

GENERAL MOTORS

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General Motors (GM) appreciates the opportunity to provide input on the critical importance of Electric Vehicles (EV) and EV charging infrastructure to Michigan. We are in the midst of a transportation revolution. Our vehicles – and how we interact with them – are fundamentally changing because of new technologies and the evolving demands of our customers. For more than a century, General Motors has helped transform how the world moved. Yet, for all the freedom automobiles have given us, we recognize that today there are new challenges. Our zero-zero-zero vision, consisting of zero crashes, zero emissions, and zero congestion, has at its core our all-electric vehicle strategy. And we've announced that we are bringing at least 20 new all-electric vehicle models to market by 2023.

There are currently approximately 15,000 EVs registered in Michigan, and in order to grow the EV market and attract even more advanced transportation technologies to the state, such as self-driving EVs, Michigan needs to encourage the investment in both EV charging infrastructure and broad EV awareness and education across the state to address consumer and industry concerns.

Automakers have made enormous investments in the electrification of transportation – GM alone has invested billions of dollars to develop electrification technologies, including the state-of-the-art Chevrolet Volt and Chevrolet Bolt EV, which has swept the industry's most prestigious car awards, including North America Car of the Year, Motor Trend's® 2017 Car of the Year, MotorWeek's 2017 Drivers' Choice "Best of the Year" Award, and Green Car Journal's Green Car of the Year. The Bolt EV is the industry's first affordable, long-range EV with an EPA estimated range of 238 miles-per-charge, and is available at Chevrolet dealers across all 50 states, including Michigan. This advanced technology will require more widespread charging infrastructure to convince consumers that EVs can be driven anywhere they need to go – for example, from Detroit to Traverse City, which is not realistically possible today. Thus, the urgency to rapidly expand EV charging infrastructure in Michigan.

EV charging infrastructure today has not attracted sufficient investment to establish a compelling foundation of EV charging stations. This market will become more viable and competitive over time, but this early market currently requires additional investment to close the infrastructure gap and

establish a network of charging stations that is highly visible to consumers and drives consumer-confidence in the ability to drive EVs anywhere in the state. EV infrastructure is also key to attracting innovative and advanced mobility solutions to Michigan, such as car-sharing, ride-hailing, and autonomous vehicles. The ability to introduce and grow these advanced mobility services relies on a robust foundation of EV charging infrastructure, especially DC fast-charging.

The good news in Michigan is that the Michigan Department of Environmental Quality appears poised to allocate the max allowed 15% of the VW Settlement Environmental Mitigation Funds towards EV charging infrastructure. This represents about \$10mil of \$65mil available to the state of Michigan. In addition, there is a keen interest among utilities across the state (including Consumers Energy and DTE) to invest in this early market infrastructure – and exciting support at the Michigan Public Service Commission to support these utility investments. We can't overstate the critical importance of these investments.

To maximize the impact of limited state funds, it is important that Michigan develop a cohesive strategy that ensures the resulting EV charging infrastructure is as visible to consumers as possible. It's important to recognize that the quality of infrastructure placement is generally more important than the quantity of EVSEs deployed. This means it is key to establish an overall vision and strategy for the placement of EV charging infrastructure, based on sound expert stakeholder input, that will result in an overall compelling "story" that will change consumers' perceptions and convince them that EV charging infrastructure is everywhere it needs to be.

While the majority of all EV charging today is done at the home, there are still critical infrastructure needs not met by single-family home charging. And GM would prioritize today's key infrastructure needs as follows:

1. **Highway corridor DC fast-charging** most visibly inspires consumer confidence in the driving range, and practicality, of EVs. A 2016 survey of 2,500 consumers by Altman Vilandrie & Company found the top reason customers gave for not wanting to purchase a plug-in electric vehicle was a perceived lack of charging stations. Highly visible corridor EV charging (SAE industry standard) can help address this consumer perception issue.
2. **Workplace EV charging** creates an EV "showroom" that very effectively grows EV awareness among corporations, and employees of these corporations. According to US DOE data, workplace charging results in employees 6X more likely to purchase an EV than employees at companies not offering workplace charging.
3. **Multi-unit dwelling EV charging** provides an important opportunity to expand EV adoption to consumers residing in townhomes, condominiums, and apartments, who may not have access to a "home" charger every evening. This is currently an untapped segment of potential EV

buyers. This need can be met by charging directly at the multi-unit dwellings, or by neighborhood DC fast-charge hubs that can serve these residents.

4. **Public EV charging at key destinations** is also important to increase the practicality of EVs and the number of places an EV can go, with a special focus on destinations typically outside a consumer's normal daily driving patterns (e.g. airports, beaches, hotels, and resorts across Michigan).

EV charging infrastructure is vital to the growth of the EV market and will lead to long-lasting emissions reductions that increase over time as the market expands. And low electricity prices mean that electric vehicles are an important economic driver for Michigan. We encourage the state to directly engage all electric utilities in the strategic planning of EV infrastructure to ensure the most cost-effective and grid-responsible EV charging solutions. And utilities are also uniquely qualified to provide EV education and outreach to consumers – not only are utilities trusted authorities on all things related to electricity, but they also have a built-in relationship to every consumer in this state.

This is a critical moment for General Motors and the auto industry in general. In this global economy, aggressive technology leadership means everything. We believe the automotive and energy industries have the technology, the talent and the will to solve today's challenges and create a world that is safer, better and more sustainable for all. We need the support of Michigan to ensure we can continue to offer the most advanced transportation technologies in the world. GM greatly appreciates Michigan's commitment to support the strategic transition to transportation electrification and all efforts to help drive this emerging market.

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