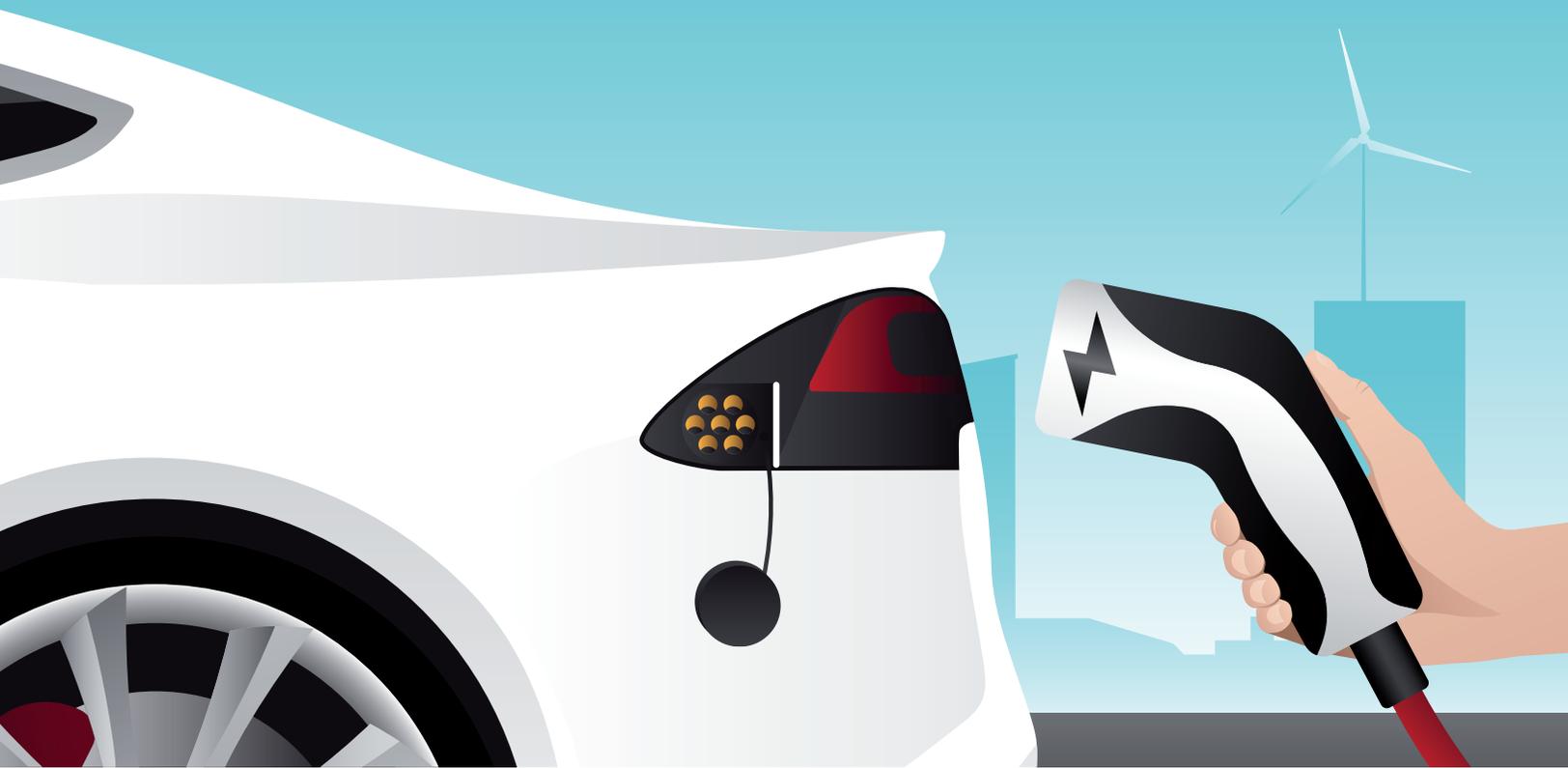


The Roadmap:

Ensuring a Successful Electric Vehicle Charging Program for Your Utility



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Growth in the electric vehicle (EV) industry is changing how and when consumers power their vehicles. Bloomberg New Energy Finance forecasts that EVs will account for 11% of global vehicle sales in 2025, and continue to rapidly grow in market share in the years that follow.

This directly impacts utility providers. As the electric transportation sector grows, revenue from the supply and delivery of electricity will grow with it. There is a proven path to success when developing and implementing a successful EV charging program. MD Energy Advisors has test driven the roadmap for utilities who seek to maximize the potential EVs offer. This white paper explores three key elements for your program: equitable access, proven process, and client success.

‘Roadway Conditions’

EV growth is primarily driven by increases in technology, consumer awareness, and global legislation and regulatory efforts. Perhaps the most important driving factor is the falling cost of lithium ion batteries. In 2010, costs averaged \$1,160 per kWh, but dramatically decreased in less than a decade—**averaging \$156 per kWh in 2019**.

Batteries are the most expensive component of an EV, and reduced costs are crucial to the EV industry reaching price parity with traditional internal combustion engine vehicles. There are boundless opportunities to succeed in this sector for companies who strategically plan for the near future, today.

The New Gold Rush

First and foremost, an opportunity exists for utilities to build the infrastructure needed to support electric transportation, a critical component of the industry and consistently seen as one of the most common consumer concerns when considering switching to EVs. We’ve seen advances in technology lead infrastructure builds before. The advent of the railroad system beginning as early as the late 18th Century is a great example. Since that time, the economy of the railroad industry alone has surpassed the GDP of many nations in the world. Even with continued technological advances, the seven leading North American railroads still boasted operating revenue of nearly \$90 Billion in 2019 (Statista).

Like railroads, the EV industry will not only grow exponentially, but have sustained impact for generations to come as nations trend toward green economies. The infrastructure needed to power an electric fleet is immense. The country has had more than 100 years to build the gas stations, refineries, pipelines, and business models powering internal combustion engines. We're just getting started with EVs.

Importantly, not only does the opportunity exist, but the timing is ripe. Governments and businesses are looking for ways to decrease carbon emissions and improve air quality. In the U.S., the transportation sector is the largest contributor to greenhouse gas (GHG) emissions, accounting for 29% [according to the EPA](#). GHG emissions from the transportation sector have also increased more than any other sector since 1990. EVs are the best way to reduce transportation-based emissions, as they have zero tail pipe emissions.

Other factors make EVs one of only a handful of industries projected to fuel the economic boom of the decades to come:



COMMODITY SALES

Perhaps the most obvious benefit of electric transportation for utility providers is increased commodity sales in a sustainable way. In 2019, the [average U.S. residential customer](#) used 10,649 kWh. A [Tesla Model 3](#) is expected to use 3,900 kWh per year, a 37% increase. This is even more exciting when we consider that 80% of EV charging is currently taking place at home, largely at night during off-peak times.



SMART GRID AND GRID RESILIENCE

There are significant opportunities for utilities to structure consumer behavior to ensure as much charging as possible occurs at lower demand, lower cost times of day. The technology built into many EVs and their charging equipment generates data and provides the ability to start and end charging sessions in a way that benefits the consumer and their utility. Since an EV is effectively a battery on wheels, it can be leveraged for vehicle-to-grid (V2G) needs; essentially sending a portion of energy stored in the battery of an idle vehicle back to the grid in times of need to reduce peaks, forming a large demand response network. They can also be used to power a home.



BENEFITS TO THE GRID

EVs present an opportunity to reduce carbon emissions while building a virtual energy storage network. By utilizing idled EVs, utilities can balance supply and demand at virtually any time of day, thus increasing overall **grid efficiency**.

Leveraging a network of EVs when needed can help with peak shaving and peak filling at a lower cost when compared to traditional stationary storage options. This has a compounding effect as more EVs become available to consumers capable of V2G integration. The EV energy storage opportunity also makes the addition of renewable energy generation more cost effective.

Equitable Access

One of the most important factors to ensure success in the sector is equity. Since most charging takes place at home, it's important for utilities to ensure equitable access. Home ownership cannot be a barrier to clean transportation, lower maintenance costs, and reduced fuel costs that come with EV ownership. An equitable program is also a critical aspect of program management when utilizing ratepayer dollars.

A unique incentive structure for low income communities to make infrastructure more accessible is an important component of your roadmap to success. Multifamily housing should also be a high priority for any utility programs that are implemented. This is important, not only because of income disparities, but due to demographic factors and shifts such as age. For example, data demonstrates that the Millennial generation is less likely to own a home than those before it. Utilities who innovate for such consumers will reap the benefits of customer and brand loyalty for years to come.

The large and growing secondary used market for EVs that are very affordable for all income levels further provides an impetus to ensure access is a front passenger in your roadmap to success.

Proven Process

The EV industry is still relatively new, and there are significant education gaps for groups ranging from consumers to government entities. Simply explaining the incentive, answering FAQs and offering application steps and timelines will likely not be enough. Customized education and outreach strategies designed to resonate with each group are often key factors in program success.

When working with real estate companies, it's necessary to understand what is important to them and their businesses. Sustainability and LEED certifications are helpful, but how does it directly affect their bottom line? For them, there are marketing advantages: staying ahead of their competition; ensuring buildings are to code; and implementing a high-tech amenity. Incentives play an important role here. Real estate owners and operators will leverage incentives now since they will decline as the market matures. Incentives can dramatically reduce Capital Expenditures; as can decreasing the need for expensive infrastructure upgrades due to the load sharing capabilities of smart charging stations. Additionally, amenities that are smart and connected like Level 2 EV charging stations help to decrease Operational Expenditures by reducing negative customer experience; decreasing tenant/customer turnover; implementing data re-reporting; and decreasing downtime.

Careful attention to program implementation is another key factor. Ensuring the correct mix of charging station types (Level 2 vs. DC Fast), number of stations per city or county, and proper mix of disadvantaged communities is necessary.

We highly recommend working with a team that has the expertise to successfully navigate each program and market as they are all unique. A team with a deep understanding of these markets is important.



Does your EV program have the right resources in place for Market Development?

“ MD Energy Advisors was very helpful at navigating the process and understanding the pros and cons of all of the options in the market. The most helpful aspect of MD Energy Advisors’ role was having an unbiased third party to bounce ideas off of and ask questions regarding equipment and setting up operations. ”

Joe Schaefer
Real Estate Manager
Continental Realty Corporation

Client Success

Creating new and leveraging existing partnerships is also a key factor in program success. Utilities should work with charging station providers, auto industry, real estate developers and managers, various government agencies, employers, and installation contractors. Keeping the process as simple and efficient as possible will help keep partners actively engaged in the program. It’s also critically important to hold partners accountable. EV providers should have their own marketing efforts, as should electrical contractors.

Since many are new to EVs, it can be overwhelming and expensive. Programs with excellent and consistent customer experience will prosper. A strong focus on simple and streamlined processes makes it easy. Real estate owners/operators and business owners need to know there is a neutral team that will help them sort through charging station products

and sales; contractor estimates; other potential incentives; what qualifies for those incentives; and most importantly, help develop a strategy for their portfolio, not just a single property.

Our test-driven roadmap places client experience and relationship management as the top priority, and this foundation proves successful in our EV program implementation.

“ MD Energy Advisors is the cohesive glue that brings all the utility program stakeholders together. Working with MDEA brings tremendous success to EV charging programs, and guarantees substantial deployment of EVSE with minimal effort by the utility. ”

J. Wesley Cravens, Director
Project Development & Technical Sales, eMobility
Enel X North America

Summary

We know EVs are the future and the shift is happening now. Proactive utilities working to embrace this transition in a thoughtful way will be well positioned to benefit from increased EV adoption.

MD Energy Advisors has created the roadmap for your success. Take [the driver's](#) seat.

MD ENERGY ADVISORS

MDEA delivers energy solutions with unparalleled customer service. By infusing art into energy, we create dynamic customer-centric experiences. We deliver personalized solutions that matter to people and the world around them. For more information, please visit, **mdenergyadvisors.com**.