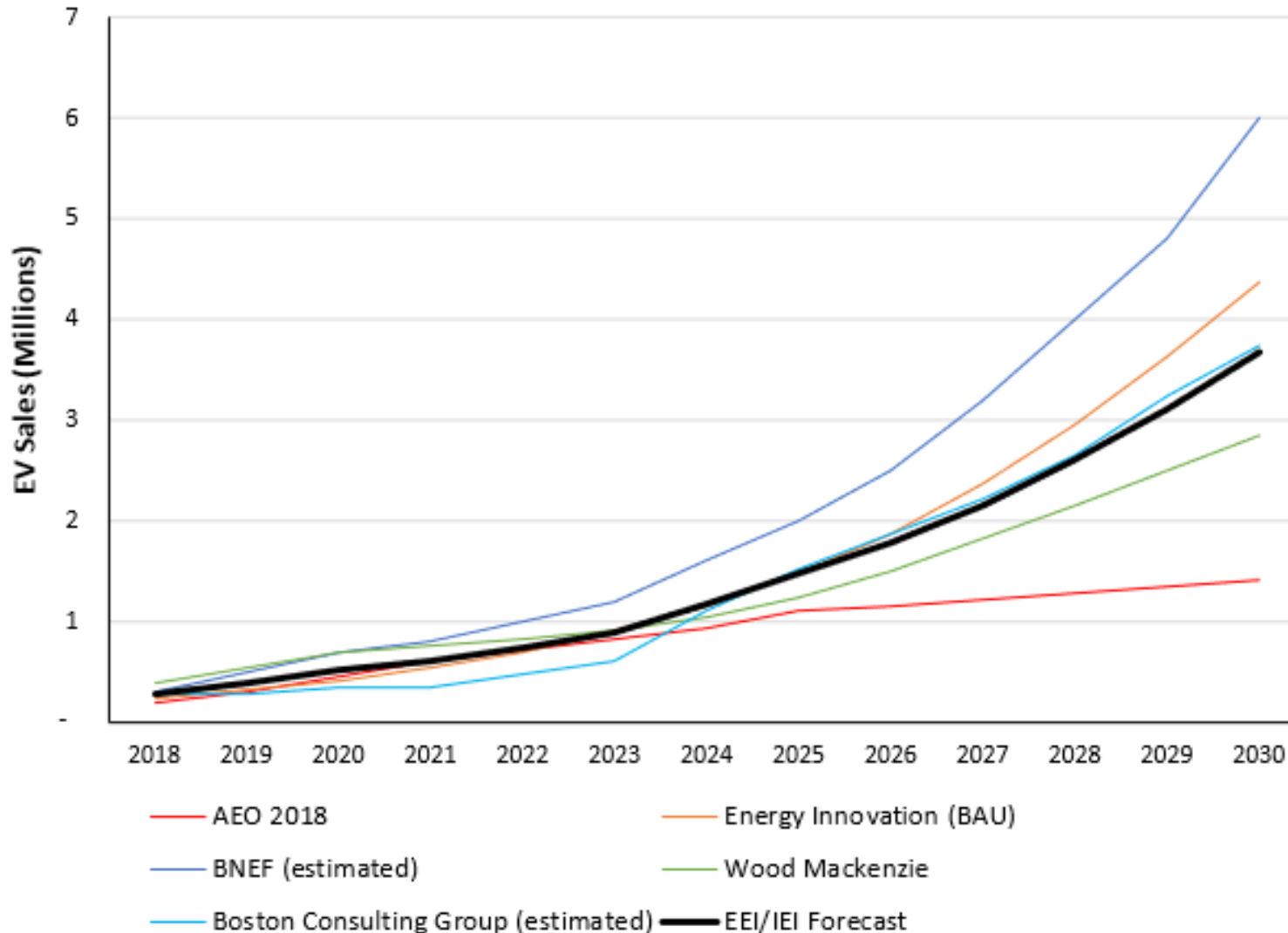
Fiat Chrysler will invest \$4.5 billion in five of its existing Michigan plants and has committed to producing **more than 30 electrified models by 2022.**





EV Sales Forecasts

Annual EV Sales Forecast (2018-2030)



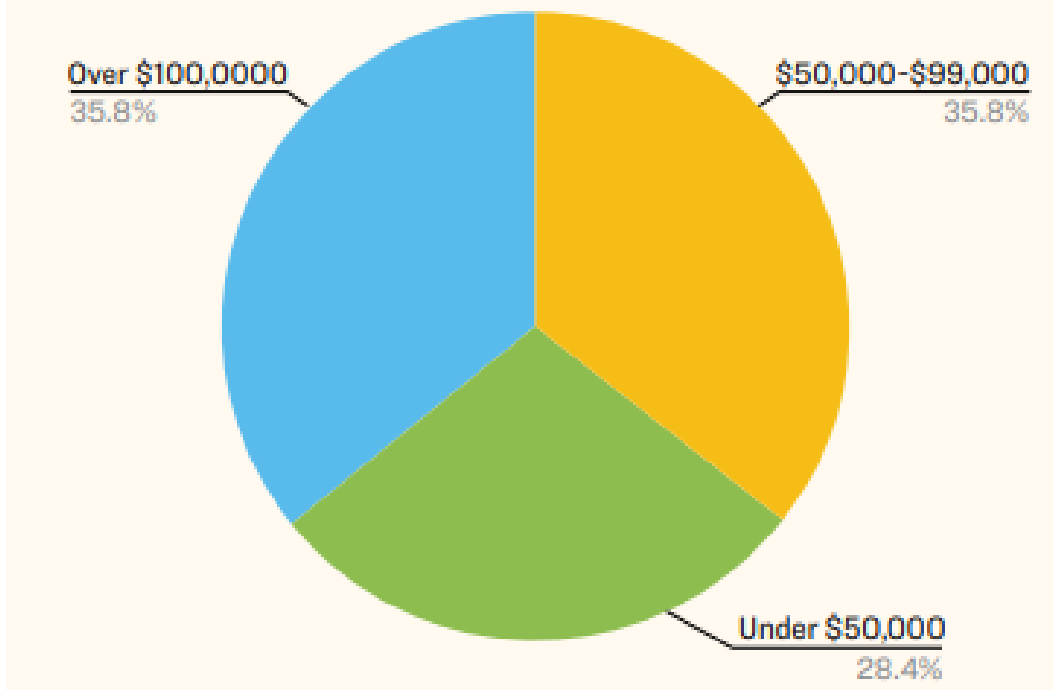
Based on the investments in EV's and decreasing battery costs, U.S. EV sales are projected to be in the millions and up to **25% of the market by 2030.**





Who are the Buyers?

Figure 1: Incomes of Prospective EV Buyers



Source - REV UP ELECTRIC VEHICLES: A Nationwide Study of the Electric Vehicle Shopping Experience

A 2019 study by Consumer Reports and the Union of Concerned Scientists found that nearly **2/3 of prospective US buyers** are considering purchasing an electric vehicle in the future:

- **31%** would consider an electric vehicle for their next purchase
- **27%** would consider an electric vehicle at some point down the road





Incentives in NYS

- Direct on New Vehicles – NYSERDA
- Proposed on Used Vehicles – NYSERDA
- EV Charger Incentives
- Federal Tax Credits
- State Tax Credits
- Utility Incentives/Discounts
- Leasing Opportunities
- DC Fast Charge Sites





EV Sales – Best Practices

“10 Ways That Car Dealerships Can Step Up To Sell Electric Vehicles”

- 1) Market EVs right alongside the Internal Combustion Engines (ICEs)
- 2) Educate the Sales Staff — Thoroughly
- 3) Showcase EVs on the Lot
- 4) Have Some EVs Charged Up & Ready for Test Drives
- 5) Let Range Be Only One of Many Features that You Describe in Your Sales Spiel
- 6) Describe an EV Driving Experience in Personal Ways
- 7) Teach about Charging Options
- 8) Outline Sustainable Electricity Options
- 9) Use Your Dealership as the Foundation of a Local Electric Vehicle Community
- 10) Car Dealerships Can Acknowledge It's an Industry in Transformation





Why Buy Electric? – Part 1

DRIVING EXPERIENCE

- Zippy – experience the “EV smile”!
- Quiet
- Smooth – no gear changes

SAFETY

- Very stable
- Low center of gravity and low rollover risk
- Great front crash test ratings – front trunk is extra crumple zone





Why Drive Electric? – Part 2

PUBLIC & ENVIRONMENTAL HEALTH

- No burning imported oil
- Zero tailpipe emissions & better air quality
- Low-carbon, local energy sources

CONVENIENT & COST EFFECTIVE

- Reduced fuel & maintenance costs
- Affordable options & tax incentives
- Never visit a gas station again
- Free parking at Cincinnati city meters

DRIVE THE FUTURE

- EVs get the latest tech & software upgrades can make it even better





EV Myths and FAQs

- **An EV won't meet my commuting needs**
- **I can't take an EV on a road trip**
- **EVs are worse for the environment**
- **EVs are more expensive and harder to maintain**





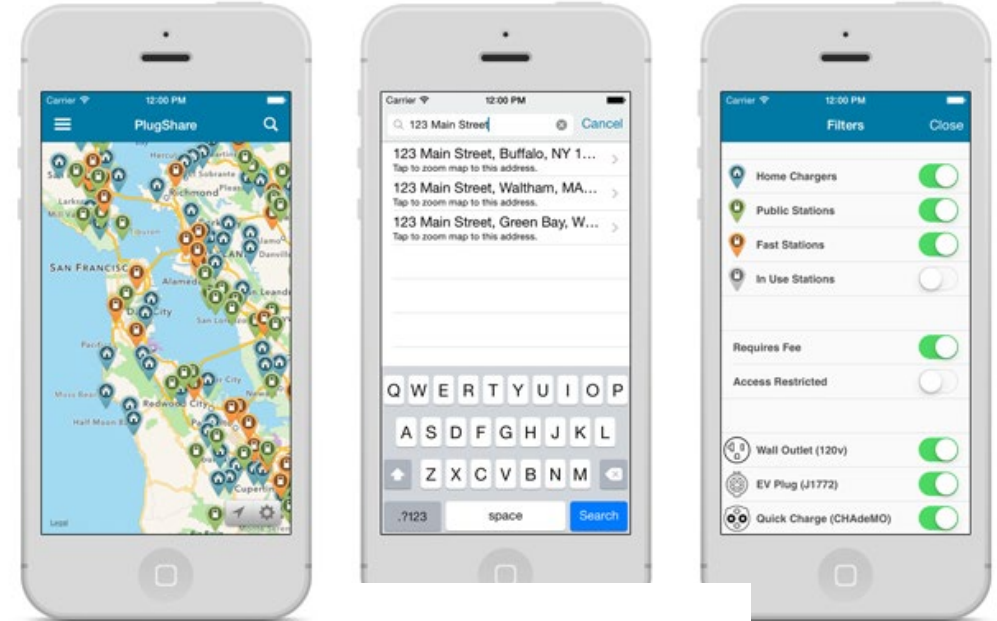
Range Anxiety?

The average daily commute in the U.S. is **ONLY 30 miles**

EV Charging is **PROACTIVE**, ICE Fueling is **REACTIVE**

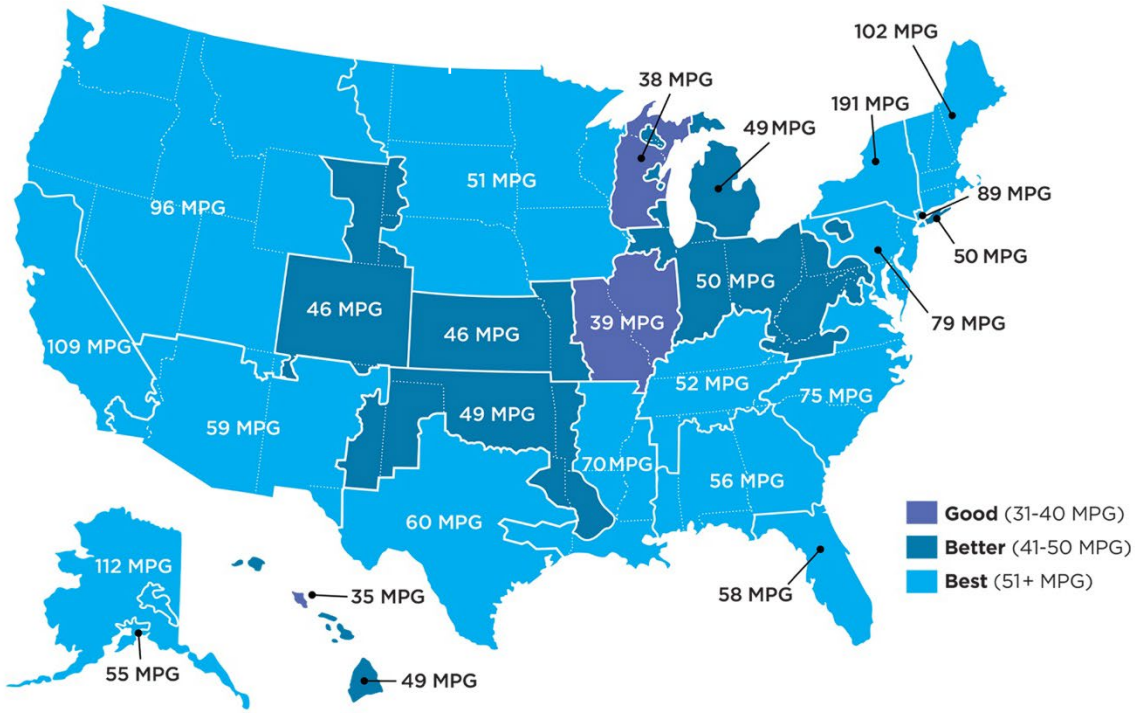
Cars spend **95%** of the time parked – so they could be spending 95 % of the time charging

[There's an app for that!](#)





Is Electricity Really a Better Fuel?



US average (EV sales-weighted): 80 MPG

2016

45241 EPA F0 ID MODEL YEAR CLEAR FILTERS

GASOLINE-ONLY
 Conventional cars run on gasoline and tend to be dirtier and more expensive to fuel than EVs.

381 GRAMS OF CO₂e PER MILE

PLUG-IN HYBRID ELECTRIC
 Plug-in hybrids use both gasoline and electricity and can be recharged from an outlet.

237 GRAMS OF CO₂e PER MILE

BATTERY ELECTRIC
 Battery electric vehicles run on electricity and are some of the cleanest and cheapest cars to drive.

206 GRAMS OF CO₂e PER MILE

AVERAGE EMISSIONS IN 45241

In the US, 75% of people now live in places where driving on electricity is cleaner than a 50 MPG gasoline car





EV Drivers are Loyal Customers!

96% of EV owners say they would buy or lease another electric vehicle the next time they were in the market for a new car.

78% of EV owners also have a gas-powered car in the household, yet they report doing a majority of their driving (87%) in their electric vehicle.

EV affinity outshines brand loyalty

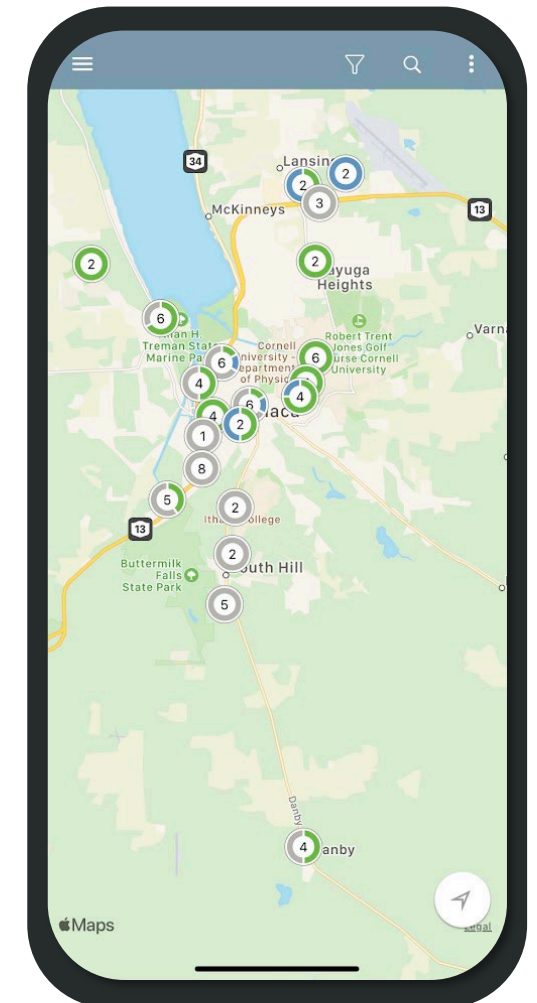
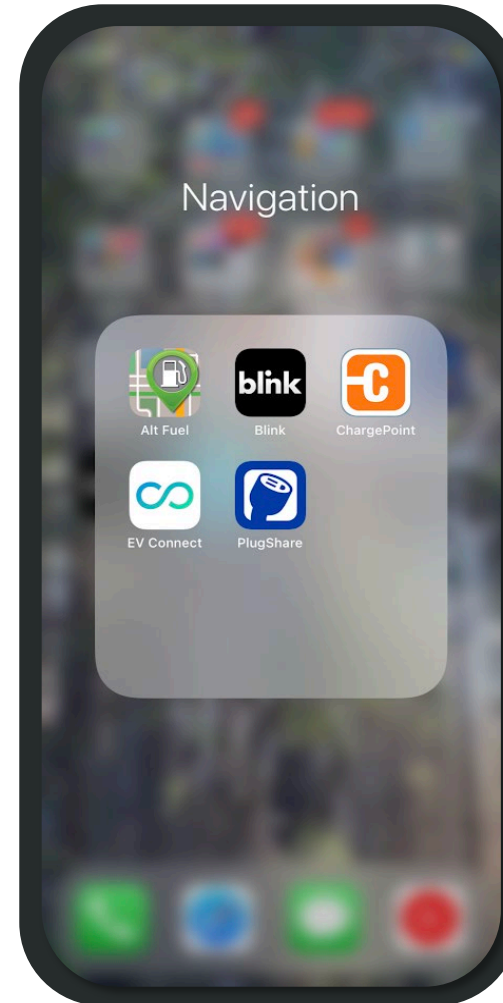
Source - ELECTRIC VEHICLE OWNERSHIP: Cost, Attitudes and Behaviors





Let's Talk About Apps !

- Plugshare
- US DOE Alt Fuels Locator
- ChargePoint
- Blink!
- EV Connect
- AND MORE!





Fun Facts

- **Trained EV Dealer Sales Talent Sell 4 x More!**
- **Trained Dealerships Sell 20% More Vehicles**
- **Your Prospect Comes to You**
- **Ride and Drives are the Best Avenue for Success**





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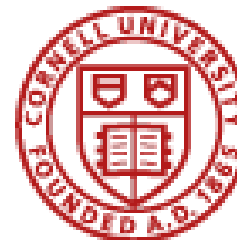
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Tompkins County

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA professionals work to protect the environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York State since 1975.

To learn more about NYSERDA's programs and funding opportunities, visit nyserda.ny.gov or follow us on X, Facebook, YouTube, or Instagram.

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State of New York

Kathy Hochul, Governor

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Richard L. Kauffman, Chair | Doreen M. Harris, President and CEO