An Environmental Justice Assessment

Of the Electric Vehicle Supply Equipment Amendments

to Chapter 16-662 WAC

Weights & Measures Program

Washington State Department of Agriculture

Olympia, WA

October 2024

Table of Contents

Executive Summary

In response to a group of electric vehicle service provider (EVSP) organizations petitioning for rulemaking in 2023, the Washington State Department of Agriculture (Department) is proposing amendments to chapter 16-662 WAC ("Weights and Measures- National Handbooks, Sale of Motor Fuel, Electric Vehicle Supply Equipment, and Penalties for Violations") to include many of the Federal Highway Administration's National Electric Vehicle Infrastructure (NEVI) program's technical requirements for electric vehicle supply equipment (EVSE) payment methods in efforts to expand upon its currently required technologies and be inclusive of evolving technologies.

During the 2021 legislative session, the Washington State Legislature passed Second Substitute Senate Bill (2SSB) 5192 (becoming effective 07/25/2021), which supported access to EVSE. Along with other requirements, this legislation directed the Department to adopt rules establishing minimum payment requirements for EVSE payment methods. In December 2022, the Department adopted rules (WAC 16-622-210) requiring all publicly accessible EVSE installed in Washington to provide the following payment options: a toll-free number, a credit card reader device physically located on either the EVSE unit or a kiosk intended to service that equipment with the ability to accept a Euro MasterCard Visa (EMV) chip, and a mobile payment option. These payment methods for EVSE were developed and adopted with the express intent to align with California's EVSE regulations which, at the time, required a credit card reader with EMV chip capability.

Since December 2022, there have been federal and state actions on EVSE payment requirements which has prompted a review of Washington's regulations to ensure consistency across the United States. More specifically, in February 2023, the Federal Highway Administration (FHWA) established new technical requirements for EVSE payment methods through their NEVI Formula Program, which provides funding to states to strategically deploy electric vehicle (EV) charging infrastructure and establish an interconnected network to facilitate data collection, access, and reliability. These requirements include: (1) a contactless payment method that accepts major debit and credit cards, and (2) either a toll-free phone number or a short message service (SMS). In response to these changes, California subsequently aligned their EVSE payment regulations with the technical requirements in NEVI, specifically removing the requirement for a physical EMV chip reader on each EVSE device.

Without changes to this rule, Washington would be the only state with a state-level regulation requiring EVSE to provide a physical EMV chip reader on each device in addition to being only one of two states (Washington and California) to mandate any payment requirements at all. The impact of this discrepancy is significant for EVSP and EV drivers. It will require different equipment and operational obligations, resulting in different installation and maintenance costs for EVSE manufacturers and network providers for EVSE in Washington compared to other states. To explain more simply, manufacturers will have to design an EV charging product just for operating in Washington. This will add further complexity and costs to multi-state EVSE projects, such as those

running across California, Oregon, and Washington. For EV drivers in Washington, it will also result in different payment experiences, offerings, reliability, and potentially costs to charge from that of surrounding states.

Program Background Information

EVSE rules fall under the responsibility of the Department's Weights and Measures Program. This program promotes marketplace equity in commercial transactions through testing and inspecting commercial devices, price verification, package inspection, public education, monitoring fuel quality, and investigating complaints.

Purpose of the Environmental Justice Assessment

The Environmental Justice Assessment (EJA) process helps assess the environmental justice impacts of Significant Agency Actions (SAAs). The assessment informs and supports consideration of overburdened communities and vulnerable populations when making decisions. This information assists with the equitable distribution of environmental benefits, the reduction of environmental harms, and the identification and reduction of health disparities.

The EJA process aligns with Washington State's Environmental Justice law (chapter 70A.02 RCW) called the Healthy Environment for All (HEAL) Act and is to be completed for the following actions:

- The development and adoption of significant legislative rules as defined in RCW 34.05.328.
- The development and adoption of any new grant or loan program that a covered agency is explicitly authorized or required by statute to carry out.
- A capital project, grant, or loan award of at least $12,000,000 or a transportation project, grant, or loan of at least $15,000,000.
- The submission of agency request legislation to the office of the governor or the office of financial management for approval.

This assessment does not require a comprehensive or an exhaustive examination of all potential impacts of a significant agency action and does not require novel quantitative or economic analysis of the proposed significant agency action. The time and resource investment, and depth of assessment, will be influenced by the reasonable applicability of the questions to the agency action.

Section 1: Background

- **Title of Project/Action**: Washington State NEVI Program Alignment
- **Date EJA Initiated**: January 2023
- **WSDA Program**: Weights & Measures
- **Points of Contact for EJA**:
  - Tahis McQueen, Acting Weights & Measures Program Manager
- **Significant Agency Action Type**:
  - Meets the definition of significant legislative rule as defined in RCW 34.05.328(5)(c).

Section 2: Notification of Environmental Justice Assessment Initiation

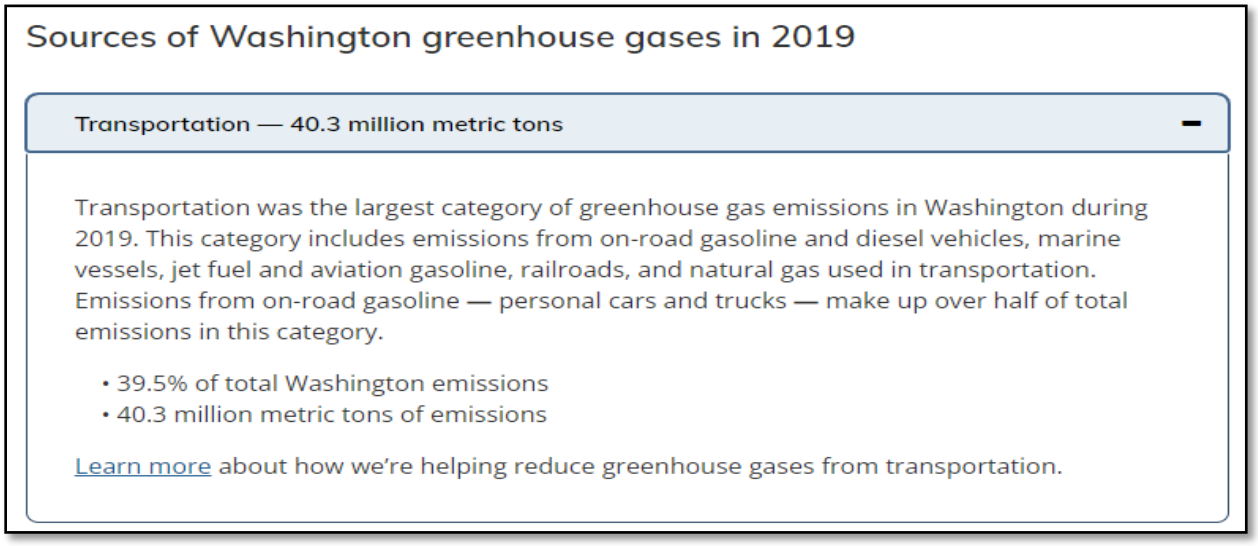
- OFM submission link: Environmental Justice Assessment Notices | Office of Financial Management (wa.gov)
- WSDA link: Environmental Justice | Washington State Department of Agriculture

Section 3: Potential Environmental Benefits & Harms from Action

Environmental benefits, as defined in RCW 70A.02.010(4), are activities designed to 1) prevent or reduce existing environmental harms or associated risks that contribute significantly to cumulative environmental health impacts, 2) prevent or mitigate impacts to overburdened communities or vulnerable populations from, or support community response to, the impacts of environmental harm, or 3) meet a community need formally identified to a covered agency by an overburdened community or vulnerable population. The agency action of amending rules to align with federal standards for EVSPs would not be considered a primary or direct environmental benefit- certainly not a benefit in which the Department could measurably ensure equitable distribution towards overburdened communities, vulnerable populations, and Tribes throughout the state.

Given that the direct impact of this significant agency action will be on EVSPs, there are only indirect prospective impacts to consider for overburdened communities and vulnerable populations. The Department, through secondary research, analyzed *'Sources of Washington greenhouse gases'*, as produced by the Department of Ecology. The report, in essence, notes that transportation is the leading contributor for the state's overall greenhouse gases. Per the study, transportation is categorized as on-road gasoline and diesel vehicles, amongst other sources of transportation, and account for more than half of the entire category's emissions.

Figure 1. Washington Greenhouse Gases Sources



The transition from gas vehicles to EVs will significantly lower Washington's greenhouse gases from tailpipe emissions, including carbon dioxide (CO2), nitrogen oxides (NOx), and particulate matter

(PM). These pollutants contribute to poor air quality, which is linked to respiratory and cardiovascular diseases.

EVs have a lower carbon footprint than gas vehicles, especially when powered by renewable energy resources. Washington state's renewable energy mix, including hydroelectric, wind, and solar, makes EVs an even more environmentally friendly option. Reduced emissions will lead to less acid rain and lower ground-level ozone levels, which can harm ecosystems. Overburdened communities that rely on local ecosystems for food, water, and cultural practices will benefit from healthier ecosystems.

In FY 2022 – FY 2023, four (4) Washington grant recipients received awards from the *Federal Highway Administration's Charging and Fueling Infrastructure Discretionary Grants Program*. This program follows the presidential *Justice40* initiative, which requires that 40% of these grants' overall benefits flow into disadvantaged communities.

Additionally, the *Federal Highway Administration's NEVI Formula Program* approved state plans for EV charging infrastructure deployment for fiscal years 2022-2024. The amount of state funding correlates to how many miles of EV charging corridors were designated as 'ready' or 'pending' in each state. Washington has identified 1,258 miles as either 'ready or pending' and received $10,489,110 in FY 2022, $15,093,948 in FY 2023, and $15,094,052 in FY 2024 to continue its EV infrastructure build out.

It is anticipated that the state (through NEVI funding), grant recipients (through Infrastructure Discretionary Grants Program), and EVSPs will benefit and continue to expand upon Washington's EV network/system with the increased flexibility from the proposed rule. Moreover, with the implementation of additional charging stations, it presumably follows that there may also be an observable increase in EV purchases and utilization, both of which would lead to an overall reduction in harmful vehicle-produced CO2 emissions across the state. Lastly, an increase in the number of charging stations may also increase access to EV ownership opportunities for overburdened communities and vulnerable populations, as many have cited the lack of charging access as their top prohibitive concern. This will help to address the equity gap in transportation options, ensuring that all residents can benefit from cleaner transportation.

The installation and maintenance of charging stations can create jobs and stimulate local economies, particularly in areas that may have been economically marginalized. Overburdened communities could see new opportunities for economic growth through these investments.

If not for this significant agency action creating confidence in the viability of Washington state's zero-emission and low-emission vehicle strategy, consumers may otherwise lean toward the purchase of gasoline (or diesel) personal vehicles. In doing so, all residents—specifically overburdened communities and vulnerable populations—may be subject to the increased harms of vehicle-produced CO2 emissions exposure.

Section 4: Identification of Affected Tribes, Overburdened Communities, and Vulnerable Populations

Given that the proposed rule is statewide in nature and that its direct impact falls upon EVSPs, there are only indirect prospective impacts to consider for Tribes, overburdened communities, and vulnerable populations. The Department determined that there are no anticipated negative environmental or health impacts to consider resulting from the proposed rule and arrived at this conclusion following extensive research of the following publications, reports, and studies:

- Studies conducted by the Environmental Protection Agency (EPA) titled *Benefits of Reducing Air Pollution* and published in *Environmental Science & Technology Journal* (aligned with The Clean Air Act), **which provide evidence on how reduced vehicle emissions can improve air quality and public health**;
- Studies conducted on noise pollution titled *The Co-Benefits of Electric Mobility in Reducing Traffic Noise and Chemical Air Pollution: Insights From a Transit-Oriented City* and published in *The Journal of the Acoustical Society of America,* **which provides evidence that EVs contribute to lower noise levels compared to traditional vehicles and thus creating positive effects on both mental and physical wellbeing**;
- Research on the health impacts of climate change and air quality and health, as reported from the Intergovernmental Panel on Climate Change (IPCC) and The World Health Organization (WHO), **which detail how reducing greenhouse gas emissions can mitigate health risks associated with extreme weather and changing disease patterns**; and
- Studies conducted on economic and infrastructure impact and published in *Sustainability and Renewable and Sustainable Energy Reviews*, **which provides evidence on how investments in EV infrastructure can boost local economies and improve access to services in rural communities.**

As previously noted, the direct impact of this rule will be directed at EVSPs wanting to install charging stations in Washington state. In brief, the proposed rule no longer requires businesses and organizations to install credit card EMV chip devices on any units.

Through secondary analysis of both state and federal data, this rule may suggest indirect environmental or health benefits for vulnerable populations in overburdened communities throughout the state. The proposed rule provides an opportunity for potential increases in electric vehicle sales/utilization which would result in lessened vehicle-produced emissions for these communities and populations. Overburdened communities and tribal lands, often located near highways and industrial areas, experience higher exposure to vehicle emissions. The reduction in these emissions will lead to improved air quality in these areas, potentially reducing the prevalence of asthma, lung disease, and other health issues. Vulnerable populations and tribal members, including children, the elderly, and individuals with pre-existing health conditions, will particularly benefit from this improvement.

Additionally, the *NEVI Formula Program* approved state plans for EV charging infrastructure deployment for fiscal years 2022-2024. The amount of state funding correlates to how many miles of EV charging corridors were designated as 'ready' or 'pending' in each state. Per Washington's state plan, it is expected that the state will use the funds to perform this work on its north/south and east/west interstates, I-5 and I-90 respectively.

Despite the proposed rule not having any specified locations or boundaries, there are still numerous identifiable vulnerable populations and overburdened communities along these major corridors. Thus, it follows that these individuals may still potentially benefit from this EV infrastructure build out regardless of not being identified within a census tract.

Section 5: Summary of Tribal Consultation and Community Engagement

Due to the proposed rule's statewide nature and direct impact falling upon EVSPs, Tribal consultation and engagement are not required as there are no negative impacts to Tribes. Additionally, the Department determined that targeted community engagement was not required as there are no identifiable overburdened communities or vulnerable populations to engage with to solicit input on this rule when utilizing the Washington State Department of Health's *Economic Health Disparity Map* or Washington State Office of Financial Management's *Overburdened Communities Map*. The Department, however, has taken several surveys into consideration which were prepared, conducted, and reported by the Washington State Interagency Electric Vehicle Coordinating Council and Cascadia Consulting Group. This collaboration, in essence, aimed to create Washington state's transportation electrification strategy/action plan which required significant community engagement and outreach.

The surveys sought responses from five (5) focus groups with twenty-nine (29) total participants, twenty-seven (27) one-on-one interviews which included fifty-four (54) organizations and groups, as well as an additional 3,026 Washingtonians statewide. In brief, the questions inquired about perceived barriers and concerns regarding EV adoption. The detailed findings can be found below. Lastly, the Department will also list this EJA as an opportunity for public comment on Environmental Justice | Washington State Department of Agriculture.

(5.1) Responses and Findings for Electric Vehicle Environmental Impact Concerns

a. **Identified Concern(s):** Environmental harm regarding EV production, namely their batteries.

b. **Survey Responses:** The market research findings showed that the target audiences have a strong desire to reduce fossil fuel consumption and air pollution to protect the environment in which they live. Additionally, the responses from the target audiences described some hesitation, as there are often minimal assurances that EV manufacturers, and all other EV-related businesses, share these ideologies and wish to align those efforts.

Should these efforts be aligned, the target audience noted that the other EV adoption barriers (i.e., costs, range fear, etc.) could potentially be offset.

c. **Data Findings:**
    - Studies show that EVs produce around half of the carbon pollution of gas-powered vehicles over their lifetime, even when accounting for manufacturing, and this figure is even less in Washington state. This is due to Washington state's grid being powered by nearly all renewable energy;
    - In combination with their lower life cycle emissions, EVs have zero tailpipe emissions, thus reducing air pollution and improving air quality;
    - EV batteries are required by law to maintain their health and perform for at least 100,000 miles or 7-8 years. Evidence is also showing that many vehicles last much longer than that;
    - EV batteries can be recycled or refurbished and many manufacturers reuse batteries to negate additional environmental harm; and
    - EVs do not produce exhaust and evidence has shown that this cleaner air leads to fewer health problems like asthma, respiratory disease, heart disease, and lung cancer; all of which are afflictions disproportionately occurring within overburdened communities and vulnerable populations.

Sources: (1) Joint Transportation Commission. 2023. High Consumption Fuel Users to Use Electric Vehicles. (2) Clean and Prosperous Institute. 2023. State Rankings of Fuel Savings by Switching to Electric Vehicles.

(5.2) Responses and Findings for Electric Vehicle Range and Charging Concerns

a. **Identified Concern(s):** Range and Charging

b. **Survey Responses:** The market research findings showed that EV range and charging concerns were at the forefront of Washingtonians' minds. Firstly, survey respondents directly named range and insufficient charging stations as a significant barrier to EV adoption. Secondly, the respondents went on to relate concern over distrust in batteries and electricity as a reliable means for their vehicle, nor that they believed that the power grid could handle EV charging en masse.

c. **Data Findings:**
    - Many EV ranges are 200-300 miles. Most people do not need to travel this far without a charge regularly, and most people usually stop for 15-20 minutes at gas stations on longer trips;
    - Superchargers can charge vehicles up to 80% in 15-20 minutes, which is the amount of time people often spend at gas stations on longer trips;

- Electricity is much cheaper than gas, especially in Washington. Charging is most affordable at home during off-peak hours, however, public charging stations are still cheaper than gas;
- The US grid is fully capable of handling additional EV charging, and utilities are building more grid capacity every day through adding renewable energy sources and infrastructure; and
- The number of charging stations is growing across the country, especially in Washington state. This means that it will be easier for drivers to access and charge at rural destinations. Washington is investing over $250 million over the next two years to build thousands of charging stations in areas lacking charging infrastructure

Sources: (1) Joint Transportation Commission. 2023. High Consumption Fuel Users to Use Electric Vehicles. (2) Clean and Prosperous Institute. 2023. State Rankings of Fuel Savings by Switching to Electric Vehicles.

Further, the Washington State Transportation Electrification Strategy/Action Plan provided details about which messages resonated most with different race/ethnic groups. The reported barriers to EV adoption were relatively similar across racial and ethnic groups. The resonating messages, however, were particularly more diverse and variable.

Respondents identifying as Asian or Hispanic/Latino found messaging around EV's affordability to operate most resonant, whilst respondents identifying as Black or Native American, Alaska Native, Native Hawaiian, or Pacific Islander found messaging around diverse EV models most resonant. The following table describes which messages resonated most with different race and ethnic groups:

Figure 2. Resonant Messages by Racial/Ethnic Demographic

High resonance ("I feel this") **Medium resonance** ("I get this") **Some resonance** ("I hear this")

Message	Asian	Black	Hispanic/ Latino	Other
EVs' affordability to operate: Electricity is much cheaper than gas, and EVs require much less maintenance than gas-powered cars and trucks. This means an EV can save you thousands of dollars in operating costs.	♥	👂	♥	
Diverse EV models: More models of electric vehicles than ever before are coming onto the market, with pick-ups, SUVs, crossovers, all-wheel drive, and other options now available.		♥	👂	♥
Air quality and health: EVs are one of the best ways for us to improve air quality. Better air quality prevents asthma, heart disease, and lung disease that cause early death.		💡	💡	
Charging infrastructure: Washington is installing thousands of fast chargers a year, so a strong charging network will soon be in place across the state.	💡			👂
Upfront affordability: There are now several EV models in the $25,000-$30,000 price range. Federal tax credits of up to $7,500 and no state sales tax for EVs means you could pay the same or even less for an EV than a comparable gas-powered car.	👂			
Home charging: 80% of charging happens at home and many EVs come with a portable charger.				💡

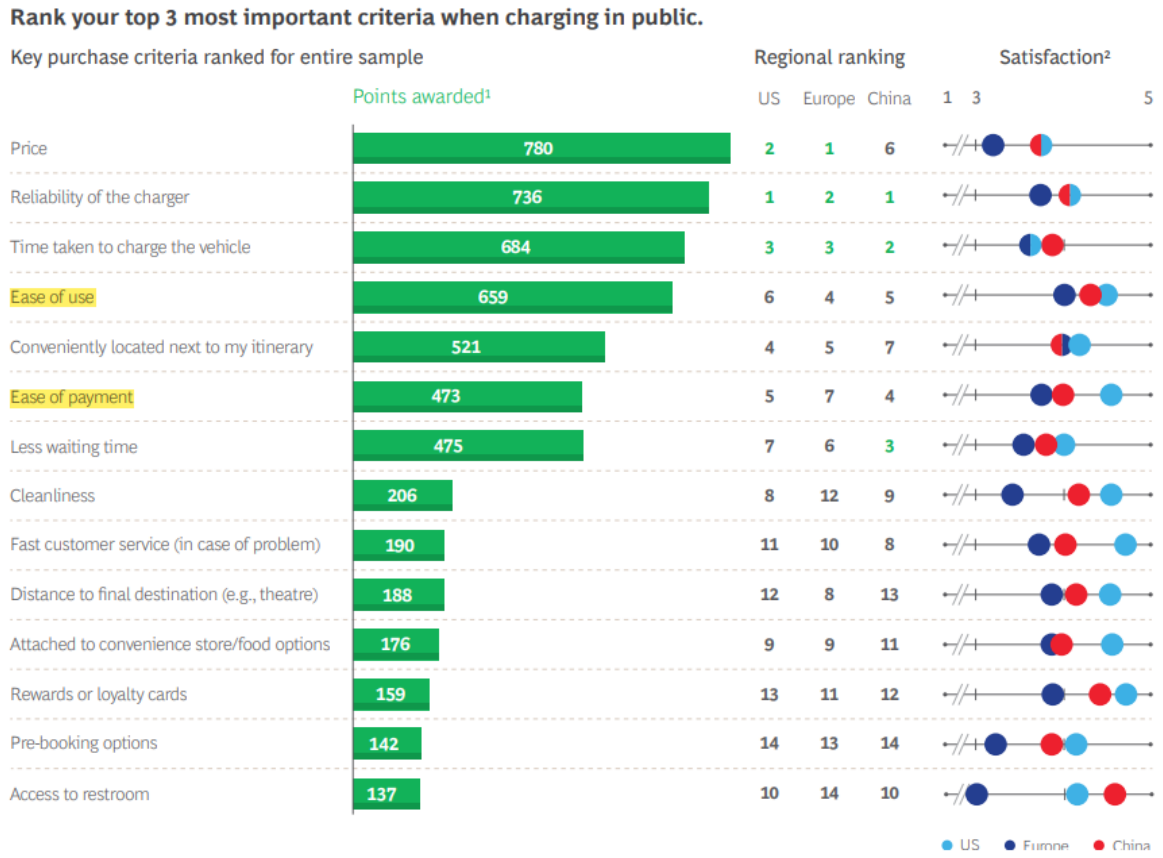
Additionally, the Boston Consulting Group furnished their own report titled 'What Electric Vehicle Owners Really Want from Charging Networks'. The findings detailed payment methods, amongst many other factors commonly associated with EV adoption and/or ownership. The data regarding consumer payment methods related, in essence, the following:

"We also found in our survey that the way people pay for EV charges is not uniform across the globe. This becomes another consideration for companies setting up EV charging sites. Aligning payment options to local consumer preferences is critical. ***While EV owners use mobile apps as the main payment method in the US****, Norway, UK, and China, people in Germany and France mainly rely on charge cards linked to accounts with individual charging providers. Paying by credit card is common across all markets, accounting for one-third of payments in the UK, Italy, Spain, and France. Given the universality of credit cards, terminals that accept them are likely to be ubiquitous at charging stations even as these facilities evolve. Moreover, some regulators are encouraging this. For instance, in the UK, all new public fast-charging stations must include a contactless bank card payment option."*

"…Simply put, ***EV drivers want more of what would be expected from charging networks: reliability, a built-out robust infrastructure, convenience, and speed.*** *And at least the first generation of EV drivers say that they are willing to pay more to spend less time charging, indicating that fast and even faster high-power charging (HPC) will play a big role in the future. Moreover, as the infrastructure evolves, charging station companies will have to think carefully about how to increase attraction and stickiness—for instance, by developing loyalty programs, forging relationships with fleet providers offering bundled solutions that encompass private and public charging facilities. In addition to consumer preferences, country differences such as home ownership and payment methods should be taken into account when designing charging infrastructure."*

A visual of the Boston Consulting Group's findings regarding consumer behaviors, thoughts, and concerns within the electric vehicle industry can be found below:

Figure 3. Ranked Key Purchase Criteria



Source: BCG EV Charging Survey.

The Department determined that there would be no significant drawback to either the ease of payment or ease of use for EV charging consumers resulting from this rule. This decision was informed by utilizing Pulse's (A Discover Company) *Debit Issuer Studies*, and was able to determine the following 2020-2022—and foreseeable—industry metrics and trends:

- Card issuers have embraced non-traditional payment (contactless) methods. During this span, the number of contactless cards rose from 30% to 70% of all debit cards issued;
- Consumers have also embraced non-traditional payment methods, such as mobile wallet utilization. During this span, mobile wallet use rose from ~5% of total purchase transactions to 10%;
- Consumers have additionally embraced contactless payment methods (differing from mobile wallet). During this span, contactless payments have risen from 24% of total purchase transactions to 26%; and
- EMV chip usage has declined. During this span, EMV chip usage has—at a minimum—declined by 8%.

Without changes to this rule, Washington would be the only state with a state-level regulation requiring EVSE to provide a physical EMV chip reader on each device in addition to being only one

of two states (Washington and California) to mandate any payment requirements at all, and the impact of this discrepancy would adversely affect both the ease of use and payments at charging stations statewide. This would add further complexity and costs to multi-state EVSE projects, such as those running across California, Oregon, and Washington. For EV drivers in Washington, it would also result in different payment experiences, offerings, reliability, and potentially costs to charge from that of surrounding states.

Section 6: Options to Eliminate, Reduce, or Mitigate Harms and Equitably Distribute Benefits

Although the removal of the EVSP's requirement to include physical EMV chip readers on their EVSEs does not directly provide environmental benefits or prevent existing harms, the Department determined that there are no available options to further eliminate, reduce, or mitigate harms and equitably distribute environmental benefits.

Works Cited

Bestvater, S. (2024, May 23). *Electric vehicle charging infrastructure in the U.S.* Pew Research Center. https://www.pewresearch.org/data-labs/2024/05/23/electric-vehicle-charging-infrastructure-in-the-u-s/

Environmental Protection Agency. (2020, June 8). *Quantifying the public health benefits of reducing air pollution: Critically assessing the features and capabilities of who's airq+ and U.S. EPA's Environmental Benefits Mapping and Analysis Program-Community Edition (BenMAP-CE)*. EPA. https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=CPHEA&dirEntryId=349024

Hagenmaier, M., Wagener, C., Bert, J., Carrasco, J., Niese, N., & Wang, A. (2023). *What Electric Vehicle Owners Really Want From Charging Stations*. Boston Consulting Group Center for Mobility Innovation. https://web-assets.bcg.com/18/4f/edb337e546b4b2897ef61efdcef5/bcg-what-electric-vehicle-owners-really-want-from-charging-networks-jan-2023.pdf

Washington State Department of Commerce. *Transportation Electrification Strategy and Action Plan*. (2024, February 6). https://www.commerce.wa.gov/growing-the-economy/energy/clean-transportation/ev-coordinating-council/transportation-electrification-strategy/

Washington State Joint Transportation Committee. (n.d.). *Encouraging High-Consumption Fuel Users to Use Electric Vehicles*. Joint Transportation Committee Completed Studies. leg.wa.gov/JTC/Documents/Studies/2022 studies/HCFUFinalReport.pdf

List of Figures & Tables