

## Staff Briefing Papers

Meeting Date	September 5, 2019	Agenda Item **2
Company	Minnesota Power	
Docket No.	<b>E015/M-19-337</b> <b>In the Matter of Minnesota Power’s Petition for Approval of its Electric Vehicle Commercial Charging Rate Pilot</b>	
Issues	Should the Commission approve Minnesota Power’s petition for approval of its Commercial Charging Rate pilot program and associated tariffs?	
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<b>Relevant Documents</b>	<b>Date</b>
Minnesota Power – Initial Filing	May 16, 2019
<b><i>Initial Comments</i></b>	
Department of Commerce	June 17, 2019
ChargePoint, Inc.	June 17, 2019
Office of the Attorney General	June 17, 2019
Fresh Energy, Minnesota Center for Environmental Advocacy, National Resources Defense Council, Sierra Club, and Union of Concerned Scientists (collectively, CEO)	June 17, 2019
Tesla, Inc.	June 17, 2019
Large Power Interveners	June 17, 2019
Greenlots	June 17, 2019
ZEF Energy	June 18, 2019
<b><i>Reply Comments</i></b>	
Minnesota Power	June 27, 2019
Office of the Attorney General	July 8, 2019
Fresh Energy, MCEA, NRCC, Sierra Club, USC (CEO)	July 8, 2019
Tesla, Inc.	July 8, 2019
Department of Commerce	July 8, 2019
ChargePoint, Inc.	July 8, 2019

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The attached materials are work papers of the Commission Staff. They are intended for use by the Public Utilities Commission and are based upon information already in the record unless noted otherwise.

## Background

In its February 1, 2019 [Order](#) in its *Inquiry into Electric Vehicle Charging and Infrastructure*, the Commission found “electrification of Minnesota’s transportation sector can further the public interest”<sup>1</sup> and utilities have an important role in “facilitating the electrification of Minnesota’s transportation sector”<sup>2</sup> through, “expanding the availability of charging infrastructure”<sup>3</sup> and “facilitating the electrification of vehicle fleets.”<sup>4</sup>

Also in its February 1 Order, the Commission required Minnesota Power, Otter Tail Power, and Xcel Energy to file, by October 31, 2019, “proposals, which can be pilots, intended to enhance the availability of or access to charging infrastructure, increase consumer awareness of EV benefits, and/or facilitate managed charging or other mechanisms that optimize the incorporation of EVs into the electric system.”<sup>5</sup>

On May 16, 2019, Minnesota Power filed a Petition for Approval of Its Electric Vehicle Commercial Pilot to fulfill its obligation from Commission’s February 1 Order.<sup>6</sup> The pilot features a mechanism to limit the portion of a customer’s bill that is allocated to the demand charge, and removes the demand charge for usage that occurs in off-peak hours.

## Challenges of Commercial EV Charging

Minnesota Power performed an initial analysis of six public charging EV customers and found demand charges made up a disproportionately large portion of bills in comparison to other customers on the General Service Demand (GSD) rate, with values ranging from 56 to 88 percent of monthly bills. This placed these customers in the top 90<sup>th</sup> percentile of GSD customers. The high demand charge proportion results from relatively low load factors of one to eight percent.<sup>7</sup>

Charging providers Greenlots, Tesla, ChargePoint, and ZEF highlighted this is not a problem unique to Minnesota Power, and action is needed to help encourage public charging development in the Company’s service territory.

ZEF Energy, a Minnesota based DCFC provider, expanded on the need for a solution to current demand charge structure, stating:

Without a method of rate relief (such as the 30% limiter) owner/operators/developers of DCFC projects cannot effectively operate and maintain this essential infrastructure in a way that profits, or even breaks even against costs... As an entity deeply embedded in the MN market, we can share with you that DCFC deployment will either be severely

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<sup>1</sup> Docket No. E999/CI-17-879, *In the Matter of a Commission Inquiry into Electric Vehicle Charging and Infrastructure*, Order Making Findings and Requiring Filings, February 1, 2019, Ordering ¶ 1

<sup>2</sup> *Id.*, Ordering ¶ 4(a)

<sup>3</sup> *Id.*, Ordering ¶ 5(bi)

<sup>4</sup> *Id.*, Ordering ¶ 5(biii)

<sup>5</sup> *Id.*, Ordering ¶ 15

<sup>6</sup> Minnesota Power claimed its Commercial EV pilot meets the conditions of the Commission February 1 *Order*. However CEO argued the pilot did not meet the conditions of the *Order* in its initial comments response to MP’s Transportation Electrification Plan filed in docket 17-879.

<sup>7</sup> MP, Petition, p. 12

hampered, or non-existent in communities/territories where demand charge rates are not addressed.<sup>8</sup>

## Overview of Minnesota Power Petition

Minnesota Power proposed a three year Electric Vehicle Commercial Charging Rate Pilot for Commercial and Industrial Customers (Pilot). The Pilot was designed for Commercial and Industrial customer's electric service requirements for electric vehicle loads including battery charging and accessory usage which are supplied through a separate meter. The Pilot will be limited to customers with total power requirements greater than 10 kW but less than 10,000 kW and will be subject to Minnesota Power's Electric Service Regulations and any applicable Riders.

The proposed Pilot offers alternative rate design options for low-load-factor customers deploying direct current fast charging (DCFC). According to Minnesota Power, load factor characteristics often associated with facilities deploying DCFC stations can lead to high demand charges for charging stations relative to their low utilization of energy, thereby reducing the cost effectiveness of electric transit options. Recognizing the significantly different load profile of DCFC facilities as compared to average commercial customers, Minnesota Power developed its Pilot proposal to mitigate these high demand charges. Minnesota Power explained that the Pilot will also educate customers on the benefits of off-peak charging and provide incentives to shift demand to off-peak times.<sup>9</sup>

According to Minnesota Power, the proposed Pilot will allow the Company to gather data on the costs to serve this customer class, while providing incentives to efficiently and cost-effectively utilize grid resources.<sup>10</sup>

Minnesota Power proposed to offer the Pilot rate for a three-year period to allow it to:<sup>11</sup>

- Gather the information needed to design a rate that sends more accurate price signals and is based on the costs to serve EV charging customers;
- Coordinate with the Company's the MDM implementation, AMI deployment and time-of-day rate proceeding;
- Encourage increased adoption of electric vehicles in northern Minnesota by decreasing the costs associated with public and fleet charging and allowing customers time to experiment with charging patterns and capabilities; and
- Provide benefits to all Minnesota Power customers by encouraging charging in the off-peak where possible and increasing load, spreading system costs across a larger customer base.

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<sup>8</sup> ZEF Energy, Initial, p. 1

<sup>9</sup> *Id.*, p. 16.

<sup>10</sup> MP, Petition, p. 12.

<sup>11</sup> *Id.*, p. 21.

The proposed Pilot consists of on-peak and off-peak periods as well as a 30 percent cap on demand charges which were designed to address the high demand charges associated with EV charging in fleet and public charging applications.<sup>12</sup>

	<b>Current GSD tariff</b>	<b>Proposed pilot program tariff</b>
On-peak demand charge	\$6.50	\$6.50
Off-peak demand charge	\$6.50	\$0.00
Energy charge	\$0.07619	\$0.07619
Other		30% demand cap

The energy charge for the proposed Pilot, for both on-peak and off-peak time periods, is set equal to the standard GSD rate energy charge – currently set at 7.619¢ per kWh.<sup>13</sup>

Minnesota Power proposed to eliminate demand charges during off-peak periods and proposed that demand charges for this pilot will not make up more than 30 percent of a customer’s monthly bill. According to Minnesota Power, customers with low load factors also tend to have low coincidence factors; therefore, these customers are less likely to experience peak demands coincident with the Company’s system peak. Minnesota Power explained the purpose of the proposed 30 percent demand cap is to bring these customers more in-line with other GSD customers pay on a \$/kWh basis.<sup>14</sup>

Minnesota Power designed the demand charge cap so the monthly demand charge does not exceed 30 percent of customer’s total bill, excluding taxes and fees. If the demand charge is greater than 30 percent of the total bill, Minnesota Power explained the customer shall receive an EV Demand Credit applied against the demand charge, capping it at 30 percent of the pre-tax bill.<sup>15</sup>

Minnesota Power defined the on-peak periods as 8:00 am to 10:00 pm, Monday through Friday, excluding holidays. The Petition defined all other hours as off-peak periods to which no demand charges will be applied. While the proposed on-peak period covers a broad portion of the day, Minnesota Power explained the on-peak periods generally align with the Company’s system load profile. According to Minnesota Power, a shortened and more targeted peak period for these commercial load customers is unadvisable without first providing an opportunity for both customer and utility education and analysis.<sup>16</sup>

## **Party Comments**

The following parties submitted Comments in response to Minnesota Powers Petition:

1. The Large Power Interveners;

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<sup>12</sup> MP, Petition, p. 5.

<sup>13</sup> *Id.*, p. 15.

<sup>14</sup> *Id.*, p. 12.

<sup>15</sup> See Attachment to Petition, Minnesota Power Electric Rate Book Volume I, *Pilot for Commercial Electric Vehicle Charging Service*, Section V,

<sup>16</sup> *Id.*, p. 14.

2. Four developers of electric Vehicle charging infrastructure networks – ZEF Energy, Inc., Tesla Inc., Greenlots and Charge Point;
3. Fresh Energy, Minnesota Center for Environmental Advocacy, Natural Resources Defense Council, Sierra Club, and Union of Concerned Scientists (CEO);
4. The Office of Attorney General (OAG); and
5. The Department of Commerce (Department).

The Large Power Interveners filed comments requesting Minnesota Power confirm its proposed Pilot and associated tariff is limited to rate design only and does not include any related capital investment, either to Minnesota Power’s distribution system or the electric vehicle customers’ premises.<sup>17</sup> In Reply Comments, Minnesota Power stated it had not identified any additional costs that would be incurred as a result of the Pilot.<sup>18</sup>

Several charging providers filed comments in support of Minnesota Power’s Pilot. ZEF Energy<sup>19</sup>, Tesla, and Greenlots all recommended the Commission approve the pilot as proposed.<sup>20</sup> Charge Point recommended a modification to the pilot term length.<sup>21</sup>

CEO recommended the Commission approve the pilot as filed, with a modification of the pilot term to two years and requirement for the Company to file a proposal for a replacement program within two years of the Order approving the pilot.<sup>22</sup>

The OAG stated, if the Commission approves the pilot, it should adopt Minnesota Power’s Petition with modifications. The OAG recommended Commission approval should be conditioned on (1) removing or reducing the demand-charge cap, (2) shortening the on-peak period to reflect the best available data, and (3) adopting additional reporting metrics to maximize the pilot’s value as a tool to inform future offerings.<sup>23</sup>

The Department also recommended that the Commission remove or reduce the Demand Charge Cap. In addition, the Department recommended additional reporting requirements and a three-period time-of-day (TOD) rate for the Pilot.<sup>24</sup>

**Decision Option 1** approves the pilot as proposed

**Decision Option 2** approves the pilot with modifications

**Decision Option 3** denies the pilot proposal

### **Pilot On-Peak and Off-Peak Periods**

Minnesota Power proposed an 8 a.m.–10 p.m. on-peak period for the pilot that matches the on-peak period in its Residential EV Service tariff. The OAG claimed the Pilot’s 14-hour on-peak period does not reflect the Company’s actual system peak and recommended the on-peak

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<sup>17</sup> LPI, Comments.

<sup>18</sup> MP, Reply Comments, p. 2.

<sup>19</sup> ZEF Energy describes itself as Minnesota and Wisconsin’s largest independently owned and operated DC Fast Charging Network. (<https://www.zefenergy.com/about>)

<sup>20</sup> ZEF Energy, Public Comment, Tesla, Initial, pp. 1-2, Greenlots, Initial

<sup>21</sup> ChargePoint, Comments.

<sup>22</sup> CEO, Comments.

<sup>23</sup> The OAG, Comments, p. 9.

<sup>24</sup> The Department, Reply Comments, pp. 12-13.

period be shortened to reflect the best available data. The OAG noted, on February 20, 2019, in Docket No. E015/M-12-233, Minnesota Power filed a report outlining three alternative TOD rate designs that better reflect the characteristics of its system and these rate designs all feature three usage periods, with differentiated rates for each period. The length of the on-peak period ranges from four hours to five hours.<sup>25</sup>

Although Minnesota Power claimed the current limitations of its advanced metering infrastructure prevent it from implementing a more targeted on-peak period, the OAG maintained it is not clear how setting a shorter on-peak period—or even adding a third, mid-peak period—would be infeasible for the pilot, given the Company already plans to manually program participants’ meters to recognize the pilot’s on-peak and off-peak periods.<sup>26</sup>

The Department also recommended the Pilot should employ a rate design with more sophisticated time periods than was proposed by the Company. Given (1) the time period differentiation for the Residential EV Service Tariff was used as the basis for the proposed Pilot, and (2) the record in Docket No. E015/M-12-233 regarding Minnesota Power’s Residential Time-of-Day (TOD) Rate continues to develop and includes useful information; the Department concluded that the time period differentiation information contained in the Docket No. E015/M-12-233 can inform the Commission’s decision on the appropriate on-peak and off-peak periods to use for this Pilot.<sup>27</sup>

Therefore, the Department recommended the Commission require Minnesota Power to adopt, without prejudice toward any future Commission decision on the Company’s Residential TOD Rate Design, the following rate design for the Commercial EV Rate Pilot: Peak – 3:00 PM to 8:00 PM weekdays, Off-Peak – all times other than Peak or Super Off-Peak, with Super Off-Peak designated as 11:00 PM to 5:00 AM.<sup>28</sup>

According to the Department, a three-period TOD rate design for Minnesota Power’s Pilot would provide an important educational opportunity preparing Minnesota Power’s EV customers for a more sophisticated rate design seeking to incentivize EV charging toward off-peak hours to ensure the benefits EVs offer to all Minnesota Power customers are realized.<sup>29</sup> While the Company stated they do not have the necessary load and cost data analysis with hourly detail for these customers on which to base pricing information, the Department suggested that any future EV rate offerings should have an appropriate and differentiated energy charge.<sup>30</sup>

ChargePoint also agreed a more targeted on-peak time period would be ideal. ChargePoint noted charging vehicles from a near empty state with a Level 2 charge may take considerably

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<sup>25</sup> OAG, Comments, p. 7

<sup>26</sup> The OAG, Reply, p. 1. Staff notes that the Commission met on this matter on Aug 1, 2019. The Commission issued an Order Accepting Compliance Report as Complete and Modifying Requirements for 2020. Annual Compliance Report on August 16, 2019.

<sup>27</sup> Department, Reply Comments, pp. 5-7

<sup>28</sup> *Id.* p. 7.

<sup>29</sup> Department, Supplemental Comments, p. 2.

<sup>30</sup> Department, Reply, p. 7

more than the 10 hours designated as the off-peak period. ChargePoint claimed shortening the on-peak period two hours – ex. from 9am to 9pm – could be beneficial to fleet managers.<sup>31</sup>

CEO also agreed the proposed 14-hour on-peak period does not reflect actual system (and regional) peaks, and it supported any additional reporting requirements that would aid the OAG’s evaluation of the program. CEO explained the large non-coincident peak demand charges are not only a poor rate design practice, but such charges wreak havoc on the economics of DCFC. However, while CEO shared many of the OAG’s concerns regarding both rate design and cross-subsidy, it suggested it would be more appropriate to delay a redesign of the Company’s rates until its new meter data management system is in place.<sup>32</sup>

The Company stated it believes it is prudent to wait for Commission approved guidance on its TOD methodology and analysis prior to modifying its peak periods for time-varying rates. Minnesota Power recognized that the peak periods of the Pilot Program may not directly align with underlying system costs. However, Minnesota Power claimed there are currently limitations to the AMI and MDM data/billing process as well as limited information on the usage patterns for these customers. Accordingly, Minnesota Power advised it would not be prudent to attempt to create a more targeted peak period for these commercial load customers without first providing an opportunity for both customer and utility education and analysis.<sup>33</sup>

### Staff Analysis

As noted above, Minnesota Power proposed two period rate design with an 8 a.m.–10 p.m. on-peak period for the pilot matches the on-peak period in its Residential EV Service tariff. All other times would be considered off-peak. Staff understands the options for on-peak and off-peak periods rate design to include two proposed modifications by parties.

1. Shortening the on-peak period; and
2. Adding the third time period to Minnesota Power’s proposed two-period rate design.

ChargePoint, the OAG and the Department all recommended the Commission shorten the on-peak time period. ChargePoint recommended shortening the on-peak time period to 12 hours and suggested a 9 am to 9 pm on-peak time period.

As described above, both the Department and the OAG recommended the on-peak time period should be shortened to reflect information contained in Docket No. E015/M-12-233.<sup>34</sup> The information in this Docket suggests either 4 or 5 hour on-peak periods among three rate design options.<sup>35</sup> While the OAG did not recommend a specific on-peak period from the three options – instead recommending the on-peak be shortened to reflect the best available data – the Department recommended the Commission adopt the option it concluded was most similar to the Commercial EV Rate Pilot rate structure. The Department’s recommended option has an

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<sup>31</sup> ChargePoint, Comments, p. 2

<sup>32</sup> CEO, Reply, p. 2

<sup>33</sup> MP, Reply, pp. 2-3

<sup>34</sup> Docket No. E015/M-12-233, *In the Matter of Minnesota Power’s May 1, 2018 Compliance Filing for its Temporary Rider for Residential Time-of-Day Rate for Participants of the Smart Grid Advanced Metering Infrastructure Pilot Project*, Compliance Filing, February 20, 2019

<sup>35</sup> Department, Reply, Table 1, p. 7



on-peak time period of 3:00 to 8:00 PM for weekdays and off-peak for all other hours and also includes a third, super off-peak period, from 11:00 PM to 5:00 AM.

Staff notes the information in Docket No. E015/M-12-233 is relevant to Minnesota Power's *Residential TOD Rates* in a pilot program Minnesota Power has offered since 2014. The current Residential TOD rate Pilot has a rate structure similar to the structure proposed in Minnesota Power's EV Commercial Charging Rate Pilot with an on-peak period from 8:00 AM to 11:00 PM during weekdays. In its February 20, 2019 Compliance report, Minnesota Power emphasized to the Commission the three different options for alternative rate designs cannot practicably be offered for a few years—that is, until the complete deployment of its AMI/MDM (advanced metering infrastructure/meter data management) is in place. In the meantime, Minnesota Power continues its current TOD pilot under the existing rate structure. Staff notes further the residential TOD pilot is a “closed” pilot, which means it is not available to new customers.

On August 1, 2019, the Commission met *On The matter of Minnesota Power's Compliance Report for its Temporary Rider for Residential Time-of-Participants of the Smart Grid Advanced Metering Infrastructure Pilot Project* in Docket No. E015/M-12-233. The Commission issued its *Order Accepting Compliance Report as Complete and Modifying Requirements for 2020 Annual Compliance* on August 16, 2019. In its Order, the Commission required Minnesota Power to include in its August 2020 annual compliance report: (a) a proposal for one or more preferred TOD rate options; (b) a discussion of other options presented by stakeholders, including consideration of higher on-peak to super-off-peak ratios and potential future implementation of dynamic pricing and dynamic time periods; and (c) a proposed implementation timeline, including discussion of a proposal to phase in TOD rates as soon as Minnesota Power's new MDM system is implemented.<sup>36</sup>

Staff understands both the Department and the OAG would prefer the EV Charging Pilot have three-part TOD rates with different energy rates for the three rate periods. Staff also understands the two agencies appeared to suggest the differentiated rates may be determined using a methodology similar to what Minnesota Power used to determine the energy rates for the proposed TOD options in its February 20, 2019 compliance filing for its Residential TOD Rate Pilot. However, both parties also appeared to recognize there currently may be limitations to obtaining the necessary customer information for the development of these rates.

Although Minnesota Power may not currently have the necessary load and cost data analysis, with hourly detail for these customers on which to base pricing information, the Department advised that future EV rate offerings will have the necessary data and analysis on which to base appropriate and differentiated energy charges. Therefore, Staff understands the Department recommended a three-period TOD rate structure – even without Commission approved differentiated energy rates – for Minnesota Power's EV Charging Pilot, because it will provide an important educational opportunity preparing EV charging customers for a more sophisticated rate design in the future. In other words, the Department recommended a three-period TOD rate, despite the proposed rates being identical for off-peak and super off-peak periods, in order to prepare EV charging customers for differentiated energy rates in the future.

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<sup>36</sup> Docket No. E015/M-12-233, Ordering ¶ 3, p. 5

**Decision Option 4** adopts the Department’s recommended time periods

**Decision Option 5** adopts ChargePoint’s recommended time periods

**Decision Option 6** adopts the OAG’s on-peak period

### **Pilot Demands Charges**

In its Pilot, Minnesota Power proposed to eliminate charges for off-peak demand and limit demand charges to 30 percent of a customer’s total bill. Essentially, Minnesota Power proposed in its Pilot to only bill for demand charges during the on-peak hours, and to limit demand charges to 30 percent of a customer’s total bill by imposing a 30 percent demand charge cap through an offsetting “EV Demand Credit.”

Greenlots supported the approach Minnesota Power has taken with this rate design, because it does not eliminate demand charges altogether; retaining them for on-peak periods, while instituting a 30 percent demand cap. According to Greenlots, this approach will retain the important price signal demand charges provide, while providing an incentive to manage load and shift demand to off-peak time periods. Greenlots also claimed the proposed Petition creates incentives for the utilization of managed charging and other demand management technologies.<sup>37</sup>

The OAG recommended the Commission should reject the Company’s proposal to cap pilot participants’ demand charges at 30 percent of their bills, because it would send conflicting price signals and constitute a subsidy in favor of participants. The OAG argued, while eliminating off-peak demand charges encourages beneficial off-peak charging, capping on-peak demand charges weakens this incentive and increases the risk nonparticipating ratepayers will subsidize the Pilot. According to the OAG, this approach will prevent the Company from learning whether eliminating off-peak demand charges motivates customers to shift their usage.<sup>38</sup>

The OAG advised the Pilot test one major design feature at a time – elimination of the off-peak demand charge – and a demand-charge cap be added only if experience with the pilot shows it is necessary.<sup>39</sup> The OAG maintained that the Company may seek to impose a demand charge cap later if there is insufficient interest in the pilot or participants are unable to avoid incurring excessive demand charges. The OAG argued that removing the cap once it is in place may be more difficult, since participants’ expectations will already be established.<sup>40</sup>

If the Commission allows the pilot to move forward with a demand charge cap, the OAG recommended it should require the Company to set the cap no lower than 50 percent. The OAG claimed a 50 percent demand charge cap increases participants’ incentive to charge off-peak, thus decreasing pilot costs and better balancing the interests of participants and nonparticipants compared to a 30 percent cap.<sup>41</sup>

The Department claimed the proposed demand cap of 30 percent, credited on participants’ monthly bills as an EV Demand Credit, will have a significant impact on participants’ monthly

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<sup>37</sup> Greenlots, Comments, pp. 1-2

<sup>38</sup> OAG, Comments, pp. 5-6

<sup>39</sup> OAG, Reply, p. 1

<sup>40</sup> OAG, Comments, p. 6

<sup>41</sup> *Id.*

bills. The Department noted the reduction in revenue Minnesota Power will experience as a result of the Pilot total EV Demand Credit amount. By reducing a participants' monthly bill through an EV Demand Credit, the Department claimed participants may not be paying for their share of costs of the distribution system as it was designed to handle peak conditions. The Department argued, under these circumstance, nonparticipants will pick up the costs and cross subsidize the Pilot proposal. In order to determine the reasonableness of the Company's proposal, the Department argued the scale of the subsidy and its impact on both the utility and other ratepayers should be fully understood.<sup>42</sup>

The Department expressed concern Minnesota Power did not note this anticipated revenue deficiency explicitly in its Petition, and it did not perform necessary financial analysis on the impact of the proposed Pilot and cross subsidization risks. The Department warned the lack of information in the record regarding the financial impact of the proposed Pilot creates significant risk for both the Company and its other customers for the benefit of a few public EV charging and EV fleet charging customers.<sup>43</sup>

Therefore, the Department recommended the Commission deny, without prejudice, Minnesota Power's request to provide its proposed EV Demand Credit. Alternatively, if the Commission approves an EV Demand credit, the Department recommended the Commission require Minnesota Power, in its next general rate case to demonstrate the extent to which non-participants may be subsidizing Pilot participants. In addition, if the Commission approves of demand charge cap the, Department agreed with the OAG that a 50 percent cap is preferable to Minnesota Power's proposed 30 percent cap.<sup>44</sup>

CEO disagreed with the Department and the OAG's recommendation to remove the 30 percent demand charge cap.<sup>45</sup> According to CEO, the Company's GSD tariff does not reflect underlying system costs and includes inappropriately large non-coincident peak demand charges, which has a negative effect on fleet electrification and DCFC applications.<sup>46</sup>

CEO explained DCFC did not exist when most current demand charge structures were designed and existing utility rate structures for large customers were not designed with this load profile in mind. Utility rate designs that include a demand charge favor customers with high load factors – the higher load factor, the less the customer will pay for electricity (per kWh); and the lower the load factor, the more a customer will pay for electricity (per kWh).<sup>47</sup>

CEO stressed DCFC customers have a rare load profile, requiring short bursts of consumption at a relatively high capacity, which are often followed by long periods with no usage at all. This means DCFC customers have a large peak demand (in kW) every month, but relatively little energy consumption (in kWh). In other words, CEO emphasized DCFC customers have very low load factors. In addition, CEO claimed DCFC puts less strain on distribution system equipment

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<sup>42</sup> Department, Reply, pp. 7-9.

<sup>43</sup> *Id.*, p. 9.

<sup>44</sup> *Id.*, p. 10-12.

<sup>45</sup> CEO, Reply, p. 2.

<sup>46</sup> CEO, Comments, p. 1.

<sup>47</sup> *Id.*, p. 2.

relative to more constant loads, making it inappropriate to charge DCFC customers the same demand charge rates as other large customers.<sup>48</sup>

Minnesota Power responded to the OAG and the Department stating the demand charge cap provides a very important benefit specifically for public charging station customers. By capping demand rate billings, the Company stated it minimizes the economic risks to public charging station owners. Minnesota Power explained the 30 percent cap was determined to be a balanced approach that recognizes most public charging takes place during the on-peak period, but lowers the impact that demand would have to a level that doesn't discourage investment in EV charging infrastructure.<sup>49</sup>

### Staff Analysis

Staff notes that both the OAG and the Department recommended that the Commission remove the demand charge cap. Further, as discussed above, both the Department and the OAG also recommended a significantly reduced on-peak period during which the Demand Charge would apply. If the Commission adopts the Department and the OAG's recommendation to shorten the on-peak period to a four or five hour period, the total demand charge rates charged to customers should be significantly reduced. The shortened on-peak period should also allow customers greater ability to change their behavior to charge EV vehicles during the off-peak period, when the demand charge would not apply. While EV Fleet customers have greater ability to change their charging behavior to off-peak hours than public DCFC customers, Public DCFC customers are able to influence the charging behavior of EV owners to the extent they pass the cost savings – from no demand charges during off-peak hours – to EV owners.

**Decision Option 7** removes the demand charge cap

**Decision Option 8** raises the demand charge cap from 30 percent to 50 percent

### **Pilot Term Length**

ChargePoint and CEO both suggested modifying the pilot term.

In light of the pilot's temporary nature, CEO recommended the Commission should limit the pilot to a two year term. Furthermore, it recommended the Commission require Minnesota Power to file a replacement offering within two years of the pilot's approval. Based on the Company's progress with updating its MDM system, CEO estimated this would provide ample time for MP to implement a replacement and have the necessary technology in place.<sup>50</sup>

In contrast, ChargePoint proposed extending the pilot term be extended to 5 years. According to ChargePoint, the three year time frame would not provide enough rate certainty for public or fleet customers' investment in expensive infrastructure.<sup>51</sup> ChargePoint was also concerned concluding the pilot at the end of three years, with no plan or commitment to address investment issues after three years, would not send the correct market signals and may cause a

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<sup>48</sup> *Id.*

<sup>49</sup> MP, Reply, p. 2.

<sup>50</sup> CEO, Initial, pp. 4-5

<sup>51</sup> ChargePoint, Initial, p. 2

price spike at the end of three years for existing customers.<sup>52</sup> ChargePoint suggested the Commission modify Minnesota Power's Petition from a three-year pilot to a five-year pilot and allow customers to enroll on a rolling basis for up to one year after the tariff becomes available.<sup>53</sup> Absent an extension to the pilot term or the recommendation brought by CEO to produce a new rate structure within two years,

ChargePoint recommended the Commission order the pilot structure approved in this proceeding remain in place until MP proposes and the Commission approves a permanent alternative.<sup>54</sup>

ZEF Energy also encouraged an off ramp period after the three year pilot term to ensure if a follow up option is not in place charging providers would not experience rate shock.<sup>55</sup>

In reply comments, MP clarified customers would be able to enroll in the rate at any point in time throughout the pilot period. MP opposed lengthening the pilot to five years, as it considers this a temporary solution and wished to implement a permanent offering before that date. However, the Company also opposed CEO's proposal to shorten the time period, stating two years may not provide sufficient information to develop a full scale offering and implement technology upgrades.<sup>56</sup>

### Staff Analysis

There are several ways the Commission could ensure an orderly transition to a more sophisticated and permanent Commercial EV Charging Option while giving customers some rate certainty.

One option is to leave Minnesota Power's three year term in place, but require the Company to file a permanent offering after two years of pilot operations. This would ensure there is not a gap between the end of the pilot and a permanent offering, minimizing rate shock to customers who have made investments based on a known rate.

Another option is to take ChargePoint's suggestion of a rolling one year enrollment period, and allow customers to remain on the rate until a permanent offering is approved by the Commission. The Commission could then require a permanent filing two or three years after the pilot begins.

Regardless of which option the Commission chooses, parties have acknowledged this pilot is a temporary solution and having a long term deployment plan is critical to ensuring a smooth transition between any rate offerings.

**Decision Option 9** adopts CEO's recommendation for a 2 year pilot term

**Decision Option 10** adopts ChargePoint's recommendation for a 5 year pilot term

**Decision Option 11** leaves the pilot in place until the Commission approves an alternative

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<sup>52</sup> ChargePoint, Reply Comments

<sup>53</sup> ChargePoint, Initial, p. 2

<sup>54</sup> ChargePoint, Reply Comments

<sup>55</sup> ZEF Energy, Initial, p. 1

<sup>56</sup> MP, Reply, pp. 1-2

## Reporting

Minnesota Power proposed to evaluate the rate during the three-year pilot period to determine whether a commercial EV charging rate is needed going forward and if so, what changes may be needed for EV charging in the future. Minnesota Power proposed the following evaluation criteria:

1. Cost allocation factors – from Class Cost of Service Studies;
2. Daily/monthly coincidence factors - with Minnesota Power system peak and MISO system peak;
3. Daily/monthly on/off-peak and overall load factor;
4. Average \$/kWh and respective percentile rank within GS Demand;
5. Comparison of final bills under different rate structures;
6. Daily/monthly kW demand on and off- peak;
7. Pre-pilot usage for comparison;
8. Growth in the number of fleet EV or public charging stations;<sup>57</sup>

In its initial Comments, the OAG recommended if the Commission approves MP’s demand-charge cap proposal, it should require additional reporting on the Demand Credit (how MP would implement the demand charge cap). The OAG suggested the Commission require MP to “separately track the monthly and yearly cost of the EV Demand Credit, both for the pilot as a whole and for each participant,” reported annually.

Second, the OAG pointed to the extensive list of reporting requirements the Commission required in Xcel Energy’s fleet and public charging pilot.<sup>58</sup> The OAG requested MP identify which of those metrics would not be reasonable for its pilot. In reply comments, MP stated it did not think Xcel’s metrics were appropriate, but would be willing to discuss additional reporting requirements with stakeholders. However, MP did not propose any additional metrics.

In reply, the OAG remarked since MP declined to propose any additional metrics, it recommended adopting an adapted version of the requirements from Xcel’s pilot, which are outlined in its July 8, 2019 letter in the present docket.

The Department recommended the addition of two items to Minnesota Power’s list if the Commission approves a demand cap/credit mechanism:

1. The total amount of EV Demand credit provided to each participant, compared to the demand revenue the Company would have received without the Pilot; and
2. The total amount of EV demand credit provided for the Pilot, compared to the demand revenue the Company would have received without the Pilot.<sup>59</sup>

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<sup>57</sup> MP, Initial, pp. 20-21

<sup>58</sup> Docket 18-643

<sup>59</sup> Department, Reply, p. 13

In Reply Comments, Tesla also agreed it would be helpful to adopt more utility reporting metrics, such as those proposed by the Office of the Attorney General.<sup>60</sup>

### Staff Analysis

Minnesota Power did not indicate a reporting schedule. Staff recommends the Company provide reports on an annual basis, on the date of the Commission's Order, in this docket. Staff also recommends MP provide the most recent annual report as an attachment to any future Transportation Electrification Plans, if ordered by the Commission.

Staff has also compiled a consolidated list of metrics from the OAG, Minnesota Power, and the Department into a single reporting recommendation which should encompass the suggestions made by each party.

**Decision Option 12** is the general reporting option

**Decision Option 13** incorporates the Department's additional reporting requirements if a demand credit is adopted.

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<sup>60</sup> Tesla, Reply, p. 2

## Decision Options

1. Approve Minnesota Power's proposed Electric Vehicle Commercial Charging Tariff Pilot. *(MP, Greenlots, Tesla)*  
**OR**
2. Approve Minnesota Power's proposed Electric Vehicle Commercial Charging Tariff Pilot, with modifications. *(CEO, Department, ChargePoint)*  
**OR**
3. Deny Minnesota Power's proposal for an Electric Vehicle Commercial Charging Tariff Pilot.

## Pilot Modifications

### On and Off Peak Periods

4. Adopt, without prejudice toward any future Commission decision on the Company's Residential Time-of-Day Rate Design, the following rate design for the Commercial EV Rate Pilot: On-Peak – 3:00 PM to 8:00 PM weekdays, Off-Peak – all times other than Peak or Super Off-Peak, Super Off-Peak – 11:00 PM to 5:00 AM. *(Department)*
5. Adopt and on-peak period of 9:00 AM to 9:00 PM weekdays with all other times off-peak. *(ChargePoint)*
6. Adopt a shortened on-peak period (4-5 hours) to reflect the best available data. *(OAG)*

### Demand Charge Cap

7. Remove the demand charge cap *(OAG, Dept; preferred)*  
**OR**
8. Raise the demand charge-cap from 30 percent to 50 percent of the customer's total bill *(OAG, Dept; alternative)*

### Pilot Term

9. Limit the term of the pilot to two years and require the Company to file a proposal for a replacement program within two years of the Order approving the pilot. *(CEO)*
10. Extend the term of pilot to five years and allow customers to enroll on a rolling basis for up to one year after the tariff becomes available. *(ChargePoint)*
11. Require the pilot structure approved in this proceeding remain in place until the Company proposes and the Commission approves a permanent alternative. *(ChargePoint, Alternative)*



## Reporting; Miscellaneous

12. Adopt the following reporting requirements. Minnesota Power shall provide reports on an annual basis, on the date of the Commission's Order, in this docket. Minnesota Power shall provide the most recent annual report as an attachment to any future Transportation Electrification Plans, if such plans are ordered by the Commission. Where applicable, include data in spreadsheet (.xlsx) format. *(Staff consolidation of commenters reporting requirements)*

- a. Program level
  - i. For fleets, participation over time:
    1. number of fleets
    2. number of vehicles
    3. number of ports
  - ii. For public charging, participation over time:
    1. number of site hosts
    2. number of ports
  - iii. End-user satisfaction, including surveys of fleet electric vehicle drivers and transit users riding electric buses
  - iv. Publically accessible information on site host characteristics
  - v. Customer charging behavior in response to rate structure
- b. Site level, annual
  - i. Whether the participant is a fleet or public charger
  - ii. Location of the site
  - iii. Number of ports at the site, and individual port capabilities
  - iv. Costs
    1. Program implementation
    2. Installation costs, including meter programming
    3. Customer service and technical assistance needs
    4. EV Demand Credit
    5. Any other costs not reflected in the list above
  - v. Revenues, broken down by:
    1. Energy revenues
    2. Demand charge revenues
    3. Fixed cost revenues
    4. Whether the customer elected to charge with renewable energy
  - vi. If the customer is providing public charging, rates and fees charged to end user customers, and if those rates changed during the year, what period they were in effect.
  - vii. Average \$/kWh and respective percentile rank within General Service Demand Rate
- c. Site level, monthly
  - i. kWh consumed in the on- and off-peak periods of Minnesota Power's tariff

- ii. Coincident peak demand, at the MISO system peak and MP system peak, including the time of day at which the peak occurred
    - iii. Non-coincident peak demand, including the time of day the peak occurred
    - iv. Number of vehicles, reported by the customer, using the charging infrastructure
    - v. Percentage of charging aligned with any onsite generation, if applicable
  - d. Comparison of final bills under the pilot rate structure to the General Service Demand rate.
  - e. Comparison of pre and post pilot energy and demand usage, where available.
13. If pilot is adopted with an EV Demand credit, add the following reporting requirements:
- f. The total amount of EV Demand credit provided to each participant, compared to the demand revenue the Company would have received without the Pilot; and
  - g. The total amount of EV Demand credit provided for the Pilot, compared to the demand revenue the Company would have received without the Pilot.
  - h. Require Minnesota Power to show, in its next general rate case, the extent to which non-participants are subsidizing participants in the Commercial EV Rate Pilot;  
*(Department)*
14. Where not otherwise noted, require Minnesota Power to submit a compliance filing consistent with the Commission's decision in this matter no later than 10 days for the issuance of the Order. *(Staff)*