Date of Hearing: April 15, 202 4

ASSEMBLY COMMITTEE ON TRANSPORTATION
Lori D. Wilson, Chair
AB 2697 (Irwin) – As Amended April 9, 2024

**SUBJECT**: Transportation electrification: electric vehicle charging infrastructure

**SUMMARY**: Requires the California Energy Commission (CEC) to develop network roaming requirements for state-funded electric vehicle (EV) chargers and charging station networks by January 1, 2026 and to develop uptime recordkeeping and reporting standards for stations installed between January 1, 2018 and January 1, 2024.

Specifically, **this bill**:

1) Defines "charging network provider" as including, but not limited to, an electrical corporation, a local publicly owned electric utility, or a private EV charging infrastructure developer.

2) Requires the CEC to develop network roaming requirements for EV chargers and charging station networks by January 1, 2026, that received state incentives or funds collected through charges on ratepayers.

3) Requires the network roaming requirements to:

    a) Ensure drivers have access to a secure and standard set of data to help locate and use a publicly available EV charging station, regardless of the network they use;
    b) Require network roaming agreements between the charging network providers to create a more seamless and positive experience for consumers; and,
    c) Only apply the network roaming requirements and agreement conditions to the charging network providers that received state incentives or funds collected through charges on ratepayers.

4) Requires the CEC, when developing the requirements, to consider federal definitions and rulings to ensure consistency between standards and to prioritize addressing consumer needs to reduce barriers to EV adoption.

5) Repeals the provisions regarding network roaming requirements on January 1, 2035.

6) Applies uptime recordkeeping and reporting standards applicable to EV chargers and charging stations installed after January 1, 2024, to EV chargers and charging stations installed with moneys from the consent decrees among the California State Air Resources Board (CARB), Volkswagen AG, et al. (VW), and the United States Department of Justice (DOJ) in the United States of America v. Volkswagen AG, et al., Case No. 16-cv-295 (N.D. Cal.) (VW Settlement Consent Decrees).

7) Requires the CEC, in consultation with the PUC, to develop additional uptime recordkeeping and reporting standards for EV chargers and charging stations by January 1, 2026, and applies the additional standards to EV chargers and charging stations installed between January 1, 2018, and January 1, 2024, that (i) received an incentive from a state agency or through a charge on ratepayers or (ii) were installed with moneys from VW Settlement Consent Decrees, for a minimum of six years.

8) Requires the CEC, in developing the additional uptime recordkeeping and reporting standards, to consider the technological capability of stations, the potential of the standards to result in station closure if unable to report required information, the likelihood of near-term station replacement, and other factors the commission considers appropriate.

**EXISTING LAW**:

1) Defines, under the Electric Vehicle Charging Stations Open Access Act, the following:

   a) "Electric vehicle charging station" means one or more publicly available parking spaces served by electric vehicle service equipment.

   b) "Electric vehicle service equipment" means an electric component assembly or cluster of component assemblies designed specifically to charge batteries within electric vehicles by permitting the transfer of electric energy to a battery or other storage device in an electric vehicle.

   c) "Network roaming" means the act of a member of one electric vehicle charging station billing network using a charging station that is outside of the member's billing network with the member's billing network account information. (Health and Safety Code (HSC) 44268)

2) Prohibits requiring charging a subscription on persons desiring to use an EV charging station and prohibits requiring those persons from being required to obtain membership in any club, association, or organization as a condition of using the station and requires the total actual charges for the use of an EV charging station, including any additional network roaming charges for nonmembers, to be disclosed to the public at the point of sale. (HSC 44268.2)

3) Requires CEC, in consultation with CARB, as part of the development of the Clean Transportation (CTP) investment plan, to assess whether charging station infrastructure is disproportionately deployed, and, to use CTP funding to more proportionately deploy new charging station infrastructure, unless CEC makes a finding that the disproportionate deployment is reasonable and furthers state energy or environmental policy. (PRC 25231)

4) Requires the CEC, in consultation with the PUC, to develop uptime recordkeeping and reporting standards for EV chargers and charging stations by January 1, 2024, applicable only to EV chargers and charging stations that were installed on or after January 1, 2024, that received an incentive from a state agency or through a charge on ratepayers, for a minimum of six years. (PRC 25231.5)

**FISCAL EFFECT**: Unknown

**COMMENTS**: In 2020, Gov. Gavin Newsom issued Executive Order (EO) N-79-20, mandating that 100% of cars sold in California by 2035 be zero-emission vehicles (ZEVs) to reduce greenhouse gas emissions. To help meet its ambitious climate goals and encourage the adoption of ZEVs, the state provides incentives to develop a robust network of EV charging stations.

With an expected 15.2 million EVs on the road by 2035, the CEC projects that over 2 million additional EV chargers will need to be built in the next decade. To date, the CEC reports that over 100,000 total public and shared private EV chargers are available to charge the over 1 million light-duty passenger ZEVS (including plug-in hybrids) currently on the road. Despite the fact that one in four cars sold in the state in 2023 were ZEVs, the majority of consumers have real concerns about whether they will be able to find a nearby, working EV charging station if they buy an EV. As the state continues to push for more and more ZEVs, ensuring that the supporting EV charging infrastructure is accessible and reliable remains a critical hurdle. Charging an electric car is unlike refilling a gasoline car. In contrast to the average 10-minute stop at a gas station, the length of time required to fully charge an EV can range from 30 minutes to several hours overnight depending on the type of charger. Although 100,000 charging stations have been built, many of these stations are difficult to find, scarce in rural areas, and frequently non-operational. If a working charging station can be found, the station may not have the proper connector to charge the ZEV in question, and the cost of the charging session and the speed at which the station will dispense electricity may not be clear.

To help locate charging stations, there are a number of dedicated electric vehicle charging smartphone apps that provide information such as station locations, charger types at a given location, and real-time usage status (available or in use). Most charging provider companies have proprietary apps designed to help users locate a charging station within the charging provider's network. Some smartphone apps aggregate all charging networks, allowing users to search through all the different charging stations in an area, regardless of the charging network, and utilize crowdsourced input on real-time availability and station conditions.

However, news reports continue to reveal driver frustration with current app solutions, with drivers stating that, "there isn't a good software tool that helps electric vehicle owners plan their trips," forcing drivers to download multiple applications on their phone to find a charging station. Additionally, there are instances of drivers "download[ing] at least eight apps on [their] phone from companies like EVgo, Electrify America, ChargePoint and Shell Recharge," not only cluttering a driver's phone, but certain applications also require an account and outstanding balance to use.

EV charging infrastructure developers are exploring the broader adoption of network roaming agreements. Much like mobile phone network roaming, which allows mobile phone owners to make calls when traveling abroad or in areas where their principal network has limited coverage, EV network roaming agreements between charging network providers allow station location data to be shared across their proprietary apps, and simplifies payment and billing across networks. Currently, the two main models of network agreements are peer-to-peer (P2P) agreements and the hub-and-spoke model agreement. P2P agreements are directly negotiated between charging network providers, whereas hub-and-spoke models utilize a single party as the "hub" contracting

with multiple charging network providers as the "spokes" and then serving as the intermediary sharing location and payment data across all spokes.

Aside from the inconvenience of downloading various applications in order to locate chargers, the New York Times reported that despite drivers checking online prior to arriving at a charging station, "about a quarter of the public charging outlets in the San Francisco Bay Area, where electric cars are commonplace, were not working."

In order to address reliability issues going forward, the Legislature passed AB 2061 (Ting), Chapter 345, Statutes of 2022, which requires the CEC and PUC to impose certain performance standards (*e.g.*, uptime requirements) on state-funded charging stations installed after January 1, 2024. As of early 2024, the performance standards are still in development. In parallel, the EV charging industry is moving towards requisite service contracts after installation, establishing minimum operational and maintenance requirements for charging stations and designating responsibility to station owners, operators or charging network providers. According to the CEC's Draft Staff Report, "Tracking California's Electric Vehicle Chargers" (September 26, 2023), "[t]he CEC has included reliability requirements in EV charging grants since 2021, which set 97% uptime standards, recordkeeping and reporting requirements, and maintenance requirements for grant recipients." The Draft Staff Report further notes that "[t]he requirement that networked chargers regulated by AB 2061 report the status of the chargers using OCPP 1.6 or later is technically feasible."

The CEC has recently coalesced around the use of Open Charge Point Protocol (OCPP), an application protocol for EV charging stations to communicate station information with a charge network provider. In 2018, a CEC-funded project at the Santa Clara EV Charging Center demonstrated successful charge operation and management of a charge station network using OCPP version 1.6 (OCPP 1.6). Starting January 1, 2024, the CEC is requiring all funded chargers to be certified for OCPP 1.6 or later, and OCPP 2.0.1 or later by the OCA beginning 2025. OCPP 1.6 was published in 2015 and OCPP 2.0.1 in 2021, with compliance testing tools released in 2016 and in 2023, respectively.

*According to the author*, "In light of recent publicity around the poor EV charging experience, it is clear that increased accountability is necessary. A January story by the LA Times followed a potential EV buyer as he backed out of his decision to purchase an EV due to concerns about inoperable public chargers. As driver dissatisfaction with EV charging increases, California risks its transition to electrification in the transportation sector. EV drivers must have several different charging applications on their phones just to locate a charger that may not even be functional. Instead, roaming agreements provide drivers with secure and accurate data such as: charger location, station operator, station status, hours of operation, type of charger, pricing, and timestamps for individual stations. Providing drivers with live station data using roaming agreements will measurably improve the worsening EV driver experience."

*Writing in support,* Plug In America states, "As California pursues a clean transportation future to meet its ambitious climate goals, we must accurately understand the current and future EV charging landscape. Access to charging is one of the biggest considerations for consumers when assessing transitioning to an electric vehicle. Based on results from Plug In America's 2023 EV driver survey, public EV charging is currently unreliable and has left consumers wanting more.

Setting uptime recordkeeping and reporting standards for pre-2024 infrastructure will complement the requirements the CEC is currently developing for post-2024 infrastructure. Together, the requirements will help ensure California's public charging infrastructure is reliable across the state."

*In opposition*, Electrify America writes "AB 2697 would also require the creation of network roaming requirements for EV charging stations. This requirement is unnecessary, as existing open access requirements for EV charging stations in California require stations to be accessible to any driver, including through the use of credit card readers. The provisions in AB 2697 would further require companies to share proprietary and confidential information with competitors and would create a new and costly burden for EV charging providers that would serve to increase the soft costs associated with installing and operating EV chargers in the state. Already, it costs 36% more to design and construct an Electrify America station in California than it does in another state. These requirements would add to these costs, undercutting the state's ZEV adoption goals. AB 2697 would also create technical complexity that would be nearly impossible to implement and degrade rather than improve the customer experience. Requiring a charge point operator (CPO) to be interoperable with any and every managed service provider (MSP) would remove opportunities for a CPO to have direct touchpoints with its customers and impede the CPO's ability to troubleshoot customer issues on its network when they arise. Requiring these partnerships in law would also remove a CPO's ability to sever relationships with MSPs that create technical or cybersecurity problems through poor implementation. It would also be cumbersome and costly for a CPO to have to reconcile billing across an unlimited number of MSPs. Interoperability through roaming agreements between CPOs and MSPs are likely to occur without regulatory requirement, but they will happen with careful negotiation and not on an artificial timeline."

*Committee Comments*: *Network Roaming Agreements.* This bill requires the CEC to develop network roaming requirements for EV chargers and charging station networks, as well as require owners and operators of charging stations to enter into network roaming agreements if the charging station received state-incentives.

Network roaming agreements streamline the EV charging experience by allowing a driver to search for a charging station and pay for a charging session regardless of the station's host network all within a single mobile app. Development of network roaming requirements by the CEC are a step in the right direction to assuage consumer concerns about charging accessibility.

Despite the proliferation of ZEVs, EV charging infrastructure is still experiencing significant growing pains. As a new industry, current business models for owning, operating and managing EV charging stations vary immensely, as does the lexicon around them. For example, an EV charging station owner may not be the same as the party responsible for maintaining the station (*e.g.*, charge point operators), who in turn may not be same as the party responsible for managing a smartphone charging app, providing visibility to available EV stations and handling payments (*e.g.*, charging network provider, also known as EV service providers).

Unless they are also charging network providers, individual owners and operators of EV charging stations are unlikely to have access to the larger body of data that would be shared in a network roaming agreement, let alone the technical means of engaging in network roaming

agreements. Charging network providers, as the aggregators of charging station information would be better suited as parties involved in the proposed roaming agreements**.**

In developing of network roaming requirements, the CEC should consider how existing network roaming agreements can be accommodated (or not). Notably, AB 2697 only applies the network roaming requirements to charging stations that received public funds. The requirements would not apply to EV charging stations in private networks that were installed without public funds, such as Tesla charging stations. It should be recognized that many complaints about EV charging apps are from non-Tesla ZEV owners about chargers outside the Tesla charging ecosystem. However, as ZEV adoption increases and more charging stations are needed, network roaming requirements providing accessibility to any and all EV chargers are worth considering.

*Reliability standards.* The bill further requires the CEC and PUC to develop uptime recordkeeping and reporting standards, and apply those standards to state-funded EV chargers that were installed after January 1, 2018 but before January 1, 2024. The bill also

Broken and unreliable charging stations are one of the main talking points driving the conversation around ZEVs and a major reason for consumer reluctance to buy ZEVs. Requiring existing chargers to meet certain performance and reporting standards would help alleviate concerns about driving ZEVs. Additionally, knowing how many legacy chargers are broken and why could be useful as California continues to build out EV charging infrastructure.

However, the retroactive application of uptime recordkeeping and reporting standards to charging stations installed prior to January 1, 2024 faces many technical challenges. The charging stations that would be impacted range in age from few months to a decade old. Many legacy chargers are not only technologically obsolete in their hardware, software, and networking capabilities as compared to state-of-the-art chargers, but also extremely dissimilar to one another in their capabilities. For example, in 2022, termination of cellular network support for 3G rendered many chargers inoperable.

The bill distinguishes the proposed "additional" uptime recordkeeping and reporting standards applicable to chargers installed from 2018-2023 as separate from those being applied to EV charging stations installed after January 2024. In that sense, the CEC and PUC can tailor reliability requirements to older chargers because it is not clear how many would be able to comply with those requirements without extensive equipment upgrades to measure, record and transmit the needed information. Moreover, warranties and service agreements on many older chargers have lapsed. Without clear designation of who would be responsible for meeting uptime requirements or held accountable if they were not met, application and enforcement of performance standards on legacy chargers may end up being overly complex to achieve. This bill provides the CEC with flexibility to develop these standards such that they are not overly burdensome and are practicable to implement.

This bill further applies uptime recordkeeping and reporting standards to chargers installed from 2018 onwards using moneys from the consent decrees signed under the VW "Dieselgate" settlement, through VW subsidiary Electrify America. CARB has overseen the expenditure of $800 million in California over four investment cycles, starting in 2017, and the opening of Electrify America's first EV charging station in 2018. As of 2024, CARB plans to apply

reliability metrics to the maintenance plan for disbursement of the final cycle of funding for $200 million. CARB has not currently developed any standards but may, though no final decisions have been made to, adopt similar standards as required under the federal National Electric Vehicle Infrastructure program or under the CEC.

The CEC plans to build 250,000 additional chargers over the next two years, one million chargers by 2030, and two million chargers by 2035, all of which will be subject to uptime recordkeeping and reporting standards after January 1, 2024. Based on estimates of 20-30% of chargers being non-operational today, broken EV chargers from before 2024 will make up less than 2% of the state's total EV charging network in 2035. Recognizing that the broken EV chargers affect EV drivers today, performance requirements for chargers that can comply with uptime recordkeeping and reporting standards would alleviate EV drivers' frustration and improve the EV charging experience until more EV chargers are installed.

*Double referral:* This bill is double referred to the Assembly Utilities and Energy Committee and will be heard by that Committee as it relates to issues under its jurisdiction.

*Related Legislation*: AB 1349 (Irwin) of 2023 would have required, on and after June 1, 2024, owners, operators, and infrastructure developers of EV charging stations, except for charging stations located at residential dwellings, as defined, for which those parties are awarded a state grant to support the EV charging stations, including related infrastructure, on or after January 1, 2024, to ensure that specified data fields for the owner's or operator's entire network of EV charging stations in California are made available, free of charge, to third-party software developers through an application programming interface, as specified. Held in Senate Committee on Energy, Utilities, and Communications.

SB 123 (Committee on Budget and Fiscal Review), Chapter 52, Statutes of 2023 requires an EV charging station that is newly installed or made publicly available to offer specified payment methods, authorizes the CEC, by regulation that is effective no earlier than January 1, 2028, to add or subtract from the payment methods required by the bill, as appropriate in light of changing technologies, and vests the CEC with authority to implement and enforce those requirements on EV charging stations and would specify that CARB has the authority to enforce the requirements on EV charging stations until the commission adopts regulations implementing those requirements.

AB 126 (Reyes), Chapter 319, Statutes of 2023 requires the CEC, by January 1, 2025, to set standards for how EV charging stations notify customers about the availability and accessibility of publicly available charging infrastructure, and requires rather than authorizes the CEC to adopt tools to increase charging station uptime.

AB 2061 (Ting), Chapter 345, Statutes of 2022 requires the CEC, in consultation with the PUC, to develop uptime recordkeeping and reporting standards for EV chargers and charging stations by January 1, 2024, applicable only to EV chargers and charging stations that were installed on or after January 1, 2024, that received an incentive from a state agency or through a charge on ratepayers, for a minimum of 6 years. AB 2061 further authorizes the CEC and PUC to adopt tools to increase charging station uptime.

AB 2127 (Ting), Chapter 365, Statutes of 2018 requires the CEC, CARB and the PUC to prepare and biennially update a statewide assessment of the electric vehicle charging infrastructure needed to support the levels of electric vehicle adoption required for the state to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030 and of reducing emissions of greenhouse gases to 40% below 1990 levels by 2030.

SB 454 (Corbett), Chapter 418, Statutes of 2013 creates the Electric Vehicle Charging Stations Open Access Act) which prohibits charging a subscription fee on persons desiring to use an electric vehicle charging station and requires the total actual charges for the use of an electric vehicle charging station to be disclosed to the public at the point of sale.

**REGISTERED SUPPORT / OPPOSITION**:

**Support**

Plug in America
Union of Concerned Scientists

**Opposition**

Electrify America
Electric Vehicle Charging Association (unless amended)

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