

**ORDER NO. 90971**

Electric Vehicle Reliability and Reporting standards

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BEFORE THE  
PUBLIC SERVICE COMMISSION  
OF MARYLAND

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Case No. 9478  
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**Issue Date: January 10, 2024**

**ORDER ON ELECTRIC VEHICLE CHARGING STATIONS RELIABILITY AND REPORTING STANDARDS**

On July 28, 2023, the Commission’s Electric Vehicle Work Group (the “Workgroup”) filed a report (the “Report”) identifying consensus and non-consensus issues regarding proposed future reliability and reporting requirements for electric vehicle (“EV”) charging stations.<sup>1</sup>

The Report recommended that the Commission resolve the non-consensus issues and direct the PC44 Electric Vehicle Charging Pilot Program (“EV Pilot”) Utilities to submit for Commission approval their business process plans for determining if a charging station is “down” and any associated process improvements. On August 31, 2023, the Commission received public comments from the Alliance for Transportation Electrification (the “ATE”), ChargerHelp, Lanny Hartmann,<sup>2</sup> ChargePoint, the Exelon Utilities,<sup>3</sup> the Maryland Office of People’s Counsel (“OPC”), and Commission Staff

<sup>1</sup> Maillog No. 304326.

<sup>2</sup> A resident of Howard County, MD and blogger on electric vehicles, Mr. Hartmann had also previously testified in prior Commission reviews of EV charger reliability and before the Maryland General Assembly.

<sup>3</sup> Baltimore Gas and Electric Company, Potomac Electric Power Company, and Delmarva Power and Light Company.

(“Staff”). The Workgroup filed a supplemental report on September 29, 2023. The Commission held a public hearing on October 11, 2023.

Having considered the recommendations of the Workgroup and the stakeholder comments, the Commission accepts the consensus recommendations of the Workgroup, directs the utilities to file their business process plans by February 9, 2024, and otherwise directs as described below.

### **Background**

The Commission directed the Workgroup to prepare the Report in Order No. 90478, which extended a prior deadline for the filing of reliability reporting requirements until after the Federal Highway Administration (“FHWA”) published its own final regulations, which became effective March 30, 2023, and included uptime standards and associated reporting requirements for certain EV chargers.

Subsequently, on May 8, 2023, the Maryland General Assembly enacted the Electric Vehicle Charging Reliability Act (HB834 or “the Act”), which permits the Commission to expand the scope of the current electric vehicle Pilot until the end of 2025 to install chargers in multi-family dwellings. The Act also set reliability standards, or required the Commission to do so, and established reporting standards for utility-owned charging stations.

On May 15, 2023, the Commission issued Order No. 90624, directing the Workgroup to “include how the EV reliability standards and EV Pilot Utilities will comply with HB834 in its next reliability standards report.”

## **Consensus Recommendations**

The Report organized its recommendations under nine topics, three of which contained non-consensus issues. Non-consensus issues will be addressed separately below.

The Workgroup agreed that the uptime measurements should be measured and applied at the port level when each port has only one connector, consistent with the FHWA standard. The Workgroup concluded that this was consistent with HB834's requirement that uptime standards apply "for each EV charging station." There is a lack of consensus, described below, when ports have multiple connectors.

The Workgroup agreed that 97 percent average annual uptime should be the minimum standard, consistent with the NEVI standard.

The Workgroup proposed consensus rules for handling hardship exemptions. The Workgroup noted that NEVI and HB834 both allow for various exemptions when determining if a charger is up, but generally those related to issues outside the operator's control. The Workgroup members agreed that HB834 permits the Commission to establish additional exemptions. For example, the Workgroup agreed that uptime should be measured in minutes or the most granular increment available to the utility, as approved by the Commission. Utilities relying on Shell Recharge as a charging vendor do not currently have access to outage data tracked to the minute. Those utilities are working with the vendor, but achieving this goal will take some development time and investment. To account for this, the Workgroup proposed that utilities can petition for exemption from compliance with the requirement to utilize minute data where compliance would cause unreasonable hardship. ChargePoint argued that the costs of compliance with the proposed reliability requirements will be too high for all existing chargers.

The Workgroup reached a degree of consensus on minimum payment standards for charging stations, and the parties agreed that the utilities will submit to the Commission for approval of their plans on how to provide options for customers with disabilities and non-English speakers.

The Workgroup proposed consensus rules regarding mechanisms for customers to report outages and other issues with charging infrastructure.

The Report explained that OPC has proposed a reporting requirement for customer complaints. The utilities proposed four metrics, though the exact details remain unclear because procurement is ongoing, and capabilities are not fully known: (1) the number of complaints received; (2) the category of complaint (network, hardware, other); (3) the date the complaint was received; and (4) the resolution of the complaint. The utilities also proposed that complaints would not be reportable if they could be resolved at the initial point of contact with a customer service representative. The Workgroup does not believe this issue is ready for Commission decision and needs more time for discussion within the Workgroup. In its September 29, 2023 Supplemental Report, the Workgroup stated that the Workgroup participants had reached consensus on the reporting of the dates of charging station repairs. It also stated that the Workgroup was continuing to work toward consensus on an OPC-proposed reporting requirement regarding customer complaint tracking and would file an update in its next report, due April 1, 2024.

The proposed rules do not set forth the appropriate Commission action in the event a utility fails to meet its uptime requirements. HB834 provides that the Commission may impose penalties or take additional remedial action in such cases. The proposed rules allow for ongoing Commission review and potentially require utilities to develop business plans

to improve their procedures. The Workgroup asked the Commission to direct the EV Pilot utilities to provide, for Commission approval, their business plans for determining if a charging station is “down” and any associated process improvements.

### **Non-consensus issues**

#### **1. Whether uptime will be measured at the port level and uptime standards will apply to both Level 2 and DCFC chargers**

The Workgroup was unable to reach consensus on whether a charging station port should be considered “up” if one of its connectors was non-functional, even if others were functional. The Workgroup members presented three competing positions:

- (1) If there are multiple connectors of different capabilities attached to a port, the uptime requirements would require that at least one of the connectors be capable of dispensing power at the minimum power level.
- (2) At least one of each type of connector connected to the port must be functional. If a utility is unable to determine when connectors of different capabilities attached to a port are up but can provide connector-level uptime, the utility may provide connector-level uptime.
- (3) All connectors connected to a port should operate regardless of type for the port to be considered “up.”

Most of the participants from the charging industry supported option one, which is the minimum standard set by NEVI, and expressed concern that varying standards across jurisdictions could require more expensive and unique solutions for different jurisdictions. Potomac Edison also supported option one but stated that it would record data at the connector level for stations with multiple connectors. ATE argued that concerns about different connectors will become less pronounced as the industry consolidates around a single connector type.

The Exelon utilities supported option two. They argued that connector-level uptime accurately represents the reliability of DCFC stations and state that they do not receive

port-level data from their vendor and cannot calculate it. The utilities noted that this is a stricter standard than NEVI and asked that the Commission should exercise leniency if there is a connector with a down-time less than 97 percent.

Option three was supported by Staff, OPC, ChargerHelp, and Mr. Hartmann. Those parties argued that it would not be acceptable for a driver to be told that a station is available but not be able to use all connectors, given that drivers are often dependent on a specific connector type. They also argued that utilities need an incentive to bring non-functional connectors back into service quickly.

### **Commission Decision**

The Commission finds that, for purposes of the current Pilot, option three provides the best protection for Maryland consumers, the best incentives for utilities, and the best insights into the weak links in the developing EV charging infrastructure. Although the EV charging industry may, at some point in the future, consolidate around a single charging connector, the immediate future in Maryland will be an evolving ecosystem containing multiple connector types, and the Commission is mindful that one of the primary goals of this Pilot is to expand the availability of public charging, which requires chargers to dispense electricity as designed, for all customers.

The Commission notes that the Workgroup was uncertain as to the interpretation of “dispense electricity as designed,” with differing opinions among Workgroup members. That question is relevant as to multiple issues raised in the Report and discussed here and below. The Commission finds that the physical connections and user-interface of a charging station are integral to its ability to dispense electricity as designed.

## **2. Backdating charger uptime based on customer complaints**

The Workgroup was unable to reach consensus on whether the period of time that a charger is “down” should begin from when a utility agent inspects and confirms the charger is not functioning as designed, or whether it should begin from the time when the utility first became aware of the issue, which may have been through a customer complaint. Currently, no Pilot Utility backdates a reported outage to the time of the initial customer report (assuming the station has been confirmed by the utility to be “down”), and the ability to do this depends on vendors making that capability available.

ATE stated that treating a charger as down based on an unsubstantiated customer report would be unfair to utilities given the various factors that could result in false positives. ChargePoint argued that starting the clock from the time of a customer complaint is an unreliable basis for a metric. It argued that network operators thoroughly monitor uptime through other internal means.

Other non-utility parties raised concerns that utilities lacked incentives to promptly respond to potential outages if utilities are permitted to count chargers as “up” during periods between when a customer files a report and the utility technician confirms an outage.

Most parties agreed that, in the interim, it would be sufficient if the Commission required utilities to seek approval for how they plan to record a “down” charging station and a definitive plan to move towards backdating downtime. One participant suggested that the Commission should direct the utilities in how to measure downtime, instead of waiting for utility proposals.

## Commission Decision

The Commission directs that the Pilot utilities should address this issue and potential process improvements in their upcoming business plans as proposed by the Workgroup. The Commission appreciates that vendors may not currently offer this service. However, the Commission is concerned by the incentive issues raised by the non-utility parties. The Commission must be assured that utilities and charging companies promptly address non-functioning charging stations, and EV drivers must be able to trust that the charging network includes functional charging stations.

As part of that filing, the utilities should also clarify their current and future plans regarding the avenues available for customers to make reports of non-functioning equipment, such as dedicated phone numbers, etc.

### **3. Whether charging stations are considered “down” if they are disconnected from the charging network**

The Workgroup was unable to reach consensus on whether a charging station should be considered “down” if it has been disconnected from the charging network. The FHWA requires chargers that receive NEVI funding to still function even if they are not connected to the charging network. The Report noted that the Workgroup’s proposals assume that a charging station’s connectivity does not impact uptime so long as the utility can provide certainty that the station is dispensing electricity.

However, utilities relying on Shell Recharge as a vendor do not believe they can comply with this requirement, and Shell Recharge indicated it does not have a plan to offer this functionality. PE is unable to prove a charging station is operational during times of network disconnection but proposed to consider a charging station “up” if it is disconnected from the network unless a customer reports the station as not working. Some participants

argued that chargers not connected to the charging network (and thus requiring an RFID or similar device to initiate) should be considered “down” and thus count against the utility’s reliability standards. The Workgroup proposed that the Commission consider chargers not connected to the network as “down” but grant exemptions where this requirement would cause an unreasonable hardship for utilities or customers.

OPC argued that a charging station that is disconnected from the charging network should be considered down because it is unclear whether utilities will be able to accurately collect data from the charging stations that are dispensing energy during those periods.

ChargerHelp recommended that the Commission consider a charging station to be down if it is not connected to the network. It stated that the NEVI uptime rules state that a station is considered "up" when its hardware and software are both online and available for use. It argued that treating stations as "up" when they are not connected to the charging network may confuse and discourage drivers and lead them to believe a station is not working and may disincentivize timely review and repair of the station. It argued that it is important that the charging station owner selects an internet service provider that is reliable in the areas they are installing the charging station and uses equipment compatible to maintain a high connectivity. It argued that, even if network connectivity may not always be in the EV service provider's control, it needs to be tracked and assessed in order to understand why the charger is down so that ongoing reliability issues may be remediated.

The ATE stated that the lack of network connectivity should not cause a charger to be "down" so long as a customer can charge, which should be considered a benefit not a flaw.

ChargePoint stated that NEVI rules do not require a charger to be network-connected to be up, so long as it can dispense energy at the required level. It stated that it would be inconsistent to require chargers to provide energy while disconnected from the network but penalize them anyway.

### **Commission Decision**

The Commission expects the utilities to work with their vendors on achieving the NEVI standard. Utilities should include in their upcoming business plans their proposed roadmaps toward compliance and operational plans in the interim.

Given the present risk that customers may be unable to charge when network connectivity is down, the Commission finds that chargers unable to connect to the payment network shall be treated as “down” for purposes of reliability. The Commission encourages utilities to work with vendors to develop reliable alternative payment authorization methods that do not depend on internet access or on customers having previously obtained vendor-specific payment devices.

When making reliability reports to the Commission, utilities should identify the impact that internet connectivity had on their performance and, where appropriate, present proposals for resolving any deficiencies.

#### **4. Whether charging stations are considered “down” if they have broken screens or other interface features**

The Workgroup was also unable to reach consensus on whether a charging station with broken screens or other features should be considered “up” but still capable of functioning through other tools, such as remote charging initiated by a phone call.

The utilities indicated that they had various solutions in this eventuality for some chargers and argued that a working screen should not be required for “uptime” where the

charging station is still able to dispense electricity as designed. ChargePoint argued that broken screens or other user-interface issues should not be considered in uptime metrics so long as a customer is capable of charging a car utilizing other tools such as a phone call.

Several non-utility parties argued that a station without operational screens should not be considered “up” unless the utility has placed adequate signage to make clear how to initiate charging without using the screen. ChargerHelp argued that broken screens may lead customers to be unable, or to believe they are unable, to initiate a charging session, impacting the customer experience and harming station utilization. ATE also stated that a driver who encounters a malfunctioning screen would be reasonable in concluding that the charger is inoperable.

### **Commission Decision**

The Commission finds that a charger with a broken interface is not functioning as designed and should be treated as “down.” The Commission agrees that broken screens or other interfaces could reasonably lead customers to conclude that chargers are inoperable.

The Commission also directs utilities, whose systems are capable of charging despite interface damage, to develop proposed signage explaining how customers may utilize the charger and include the proposed signage language in their upcoming business plans.

The Commission notes that HB834 contains an exception for vandalism in its uptime requirements. The Commission has not yet set a standard for how to differentiate between vandalism and other causes of damage. In the interim, the Commission directs that utilities include in their upcoming business plans their proposals for how they would differentiate between the two. Notwithstanding that statutory exception, utilities are

directed to include in their reliability filings data on how much downtime their systems experience due to vandalism and proposals for how to reduce that amount.

### **5. Reporting on costs**

The Report explained that the utilities currently are incapable of reporting on two metrics required by HB834: (1) the cost of electricity to operate each charging station; and (2) the cost to connect a charging station to the grid. The utilities have proposed producing this information by charging location instead. OPC suggested that these costs could be presented as an average cost per charging station, which was opposed by BGE on the ground that it would be misleading. The utilities proposed a per-charging location metric.

#### **Commission Decision**

The Commission directs the Workgroup to continue working on this issue and provide an update in its next report. Ultimately, the Commission expects the Workgroup to develop a metric that provides useful information about costs at the charging station level, as directed by HB834. In the interim, Utilities should report both per-location and averaged-per-station costs.

### **6. Standardized contract language**

ChargerHelp recommended the Commission take up the question of standardized contract language regarding reliability and reporting for third parties who perform maintenance on charging stations. It argued that getting in front of maintenance issues is important given the evidence of existing low driver satisfaction with EV charging.

#### **Commission Decision**

The Commission finds that this issue is not fully developed for Commission decision. If, and when, the Workgroup members agree that the issue requires Commission attention, the Workgroup leader should advise the Commission.

## **7. Conclusion**

One concern expressed about adoption of electric vehicles by the public is “range anxiety”, the perception that a driver might be stranded when the electricity “tank” in the car is empty. In order to convince drivers that electric vehicles are as dependable as gasoline vehicles, a fully functional network of electric vehicle charging stations must be operable in the state. As we condition drivers to adopt a different method of “fueling” vehicles, the network of charging stations deployed throughout the state must be functional and dependable. The Commission requests that the utilities and charging companies address the concerns raised in this docket regarding the overall dependability of the charging network to provide the assurance of charging that drivers deserve from the state’s charging network.

Having considered the proposals contained in the Report, the Commission accepts the Workgroup’s consensus proposals, subject to the directives above.

The EV Pilot Utilities are directed to file business plans by February 9, 2024 as noted above. In their business plans, the utilities participating in the Pilot are directed to confirm whether they are presently able to meet the requirements set forth in this Order and, if not, provide a proposed roadmap towards compliance. The Commission appreciates that some of the Pilot standards set in this Order go beyond the minimum federal requirements and may cause difficulty for some utilities in meeting the 97 percent reliability requirement. However, it is a goal of this Pilot to determine whether utilities can meet the standards being set and do so in a cost-effective manner. The Commission expects utilities will inform it if compliance with the approved requirements presents a hardship. The Commission anticipates an ongoing review of both utility performance and the

standards by which performance is measured, with an eye toward a rulemaking at the conclusion of the Pilot.

**IT IS THEREFORE**, this 10<sup>th</sup> day of January, in the year of Two Thousand Twenty-Four, by the Public Service Commission of Maryland, **ORDERED**:

1. that the EV Pilot Utilities are directed to file business plans addressing the items identified above by February 9, 2024; and
2. that the consensus recommendations, including the reliability and reporting requirements, contained in the Workgroup Report are accepted, as modified herein.

/s/ Frederick H. Hoover, Jr.

/s/ Michael T. Richard

/s/ Anthony J. O'Donnell

/s/ Kumar P. Barve

s/ Bonnie A. Suchman  
Commissioner