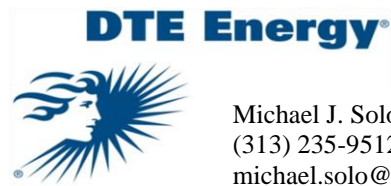


DTE Electric Company
One Energy Plaza, 688 WCB
Detroit, MI 48226-1279



Michael J. Solo, Jr.
(313) 235-9512
michael.solo@dteenergy.com

November 17, 2017

Ms. Kavita Kale
Executive Secretary
Michigan Public Service Commission
7109 West Saginaw Hwy
Lansing, MI 48917

Re: In the matter, on the Commission's own motion, to open a docket that will be used to collaboratively consider issues related to both the deployment of plug-in electric vehicle charging facilities and to examine issues germane to the use of compressed natural gas as a motor vehicle transportation fuel in Michigan in a Commission sponsored technical conference.
MPSC Case No. U-18368

Dear Ms. Kale:

Pursuant to the Commission's October 25, 2017 Order in the above referenced case, please find attached the Comments of DTE Electric Company on the Issues Related to the Adoption of Plug-In Electric Vehicles in Michigan and Deployment of Associated Infrastructure and Technology.

Very truly yours,

Michael J. Solo, Jr.

MJS/lah
Attachments

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter, on the Commission’s own motion,)
to open a docket that will be used to collaboratively)
consider issues related to both the deployment of)
plug-in electric vehicle charging facilities and to)
examine issues germane to the use of compressed)
natural gas as a motor vehicle transportation fuel in)
Michigan)
_____)

Case No. U-18368

**COMMENTS OF DTE ELECTRIC COMPANY ON THE ISSUES RELATED TO THE
ADOPTION OF PLUG-IN ELECTRIC VEHICLES IN MICHIGAN AND THE
DEPLOYMENT OF ASSOCIATED INFRASTRUCTURE AND TECHNOLOGY**

I. Introduction

On October 25, 2017, the Michigan Public Service Commission (“Commission”) issued an Order requesting comments on whether utilities should initiate a series of targeted pilot programs designed to further explore issues related to the deployment of Plug-in Electric Vehicle (“PEV”) charging stations and associated infrastructure and the focus of such pilots. Specifically, the Commission requested comments on the following:

- Rate design;
- Grid impact;
- Customer education;
- The role of the regulated utility in infrastructure deployment / cost recovery.

DTE Electric Company (“DTE” or “Company”) welcomes this opportunity to provide input to the Commission in this important matter and submits the following comments in response to the Commission’s Order regarding PEVs.

II. Executive Summary

DTE believes that electrifying the transportation sector promises significant benefits to both PEV drivers and the public at large. Drivers that switch from internal combustion engine vehicles can save money on fuel and maintenance, and the public at large can benefit from significant environment improvements through reduced emissions, especially as the electric sector continues to decarbonize. There is also an important element of economic development opportunity for Michigan given the significant presence of automakers (“OEMs”) in the state. Furthermore, a widespread transition to electricity as a “fuel” can provide the United States overall with greater energy independence. Finally, the broad utility customer base can benefit from the additional load added to the system (if it does not trigger significant utility infrastructure investments) by spreading fixed costs over a greater volume of sales. Given that PEVs are intelligent storage assets, the electrification of transportation will continue to build a significant resource for grid services over time.

The advancement of battery technology is bringing the cost of PEVs down, and OEMs are bringing additional PEVs to market. However, a lack of consumer education and “range anxiety” remain primary barriers to PEV adoption. Addressing these barriers to help bring about the benefits of transportation electrification will require a concerted effort by several stakeholders. As demonstrated across the country, utilities have an important role to play and are uniquely suited to integrate PEV infrastructure in a manner that minimizes impact to the grid and therefore maximizes benefits to all customers. In addition, utilities are well positioned to manage the PEV load with time-based rates, smart charging / demand response (“DR”) programs, and other innovative applications. It is critical at this stage of market development to utilize all funding sources –

including utility investment seeking reasonable cost recovery – in a complementary and additive manner to move the needle on PEV adoption.

DTE believes there are four major areas that require policy advancement and regulatory development as it relates to PEVs: 1) Rate Design; 2) Grid Impact; 3) Customer Education and Outreach; and 4) Charging Infrastructure. In the next sections, DTE will provide its initial perspective on these areas, while also providing answers to questions that the Commission included in the Order. Recommended near-term actions and pilots related to these four areas can be found in the separate DTE submission filed jointly with other organizations in response to the Order.

III. Rate Design

Residential Charging

DTE currently has 5 options from which PEV drivers can choose for charging their vehicles at home:

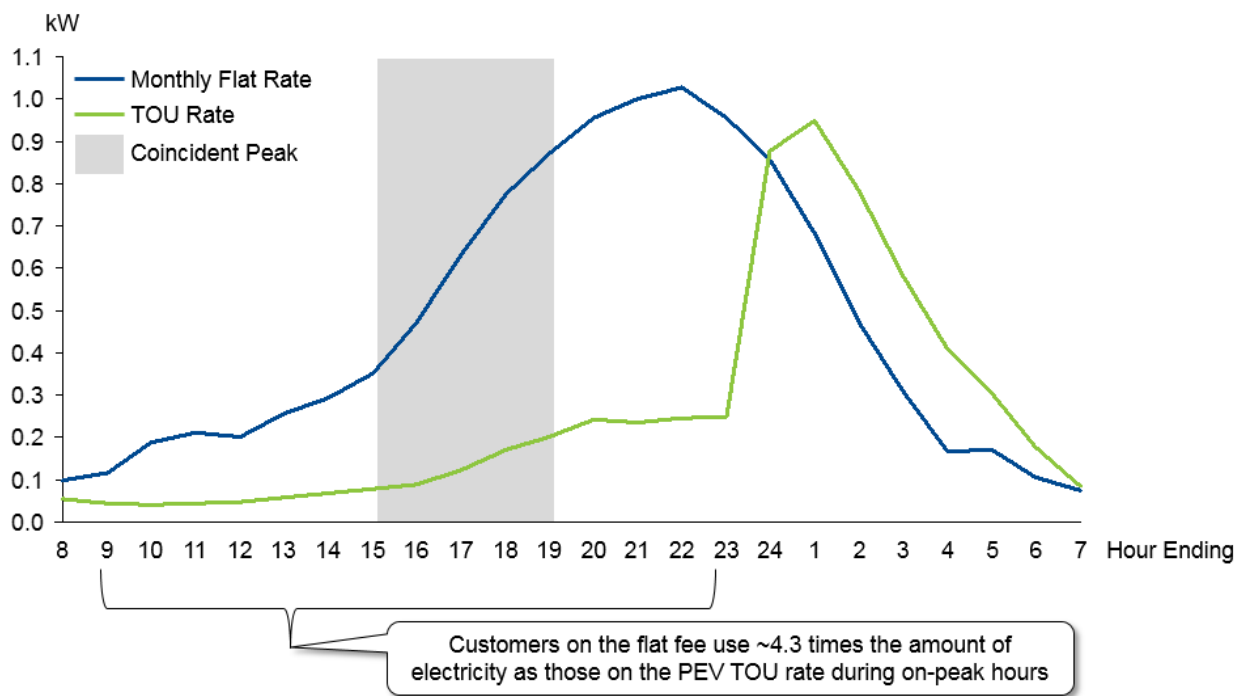
- 1) Rate Schedule D1 – regular residential rate
- 2) Rate Schedule D1.2 – whole-home time-of-use (“TOU”) rate
- 3) Rate Schedule D1.8 – dynamic peak pricing (“DPP”) rate
- 4) Rate Schedule D1.9 Option 1 – PEV TOU rate (capped at 4,750 customers)
- 5) Rate Schedule D1.9 Option 2 – PEV monthly flat fee (capped at 250 customers)

Currently, the PEV TOU rate - with ~1,830 customer enrolled - is designed so that customers charging between the hours of 9 am and 11 pm (“on-peak”) pay ~22 cents per kilowatt-hour (“kWh”) while those charging during other times (“off-peak”) pay ~10 cents per kWh.

Conversely, the flat fee - with ~150 customers enrolled - allows customers to charge at any time for a monthly rate of ~\$46.

Based on Advanced Metering Infrastructure (“AMI”) data, we have conducted a recent analysis comparing customer behavior for both rate options. The Company’s analysis has found that customers on the flat fee use ~4.3 times the amount of electricity as those on the PEV TOU rate during on-peak hours. In addition, as presented in the chart below, the customers on the flat fee charge at a higher rate than the PEV TOU customers during the Company’s coincident peak time. This analysis indicates to DTE that the PEV TOU rate properly incentivizes behavior and shifts charging to off-peak hours.

Charging Behavior on D1.9



Since off-peak charging benefits the broader customer base through an improved load factor, DTE will likely recommend removing or increasing the cap of 4,750 customers for the PEV TOU rate in its next rate case.

The PEV rates (TOU and flat fee) currently require a second meter for billing purposes. Although the DTE Insight Energy Bridge provides useful insight into consumption patterns, it does not meet statutory metering requirements. While DTE is working with OEMs to better understand car telematic capabilities and is open to other technology solutions (i.e., metering capabilities within the chargers), there is currently no standard, certified sub-metering technology available for homeowners or utilities to install and use. The Company recommends vendors work in collaboration with utilities and standards organizations to provide a national open and interoperable communication technology for sub-metering which the Commission can certify through a testing process to ensure it meets meter accuracy requirements for billing. Another element for consideration beyond sub-metering accuracy is security. Currently DTE uses one-way communication to confirm functionality of operation, but receiving information back could create a cyber security risk if the appropriate protocols and practices are not implemented. Until sub-metering is standardized with open communication / interoperability protocols and the security concerns have been addressed, DTE requires a second meter to be able to bill customers on the PEV rate. An additional benefit of the second meter is it enables easier implementation of potential future DR / smart charging programs which have the potential to prevent or delay investment in substations reaching critical capacity due to PEVs “clustering” in neighborhoods.

However, in the event a customer does not want to install a second meter, they can opt for either the whole-home TOU rate¹ or DPP rate². Customers adding a PEV to their normal residential load may benefit by switching from the residential rate to either of those TOU rates if they intend to charge their vehicle nightly during off-peak hours. The Company will continue to recommend

¹ The whole-home D1.2 TOU rate defines on-peak hours between 11 am and 7 pm (Monday through Friday)

² The whole home D1.8 TOU rate defines on-peak hours between 3 pm and 7 pm, mid-peak hours between 7 am to 3 pm, and 7 pm to 11 pm (Monday through Friday).

providing the residential, whole-home TOU, DPP, and PEV rates as options (with rate refinement investigated as needed), so customers can decide which rate is most appropriate for them.

Non-Residential Charging

Non-residential charging stations are typically a “peaky” load with a large variance in monthly utilization but a small variance in monthly peak demand. Demand charges can impede the deployment of PEV charging infrastructure by making the business case for owning and operating them challenging, especially for fast chargers of 50 kilowatts or greater. This is currently not an issue in DTE territory as the Company already offers the D3 General Service Rate, a commercial rate without demand charges. Regardless of the expected demand, commercial customers today can choose between D3 and D4 - the Large General Service Rate³ - to decide what is best for them. Commercial customers can also opt for the Company’s PEV TOU rate, but this rate would be more favorable for businesses that primarily charge after 11 pm.

DTE also offers schedule D3.3, an Interruptible General Service Rate. There are currently ~120 customers enrolled in this rate with a cap of ~300 customers. An increase in customers on this rate could benefit the grid (e.g., for workplace charging sites), so DTE may recommend removing or increasing the cap on this rate as well in its next rate case.

IV. Grid Impact

Understanding Grid Impact

DTE believes utilities have the responsibility to ensure that PEVs are integrated with the grid in a manner that minimizes cost and reliability impacts and is consistent with the safe

³ The Large General Service Rate has a lower volumetric rate but includes monthly demand charges

operation of the electric system. Electric transportation load today is very small compared to the capacity of the grid, however proactive steps must be taken now to strategically plan for and integrate the increased load of the future.

In California, with more than 200,000 PEVs on the road as of December 2016, the costs associated with integrating the PEV load have been very low (less than 0.2% of PEVs have required a service line and / or distribution system upgrade)⁴. However, the immediate demand of a single PEV can be comparable to that of an entire home, which can result in distribution system impacts if not properly managed. An increase in the number of PEVs connected to the distribution system is likely to place increased demands on the distribution infrastructure as well as represent a different pattern of usage. The potential impact to the grid will vary depending on the PEV load characteristics.

When multiple PEVs are clustered in a residential neighborhood, overloads to the electric system could occur because of the significant load increase at a specific time during the day. Based on a study DTE performed in 2011, when PEV charging occurs off-peak, it would take ~25% PEV penetration before any of our current system would see disturbances. Even then, less than ~5% of transformers would be overloaded. This study, however, needs to be updated since it assumes much lower charging rates than what is currently available today and on the horizon. The PEV market is in its early stages and will be driven primarily by customer behavior, so it is not possible to address all potential system impact issues now. DTE believes that additional studies will be needed - both now and in the future - to better understand charging behavior and its effects on our distribution system. DTE will continue to learn from utilities that have more PEVs in their system as well as partner with the Department of Energy (“DOE”) US DRIVE, Edison Electric Institute

⁴ From California’s Joint IOU Electric Vehicle Load Research Report filed on 12/30/2016

(“EEP”), Electric Power Research Institute (“EPRI”), and others to further DTE’s understanding of PEV grid impacts.

DTE is actively working with Ford and General Motors (“GM”) to identify approaches to better understand the impact of significant PEV charging in the future – from level 2 up to extreme fast charging. Their insight will be critical to extract data and information in modelling future scenarios, and the more deployment - and therefore, data - we have, the better the analysis will become. DTE, GM, and Next Energy are joining with Delta Electronics (“Delta”) in a supporting role in Delta’s request for funds from the DOE to understand the impact of extreme charging on both vehicles and the grid. DTE is also working with site hosts like Electrify America to help them select locations for fast charging corridor stations based on grid impact. The Company’s Distribution Engineering group is in the early stages of analyzing the impact of both public and residential PEV charging on the grid. As DTE analyzes the load characteristics of these early adopter installations, a longer-term strategy to support PEV penetration will be naturally developed.

Understanding PEV Infrastructure Locations

Utilities can better serve their customers if they know the location of PEV infrastructure. With that knowledge, DTE can take steps to adequately plan and respond to potential impacts. As a first step, timely notification and communication of when a PEV is purchased can be a critical tool for utilities to understand the PEV load and potential impacts to the system. Four states have adopted some form of notification requirements⁵, and DTE believes similar requirements should be implemented in Michigan. Although self-reporting / voluntary programs can be pursued, they

⁵ Natural Resources Defense Council “Driving out Pollution”, 2016

would only provide partial information. The quality of the analysis would improve if customer self-reported information could be supplemented by data from the Department of Motor Vehicles (“DMV”).

Another means to gather information on the charging infrastructure location is through the building permit process. The building permit process should be amended to require a notification to the utility when high capacity residential PEV charging equipment is installed (e.g., equipment with 40 amp or larger circuit breakers). It is important to note that notifications can also facilitate targeted customer outreach programs about potential rate offerings or other relevant DR programs. DTE recommends legislative changes which would require utility notifications from the DMV for PEV registrations and from cities for building permits which include PEV charging equipment installation.

Understanding PEV Public Charging Behavior

PEVs have the flexibility to charge at different times, locations, and power levels, which presents a significant and unique opportunity to electric companies. In addition to TOU rates already discussed, DTE believes that “smart charging” programs will be required to capture long-term benefits of flexible PEV load. A standardized smart charging approach is yet to emerge, but multiple approaches will most likely be needed, including integration into DR programs, the distributed energy resource management system, and the advanced distribution management system. Smart charging technology pilots which allow the utility or a third party to remotely control vehicle charging by slowing down the power level or turning it off completely during coincident peak times should be pursued. In this regard, DTE - together with Ford – plans to explore what smart charging capabilities are possible and what value they bring to the grid by

using charging data from Ford PEVs and analyzing the electrical load from the increasing number of level 2 chargers on the Dearborn Ford campus. In addition, pilots for the development and use of efficient communication standards should be supported to ensure effective smart charging program implementation. Finally, there is an opportunity to test and pilot battery storage as a cost-effective means to minimize utility investments required to accommodate the installation of charging stations in critical areas.

V. Customer Education

Utility Programs

The benefits of electric transportation are significant, both for direct users (by offering operational savings) and the public at large (by supporting local industries in the state, reducing dependency on foreign oil, providing significant environmental benefits through reduced emissions, and putting downward pressure on rates). The level of awareness of these benefits is relatively low across the entire customer base. Approximately 60% of consumers know little to nothing about available PEVs or their lifetime economic and environmental benefits⁶, and only ~15% of Michiganders have driven or ridden in a PEV⁷. Electric companies can leverage established customer relationships to develop an informed market and grow customer confidence in PEV technology. It is for these reasons DTE has significantly increased its sense of urgency surrounding education on these topics.

Efforts are currently underway to revamp DTE's PEV website with comprehensive and intuitive guidance on important considerations when purchasing a PEV. DTE is also seeking to facilitate a seamless process for the customer regarding PEV education, PEV purchase, level 2

⁶ Altman Vilandrie & Company Connected cars survey, 2016 (n = 2,557)

⁷ Based on a 2017 Navigant survey

charger purchase / installation, and rate selection based on customer preferences, behaviors, and energy consumption. In addition, DTE is developing materials to simplify rate and program information and provide customers access to these materials at locations where they might be shopping for either a PEV or a home charging solution.

Furthermore, DTE is investigating what additional resources and tools can be used to help our call center staff provide a high-quality, consistent experience for those customers calling in with PEV-related questions. Electric utilities are viewed as a reliable and trusted source of electricity information. DTE's overall goal is to use the existing customer connections – the PEV website and call center – to raise PEV awareness and facilitate a seamless PEV purchase and level 2 charger installation process at a rate that is best for the customer.

Collaboration with Multiple Stakeholders

The PEV space is evolving rapidly, so stakeholder collaboration is important to ensure consistency and accuracy in resources provided to customers. DTE has established relationships with Ford, GM, and other OEMs and is actively working on a strategy to engage with local dealerships in early 2018. In addition to OEMs, DTE has continued to engage charging equipment manufacturers, other utilities, government agencies, regional organizations, and environmental groups to compare modeling assumptions, methods, and results regarding PEV forecasts (and the associated benefits) and recommended charging infrastructure (and the associated costs).

Participation in industry workgroups, events, and conferences is important for keeping current with recent developments in such a fast-paced market. DTE is active in the DOE US DRIVE program and participates in PEV conversations and initiatives coordinated through EEI,

EPRI, Midcontinent Power Sector, Michigan Energy Innovation Business Council, American Center for Mobility, and the University of Michigan.

In addition, DTE is also working closely with the cities in its territory to collaborate on initiatives supporting PEV adoption. For example, DTE is working with the City of Ann Arbor to explore efficiently integrating level 2 charging into upcoming construction projects for both parking structures and on-street parking. DTE is also partnering with the City of Detroit and other stakeholders in an upcoming initiative to help shape the city's future mobility strategy in three target areas: vehicle and pedestrian safety, improving mobility in low-density areas, and curbside management. For both cities, DTE is engaging with developers and property managers to collaborate on their PEV charging strategies and solve charging access issues for tenants in multi-unit dwellings ("MUDs"). DTE is also exploring partnerships to provide fast charging "showcase" stations in prime downtown locations in Southeast Michigan.

Moving forward, DTE will be ramping up efforts to identify potential site hosts by utilizing the account management teams within DTE that already have strong connections to the energy decision-makers at MUDs, offices, industrial work places, retail locations, municipalities, sporting venues, and other ideal charging station locations. These account management teams are experienced in helping the customer understand the value proposition and costs associated with different types of electric equipment, rates, and programs. In summary, DTE is very engaged with industry stakeholders to evolve its PEV strategy as the market develops and is actively seeking partnerships with municipalities and potential site hosts to grow PEV charging infrastructure in Michigan.

VI. Charging Infrastructure

Market for Charging Infrastructure

Michigan currently has 11 public direct current fast charging (“DCFC”) stations and ~270 public level 2 stations with ~620 ports (excluding Tesla locations, private workplaces, and dealership charging)⁸. The DCFC infrastructure has come from Nissan, BMW, and EVgo partnerships in the Detroit metro area. Outside of Electrify America’s commitment to build a nationwide fast charging corridor using Volkswagen (“VW”) settlement funds, DTE is unaware of any further private-sector investment plans for DCFCs in Michigan⁹.

From 2017 to 2021, at least 38 new, affordable PEV models will be available in the United States¹⁰, and successful adoption of these models will be dependent on customers’ awareness of PEVs and perceptions that fueling options are available to them. For example, 27% of responders in a survey felt they knew enough about PEVs, but they still would not purchase one - citing a lack of charging stations as the primary factor in their decision¹¹. In another survey, 65% of potential PEV owners indicated they would be significantly more attracted to a fully electric model if they had access to a nationwide network of fast chargers like the Tesla Superchargers or something comparable¹². Finally, a Ford study showed that there was a 45% increase in electric vehicle miles traveled among employees who regularly used the Campus Charging Network after it was activated, and that it had a positive impact on the purchase decision for 61% of employee PEV drivers.

⁸ Alternative Fuels Data Center as of 11/2/17

⁹ Excluding Tesla

¹⁰ Bloomberg New Energy Finance Long-Term Electric Vehicle Outlook 2017

¹¹ Altman Vilandrie & Company Connected cars survey, 2016 (n = 2,557)

¹² CleanTechnica Market survey, 2015 (n= 1,198)

Michigan can address range anxiety by building out a foundational system of charging infrastructure that is accessible, reliable, and provides consistent assurance to PEV drivers. Though the amount of charging infrastructure needed to support PEV adoption varies by source and it is likely too early to define the right ratio, EPRI and National Renewable Energy Laboratory (“NREL”) both released reports suggesting there is still much investment needed as shown in the table below. This gap will only compound as adoption continues to grow at an increased rate, since the recommendations are on a per PEV-basis.

Estimated Charging Infrastructure Needed in Michigan Today¹³

| | Public Level 2 Chargers¹⁴ | Public DCFC |
|--------------------------|---|--------------------|
| EPRI Recommendation | 4,720 | 70 |
| NREL 2016 Recommendation | 3,020 | 10 |
| NREL 2017 Recommendation | 1,030 | 60 |
| Actual ¹⁵ | 620 | 20 |
| Average Gap | ~2,300 | ~30 |

While adoption rates - and therefore utilization of charging stations - are low, the business case for owning and operating charging stations may be challenging. In the near term, utilities – supported by other funding sources - can help to bridge this gap.

Multi-Source Funding

The VW settlement represents a significant opportunity to leverage available funding to deploy charging infrastructure. There is ~\$10 million available for the Environmental Mitigation

¹³ Assuming 14,000 PEVs in Michigan, all values are approximate

¹⁴ Combining MUD, workplace, and public level 2 charging recommendations (excluding single family homes)

¹⁵ Note the actual number of workplace charging currently available is not known

Trust (“EMT”) to use for charging infrastructure deployment in Michigan, and Electrify America will spend ~\$1.2 billion in states outside of California in the next 10 years on PEV awareness and infrastructure. While not enough by itself, this seed money offers an opportunity to attract funding from additional parties and build multi-organizational partnerships that can be expanded in the future.

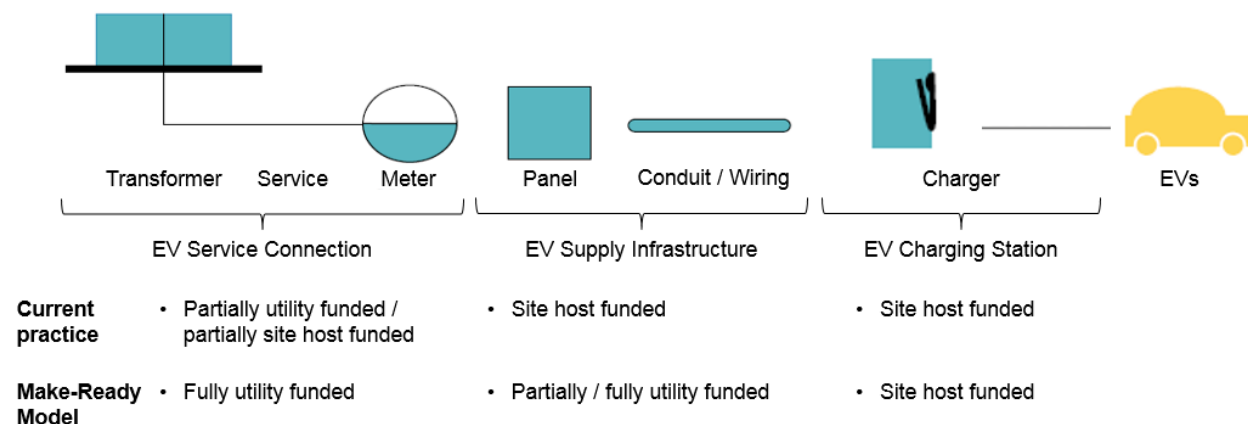
To date, the public charging infrastructure has been primarily funded by OEMs, charging equipment suppliers, and governmental organizations. However, OEMs do not consider themselves solely responsible to deploy the infrastructure required (much like they do not deploy gas stations today), and government funding alone will likely be insufficient to deploy what’s needed. As already mentioned, the business case for owning a station is challenging at low utilization rates, which means charging equipment suppliers are also unlikely to build out the infrastructure alone. Therefore, a multi-source funding strategy is required to close the gap in needed infrastructure. DTE believes it can facilitate the deployment of infrastructure – together with third parties – in a manner that is consistent with the utility’s purpose while advancing transportation electrification in Michigan.

Utility involvement can also help provide a consistent, reliable charging experience for PEV drivers during this early stage of market development. An electric company’s obligation to serve ensures key consumer protection principles like transparent pricing and open access policies are adhered to so that PEV owners can easily roam among different charging networks. It also likely increases access to charging for those in disadvantaged communities and multi-unit dwellings.

Utility “Make-ready” Model

DTE believes the best way for utilities to invest in the PEV charging infrastructure is with the “make-ready” model, outlined in the following graphic:

Overview of a Utility Make-Ready Model



In today’s current practice, deployment is on an ad-hoc basis which can lead to negative upstream impacts and doesn’t address the challenging business model of charging stations. On the other end of the spectrum, under a utility full ownership model, there is an increase in ratepayer cost (due to operation and maintenance of the stations), and there is a greater risk of stranded investment since it is not necessarily tied to market demand.

Under a make-ready model, there is potential to minimize system impacts (and therefore burden on utility customers) while tying deployment to market demand. DTE would only invest where site hosts are willing to own and operate a station, decreasing the likelihood that the station would become a stranded investment. Apart from limiting market risk, a recent report also believes that the utility make-ready model would be the most expedient path to closing the charging infrastructure gap¹⁶.

¹⁶ Rocky Mountain Institute “From Gas to Grid”, 2017

In addition, offering a make-ready model would maximize the use of VW settlement funds while simultaneously attracting additional third party investment. A make-ready EV program in DTE territory would likely increase the likelihood of Detroit being selected in Cycle 2 of Electrify America funding. Electrify America has expressed interest in going to cities with active utility programs, and selection in Cycle 2 would draw additional invest / resources from charging equipment manufacturers competing for market share.

DTE recommends applying a make-ready model to both fast charging and level 2 stations. For fast charging, a corridor network is needed to adequately address range anxiety and provide a viable charging option for ride-sharing fleets. DTE also believes downtown fast charging “showcase” stations can help increase PEV adoption and be used for strategic marketing events. For level 2 stations, DTE believes a make-ready model would apply to workplace, public, and MUD sites. DTE will likely recommend a make-ready pilot for corridor DCFC sites, showcase DCFC sites, and level 2 workplace, public, and MUD ports in its next rate case. Whether partnering with Electrify America, OEMs, or other companies as the site host, the utility make-ready model is an easy way to help ensure Michigan investments complement each other and are additive in nature.

Private Charging Support by Utilities

Studies have shown that currently ~80% of charging takes place at home, so it is important for a utility PEV program to consider residential charging as well. One way for DTE to efficiently integrate level 2 residential charging is through a rebate program. Three primary potential benefits of a residential PEV program include:

- Expanding adoption of our PEV TOU rate: In exchange for a rebate, customers could be asked to enroll in the PEV TOU rate¹⁷ and potentially commit to enroll in future demand response programs to help mitigate system impacts.
- Enabling deployment of future smart charging programs: The PEV TOU rate requires strong measurement and metering capability, enabling deployment of potential future smart charging programs which can prevent or delay investment in substations reaching critical capacity due to PEV “clustering”.
- Providing the opportunity to engage customers and promote the right technology: The use of rebates will be paired with campaigns to generate excitement around PEVs and are considered part of a “PEV-driver retention strategy” - customers with level 2 technology already installed will be equipped to purchase future PEV models with higher ranges.

In order to capture these benefits, DTE may recommend a pilot residential rebate program for households in its next rate case.

Rationale for Utility Investment in PEV Infrastructure

It is difficult to correlate utility intervention to specific PEV adoption rates, but there is broad stakeholder consensus that utilities should be playing a leading role in the near-term. DTE is working to compile national and regional studies that provide economic rationale for transportation electrification and the role of utilities in that space. For example, in their recent “Powering the Future of Mobility” insights report, Deloitte states, “Given the sizable gap between current charging infrastructure and what’s needed to support growing EV adoption [...] utilities

¹⁷ Penetration of the PEV TOU rate is ~20%

should consider playing a larger role in building out this infrastructure. And their regulators and boards should support it.” Similarly, the National Resource Defense Council’s “Driving out Pollution” report concludes, “Electric utilities are singularly positioned to close the charging infrastructure gap. Utilities can work with third-party charging service providers to leverage existing customer relationships and their knowledge of the electric grid to capture the value of grid services provided by EVs.” In addition, others like Brattle Group, Navigant, and Sierra Club have also supported utility intervention in this space. Furthermore, several state commissions have allowed for utilities to invest in this market and recover costs through their customers¹⁸.

Although it is difficult to define a model which clearly quantifies the impact of utility involvement, there are a few theoretical methods which attempt to do so. A Cornell study hypothesizes that a 10% increase in public charging infrastructure results in an 8.4% increase in PEV sales. The study argues that a dollar invested in public charging infrastructure is more effective in increasing PEV adoption than a dollar spent on financial incentives. A 2017 M.J. Bradley & Associates analysis estimates that the net present value of cumulative net benefits from greater PEV use in Michigan could be between ~\$9-30 billion state-wide by 2050¹⁹, so a relatively small utility investment now would be justified to reap the projected widespread benefits in the future. DTE also estimates each incremental PEV sale brings ~\$3,500 in net present value of gross margin over 10 years to help lower fixed costs for all customers. These varying methods would all suggest that significant PEV adoption in the future benefits all classes of customers and provides support for utility investment in the near-term while adoption is low. It would be beneficial to form a collaborative group with key industry representatives to openly share information in an effort to

¹⁸ California, Washington, Oregon, Kentucky, Massachusetts, Ohio, and Utah

¹⁹ ~\$1-3B reduced electric bills; ~\$6-23B reduced annual vehicle operating costs; ~\$2-6B reduced emissions

more accurately develop a broader view of costs / benefits as it relates to defining assumptions, methods, and models to assess utility involvement.

As a concluding note, DTE believes the PEV market is still in its early state, so policy decisions need to consider that it is not always possible to set a definite answer on all issues. It will be important to maintain flexibility to respond to different market developments. Monitoring and preparing for technological developments and market evolution will enable Michigan to support the adoption of the PEV market and advance the development of future mobility trends in the state.

Respectfully submitted,

DTE ELECTRIC COMPANY

Dated: November 17, 2017