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How Local Government Can Lead the Way on Electric Vehicles

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The long-standing uncertainty around electric vehicles (EVs) has finally ended as EV uptake has escalated rapidly in the past few years (Figure 1).

Figure 1: EVs sold and % US market share through 2018. Reprinted from City of Ann Arbor Electric Vehicle Readiness Ordinance Cover Memo, 2019. Data from Green Tech Media, J. Pyper, 2019. https://www.greentechmedia.com/articles/read/us-electric-vehicle-sales-increase-by-81-in-2018#gs.634l6x

Now, we have to figure out the "how" rather than the "if". How do we guarantee the appropriate infrastructure is available for EV use in Michigan? Michigan's cities and villages have the ability and the responsibility to prepare for this demand through incentives, regulations, and leadership. This is how they can start:

The Need for Local Action

One of the primary reservations that consumers have about purchasing an electric vehicle that they won't be able to find a place to plug in their vehicle. This concern is not unfounded, as many reports (like the Michigan Energy Office's study of how many charging stations are needed along Michigan's highways by 2030 to provide for "worry-free" driving) identify the need for more charging stations around the state to account for the growing rate of EV purchases.

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Find this document and more about the project online at graham.umich.edu/climate-energy/energy-futures.

Local officials, too, think that there is a need for more EV charging infrastructure. In Fall 2019, the University of Michigan's Center for Local, State, and Urban Policy (CLOSUP) administered a survey funded by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) to local government leaders across the state.[1] The survey found that more than 40% of city and village leaders (i.e., city mayors or managers, and village presidents) felt that their jurisdiction had too few publicly-accessible charging stations.

The survey also found, however, that over 60% of cities and villages have not yet given any consideration to how their local government's policies or practices can facilitate EV infrastructure. These two statistics show there is a lot of room for improvement at the local level, especially as EV use continues to grow in Michigan. Local governments can help encourage the development of EV infrastructure in three key ways:

1) Through incorporating EVs into their ordinances, especially their zoning ordinance;

2) By conducting educational outreach programs;

3) And leading by example, by developing EV infrastructure at public facilities.

Incorporating EVs into Ordinances

A local government can implement ordinances that incentivize or require businesses and homes to accommodate EV infrastructure. A handful of municipalities have already taken different actions to incorporate EV infrastructure into their zoning ordinance. Some of these ordinances use incentives to encourage EV infrastructure. For example, the City of Ypsilanti has an incentive that reduces a business' required number of off-street parking spaces if some of those spaces are equipped with EV chargers. Other municipalities use regulation to require EV infrastructure. The City of Grand Rapids, for example, requires that all parking lots and structures provide space for 1 charging station for every 200 parking spots.

These both represent a positive step toward local consideration of EV infrastructure, but neither ensure a sufficient number of spaces to meet the rapidly growing demand. The parking garages being built today will likely last 25-50 years, but many ordinances in Michigan consider only near-term EV needs rather than longer-term needs.

Education and Outreach

In communities that don't want to force the issue by requiring developers to include EV infrastructure, another role that they can play is in educating about the cost and benefits of EV infrastructure.

A recent study out of San Francisco finds that it costs 1.7 - 2.3 times as much to retrofit a parking space with an EV charger than to plan for it when the parking is originally being constructed.[2] At the same time, installing a charger does add costs to new construction compared to traditional, non-charging parking spaces. The addition of infrastructure does not need to occur all at once, though. Property owners can save money in the long-term by, for example, putting electrical conduit in place when the parking is constructed, but not the actual EV charger until they are needed. Figure 2, drawn from a current proposal in the City of Ann Arbor to add EV charging

1 2019 Michigan Local Energy Survey (MiLES), http://closup.umich.edu/miles

2 Energy Solutions. (2016). Plug-In Electric Vehicle Infrastructure Cost-Effectiveness Report for San Francisco.

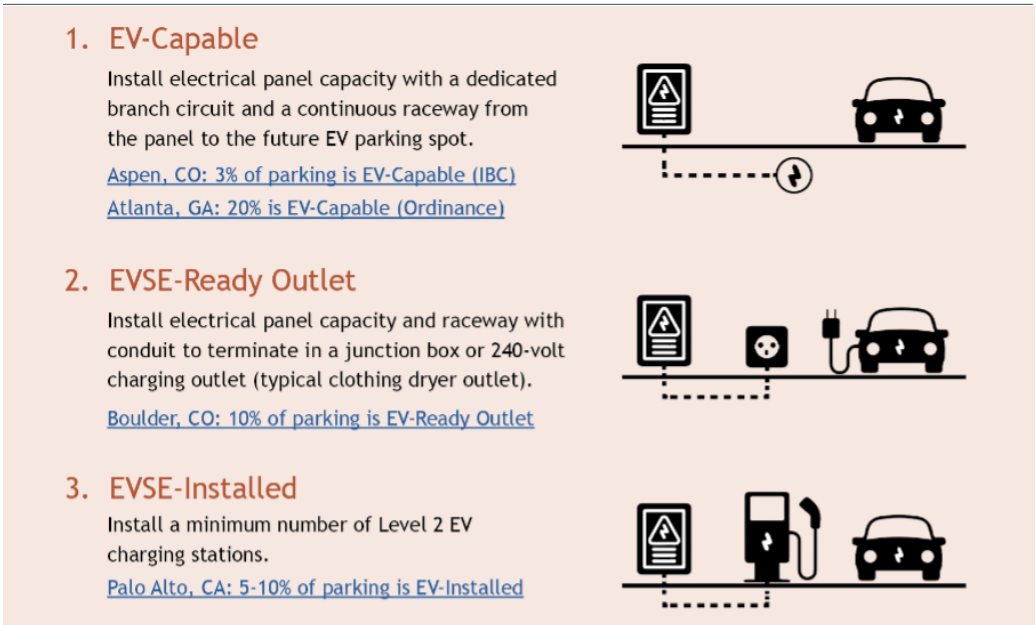

Figure 2: The three stages of EV infrastructure. EVSE refers to "electric vehicle supply equipment". Reprinted from SWEEP, by M. Frommer, 2018, Retrieved from https://www.swenergy.org/cracking-the-code-on-ev-ready-building-codes

requirements to the zoning ordinance, shows three different levels of EV-readiness. Even if a local government is hesitant to regulate EV infrastructure, providing this information about EVs to developers can be helpful.

Local governments can also play a role in helping to educate their communities about rebates and incentives aiming to encourage EV use. In Michigan, both Consumers Energy and DTE have programs to help reduce the costs to install an EV charger, and the federal government offers tax incentives on the purchase of EVs. This education, outreach, and communication can help to lower the perceived barriers for communities to take action.

Leading by Example

Additionally, governments can show leadership on EVs through the choices they make with their own municipal infrastructure and vehicle purchases. An analysis of the municipality's fleet (police cars, service vehicles, etc.) and buildings (public parking, city hall, etc.) can help identify which vehicles can be replaced by electric vehicles and which locations can be fitted with charging stations. This analysis often includes looking at the types of vehicles available, and which municipal buildings have adequate power supplies to handle the additional load created by an EV charger.

There are many benefits to a city or village going through the process of installing an EV charger. First, it provides communities with a tangible example of how EV chargers can be incorporated into the existing built environment. Second, it provides municipal staff with real-world experience to draw from to answer questions and be in a better position to conduct education and outreach about EVs. Finally, it demonstrates that the municipality is committed to sustainability, taking actions to begin a transition away from fossil fuels.