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Introduction and reader's guide

Report purpose and structure

This annual report is submitted by the Washington Department of Commerce, the Department of Transportation, and the Interagency Electric Vehicle Coordinating Council (EV Council), which has 10 member agencies. The report documents the progress, gaps, and resource needs identified by the EV Council in 2024. It consists of 14 distinct briefs that explain key aspects of Washington's transition to electric vehicles. This structure demonstrates the EV Council's intent to make reports actionable for decision-makers.

Many of the topic areas reflected in the briefs align with priority recommendations from the state's Transportation Electrification Strategy (TES), the state's roadmap to meeting key targets for electrifying transportation.

Each brief includes information on:

- Progress made in 2024
- Gaps yet to be filled (such as data and information gaps or market sectors yet to be addressed)
- Resources needed to fill those gaps

The Executive Summary of the report comprises the first three briefs — "EV Council and the Transportation Electrification Strategy," "2024 State of the EV State: Progress despite challenges," and "Electric vehicles programs and policy priorities." The Executive Summary serves as a high-level overview of the progress made in 2024 and the priorities the EV Council expects to pursue in 2025. Many of the federal assumptions are based on policies that predate the current presidential administration, and those policies may change.

The following 11 briefs dive into specific subject areas based on vehicle types and other topics. Readers are encouraged to use the table of contents to find the topics most important to them.

Our agencies hope interested readers will find this a valuable resource to learn about the status of EVs in Washington and the next steps needed to keep the "Evergreen State" on its path to becoming the "EV State."

Legislative mandate

This annual report is required in Section 2 of RCW 43.292.040:

> (1) Interagency electric vehicle coordinating council responsibilities include, but are not limited to:
>
> (a) Development of a statewide transportation electrification strategy to ensure market and infrastructure readiness for all new vehicle sales;
>
> (b) Identification of all electric vehicle infrastructure grant-related funding to include existing and future opportunities, including state, federal, and other funds, and also nongrant-related funding, including revenues generated by an electric utility from credits under the clean fuels program for transportation electrification programs or projects pursuant to RCW 70A.535.080(2);
>
> (c) Coordination of grant funding criteria across agency grant programs to most efficiently distribute state and federal electric vehicle-related funding in a manner that is most beneficial to the state, advances best practices, and recommends additional criteria that could be useful in advancing transportation electrification;

(d) Development of a robust public and private outreach plan that includes engaging with:

(i) Community organizers and the environmental justice council to develop community-driven programs to address zero emissions transportation needs and priorities in overburdened communities; and

(ii) Local governments to explore procurement opportunities and work with local government and community programs to support electrification;

(e) Creation of an industry electric vehicle advisory committee; and

(f) Ensuring the statewide transportation electrification strategy, grant distribution, programs, and activities associated with advancing transportation electrification benefit vulnerable and overburdened communities.

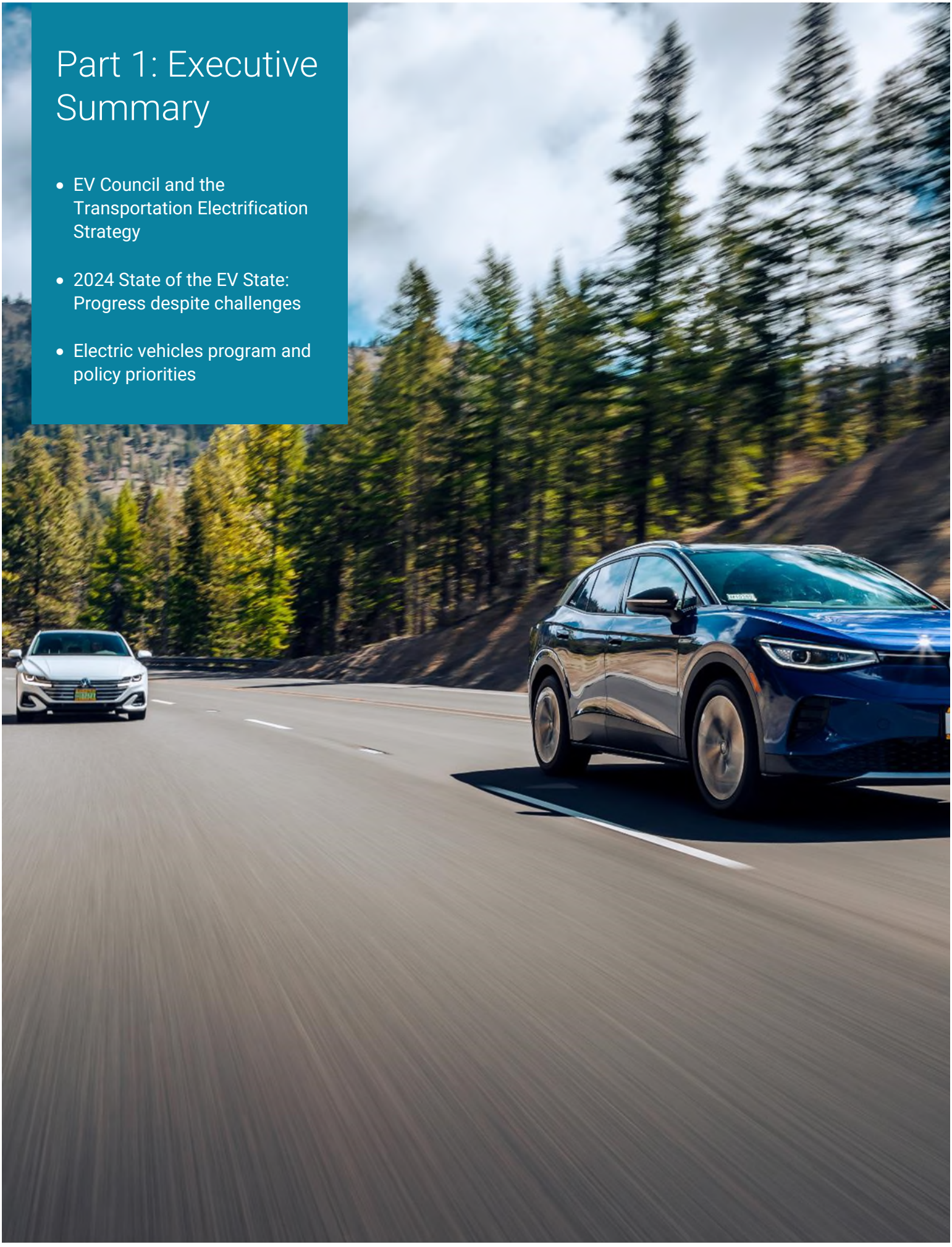
(2) The council shall provide an annual report to the appropriate committees of the legislature summarizing electric vehicle implementation progress, gaps, and resource needs.

Report scope

This report focuses primarily on electrification of on-road vehicles. While on-road vehicles are responsible for most transportation emissions, the TES finds that electric vehicles are just one of several strategies needed to decarbonize the transportation sector. Readers should consult with other state agency subject matter experts on hydrogen and renewable fuels, reducing vehicle miles traveled, vehicle efficiency, and electrification of non-road vehicles (i.e., planes, boats, and trains) to further pursue emissions reductions, fuel savings, and cleaner air.

Part 1: Executive Summary

- EV Council and the Transportation Electrification Strategy
- 2024 State of the EV State: Progress despite challenges
- Electric vehicles program and policy priorities



Coordinating the state's transportation electrification efforts

The Legislature created the EV Council in the 2022 Move Ahead Washington transportation package (Section 428, Chapter 182, Laws of 2022). In creating the body, the Legislature wrote:

"It is the intent of the legislature to create a formal interagency council responsible for coordinating the state's transportation electrification efforts to ensure the state is leveraging state and federal resources to the best extent possible and to ensure zero emissions incentives, infrastructure, and opportunities are available and accessible to all Washingtonians."

The landmark transportation law requires the departments of Commerce (Commerce) and Transportation (WSDOT) to work with eight partner state agencies and offices to:

- Develop a statewide Transportation Electrification Strategy (TES)
- Identify and coordinate all EV funding opportunities
- Ensure EV programs and activities provide benefits to vulnerable and overburdened communities

The EV Council must carry out its responsibilities based on the advice of industry partners and engagement with local governments and community leaders.

EV Council Members

Department of Commerce (Co-Chair)

Department of Transportation (Co-Chair)

Department of Agriculture

Department of Ecology

Department of Enterprise Services

Department of Health

Office of Financial Management

Office of the Superintendent of Public Instruction

State Efficiency and Environmental Performance Office

Utilities and Transportation Commission

Ten agencies pulling in the same direction

Since first meeting in July 2022, the EV Council has provided a platform for interagency collaboration on EV programs. Examples include:

- WSDOT worked with the EV Council to submit the state's National Electric Vehicle Infrastructure (NEVI) program plan and partnered with the Department of Ecology (Ecology) to successfully apply for the Charging and Fueling Infrastructure program to build truck charging along Interstate 5.
- Commerce worked with Ecology to align vehicle weight limits between sales requirements and the Washington EV Instant Rebates program. Commerce shares lessons from administering EV rebates with WSDOT's zero-emission vehicle (ZEV) truck voucher and e-bike rebate programs.
- Ecology's Clean Fuel Standard team and WSDOT's environmental services office worked with Commerce and Utilities and Transportation Commission (UTC) staff to identify EV investments for electric utilities.
- Commerce, WSDOT, and Ecology are developing consistent EV charging standards that can be used as grant contract terms. This work aligns with Department of Agriculture rules on payment methods and interoperability.
- WSDOT partnered with Commerce to develop its EV mapping data tool. The tool also includes a specific layer for state agency fleet charging, developed with the Department of Enterprise Services (DES).

Washington's EV action roadmap

TES engagement and analysis, by the numbers

25	48	30	41	100+	146	3,016
Advisory committee members	Focus groups	Statistical model runs	One-on-one interviews	Policy workshop participants	Public suggestions incorporated into final report	People surveyed

The EV Council published the TES in February 2024 to serve as an action roadmap to achieve an equitable, affordable, and decarbonized transportation sector. Findings include:

The state cannot meet its emission limits without successfully implementing ZEV standards.
The state must address four core market barriers: mitigating high EV prices; ensuring abundant and reliable charging ports; ensuring trustworthy and accessible consumer information; and increasing commercial EV availability.

The state will need three million charging ports by 2035 to make charging universally available.
The state must prioritize residential charging access, public charging utilization, and reliability to reduce long-term costs while preventing project delays caused by the electric grid, supply chain, and workforce constraints.

The two most significant EV adoption disparity factors are income and home ownership status.
Income-based incentives and multifamily residential charging are key to an equitable EV transition.

TES priority actions for 2024 and current status

Table 1: TES 2024 priority actions

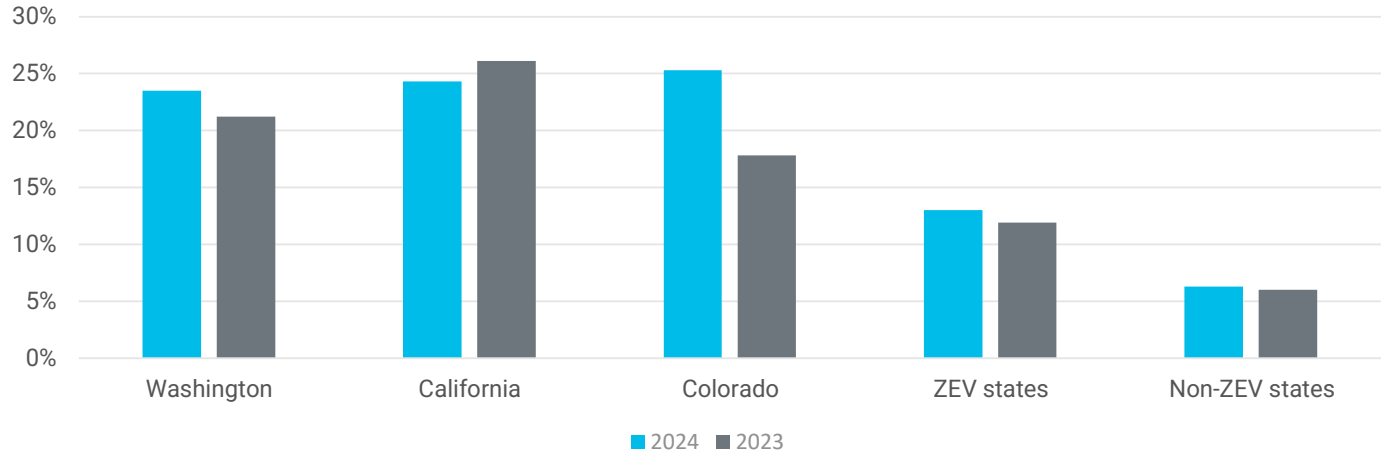
Priority action	Status
Requirements and incentives for ZEV trucks	Ecology announced rulemaking process to incorporate recent amendments to their low- and zero-emission truck and bus standards. WSDOT selected CALSTART as the administrator for its ZEV truck voucher program, with implementation set to begin in 2025.
Grow broad consumer demand for passenger EVs	Commerce launched the EV Instant Rebates program, including low-cost leases. The state has not yet created a public information campaign. Sales and use tax exemption set to expire in July 2025.
Accelerate and fund school bus electrification to meet needed adoption rates.	Legislature passed bill to phase out diesel bus purchases when electric school buses will reach total cost of ownership (TCO) parity. OSPI has taken initial steps to implement the new law. Ecology is funding 220 electric school buses, in addition to the 85 now in operation.
Continue current EV programs.	Agencies requested funding to continue charging and vehicle electrification programs.
Provide block grants to increase CBO state capacity.	Commerce included $10 million in funding for community ambassadors and grant programs, including for EV programs, in its 2025-2027 decision package.
Support building needed utility-side charging infrastructure.	Commerce commissioned a study of the state's electric grid readiness for EV charging and identified circuits needing upgrades. Utilities do not yet have a statewide make-ready program.
Support ongoing state agency efforts to implement EO 21-04	The Legislature provided DES with funding that resulted in 40 EV charging projects for 16 agencies at locations statewide.
Improve charging and speed up project timelines.	Commerce developed agency request legislation for consideration in 2025 session.
Monitor equity indicators and measure outcomes.	Ecology is installing outdoor air quality monitoring stations in and around 16 overburdened communities identified as highly impacted by air pollution. Commerce is developing a TES metrics dashboard, including equity measures.

Despite slowed growth nationwide, Washington remains a top EV state thanks to strong policy and funding mix

State investments lead to key milestones

Washington sees second-highest growth in nation, surpasses 200,000 EVs
According to Cox Automotive, one year after leading the nation in EV growth, Washington remained a top EV state with the second-highest 2024 growth in passenger EV market share.[1] As of December 12, 2024, Washington's registered EVs grew by about 50,000 from December 2023.[2] The state is now third in market share, behind Colorado and California, as the three western states outpace the rest of the nation.

Figure 1: Light-duty market share July to September 2023 and 2024



Data Source: NESCAUM analysis of data from Atlas Public Policy. Includes both battery electric and plug-in hybrid vehicles. ZEV states participate in California's cleaner motor vehicle emission standards instead of federal standards, as permitted by federal law.

State reaches 1,000 fast charging plugs and funds more than 40% of need by 2025
Washington achieved another key milestone with EV charging, surpassing 1,000 fast charging plugs (direct current fast chargers, or DCFCs). With 1,460 operating plugs, Washington is 48% of the way to the TES target of 3,030 by 2025. There are approximately 1,260 DCFC plugs funded by agency programs slated to open soon. When they are online, the gap to the 2025 target narrows to about 300. Overall, state investments are funding 42% of the needed DCFC ports by the end of 2025.

Key program implementation achievements
In addition to these points of progress, agencies achieved administrative successes worth recognition:

- Launched the nation's first low-cost EV lease program, which proved so popular that it ran out of $46 million in funding in less than three months.
- Successfully applied for a landmark truck charging project along Interstate 5 from Mexico to Canada.
- Invested a majority of Climate Commitment Act funding for EV programs in overburdened communities.

[1] Presentation Available: Cox Automotive Industry Insights and 2025 Forecast Call - Cox Automotive Inc.
[2] Electric Vehicle Population Counts | Data.WA | State of Washington

However, challenges must be addressed to reach accelerated growth

1. New EVs remain unaffordable relative to market choices
At the start of 2024, the U.S. appeared to be on the precipice of purchase price parity between light-duty EVs and gasoline vehicles. Instead, the gap in the new vehicle market grew from $2,000 in December 2023 to $7,000 in December 2024. Used EVs appear more competitive, but even in Washington – which has the most affordable used EV prices in the country – the price differential is more than $5,000.

While charging infrastructure is key to reaching long-term scale, overcoming the price gap will most influence driving adoption in the short run. This was clear in 2024, as Colorado saw more than double the growth of any other state with a broad-based $5,000 incentive available for passenger vehicles. It was also apparent in Washington, where the state saw the largest third-quarter growth – during its light-duty rebate program.

2. Charging network needs more significant improvement to address consumer hesitancy
Despite the progress made in 2024, Washington drivers have fewer fast chargers available than in the other two leading EV states. Washington has 119 battery electric vehicles for every public DCFC plug (119:1), higher than Colorado's 100:1 BEV-to-DCFC ratio and California's 80:1 BEV-to-DCFC ratio. That means drivers are more likely to wait when chargers are full (known as queueing) or have fewer options near where they live.

These ratios depend on chargers that work, which unfortunately cannot yet be taken for granted as technology improves. J.D. Power's national survey[3] of EV drivers remains the strongest assessment of charger reliability, and its August 2024 findings indicate persistent issues. For example, 19% of drivers said they visited a charger where they couldn't charge their vehicle. Failed visits are predominantly caused by network and other outages (61%), long wait times (20%), and vandalized cables (10%).

3. Consumers and fleet managers want more information and technical assistance
While prices and charging get the most attention in the EV policy space, the most significant barrier may be consumer and fleet manager comfort with changing technology and its ability to meet their transportation needs. According to Cox Automotive's 2024 EV survey, 56% of those considering EVs say education would be a motivator for choosing electric, and 38% say price reduction is a motivator. Those who know someone who owns an EV are four times more likely to consider an EV themselves.

The same dynamic is at play for fleet managers, as seen with the success of the Breaking Barriers Collaborative,[4] a Pacific Northwest fleet electrification training program. One participant said, “I came into this program a novice in electric vehicles and I’m leaving confident in my ability to lead our fleet transition!"

4. Buyers struggle to purchase new ZEV and ICEV trucks due to high costs and manufacturer-led purchase requirements
In response to new zero-emission medium- and heavy-duty vehicle standards that Washington and other states adopted from California, some manufacturers are requiring dealers and fleets to purchase zero-emission vehicles alongside internal combustion engine vehicles. This is happening despite numerous flexibilities that make it feasible for manufacturers to comply with these regulations, even if they aren’t producing zero-emission versions of certain vehicles.

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[3] 2024 U.S. Electric Vehicle Experience (EVX) Public Charging Study | J.D. Power
[4] Breaking Barriers Collaborative

These self-imposed manufacturer sales requirements have led to reports that sales of medium- and heavy-duty combustion engine vehicles are slowing because buyers wishing to purchase internal combustion engine vehicles cannot find zero-emission vehicles that meet their needs in some cases. Sales data has yet to show slowing sales in Washington, but these business decisions have created some artificial short-term shortages and led to false claims that the state is banning certain types of bans of gas- and diesel-powered vehicles, such as snowplows and RVs. Additionally, the California Air Resources Board (CARB) analysis found that the truck makers are charging about $90,000 more in the U.S. than in Europe for the same ZEV trucks, despite declining battery costs.[5]

Manufacturers have already met the ZEV requirements industry-wide for most Class 2b-8 vehicles in Washington multiple years in advance through early action credits.[6] Only Class 7-8 tractors, usually referred to as semi-trucks, may face any significant issues with compliance and reaching TES projections for model year 2025, partially due to high costs. To address these legitimate concerns with ACT compliance and vehicle cost, Ecology is currently in rulemaking to increase compliance flexibilities for Class 7-8 tractors over the next two years and working with CARB on longer-term solutions. Additionally, WSDOT will be funding ZEV truck purchases and building out a public charging network for trucks. Ecology will continue to coordinate with CARB to ensure temporary market conditions do not disrupt the movement of goods or emissions reductions.

[5] Zero-Emission Truck Pricing Comparison - EU & US | California Air Resources Board
[6] Manufacturer information - Washington State Department of Ecology

Making the most cost-effective investments

The EV Council's member agencies submitted the decision package (DP) requests outlined in Table 2. The DP requests approximate the needed EV investments aligned with the TES, but fall far below the amount invested in the 2023-2025 biennium ($632 million). Actual needs to meet the state's goal are much higher but not feasible in the current revenue environment. Investment consistent with the past biennium would result in the greatest progress towards the targets modeled in the TES.

Table 2: 2025-2027 decision package for EV Council agencies

Amount requested	Purpose
Department of Commerce ($272 million total)	
$105 million	Continue the existing Washington Electric Vehicle Charging Program (WAEVCP), which funds community charging at residential and public sites. Capital projects would be selected from a competitive process in summer 2025 for the biennium. Some residential charging investments would be administered through home charging rebates.
$103 million	Continue the EV Instant Rebate program.
$60 million	Continue funding residential charging through home charging rebates.
$2 million	Continue funding the EV Council and develop guidance for local governments and electric utilities on model codes, ordinances, and an energization process.
$1 million	Fund maintenance and data updates to EV mapping tools that support state and local planning.
$1 million	Implement an EV charging reliability standards rulemaking (funding for Commerce agency request legislation).
Department of Transportation ($253 million total)	
$118 million	Re-appropriate 2023-25 funding for WSDOT's commercial ZEV truck incentive program (includes additional funding for ZEV school buses to be administered by Ecology).
$49 million	Fund projects selected for the Green Transportation Capital Program, which provides funding to transit agencies for cost-effective capital projects that reduce carbon emissions.
$40 million	Authorize federal funding for the National Electric Vehicle Infrastructure program.
$21 million	Washington portion of Charging and Fueling Infrastructure Round 1b federal funding award for "West Coast Truck Charging and Fueling Corridor" project with Oregon and California.
$15 million	Continue the existing Zero-emission Vehicle Infrastructure Program, which funds fast charging along state highways.
$10 million	Authorize federal funding for the awarded EV charging reliability and accessibility accelerator grant. (New program)
Department of Ecology ($21 million)	
$21 million	Continue funding electric school buses through program that replaces diesel school buses with zero-emission buses and related fueling infrastructure.
	Continue funding grant program to replace diesel-powered vehicles with electric models, especially in overburdened communities.
	Fund vocational training programs to support technicians who service electric vehicles.
	Continue to fund staff to implement motor vehicle emissions standards in Washington.
State agency fleets ($25 million total)	
$20 million	Continue to fund EV charging installation projects to support state fleet electrification.
$5 million	Provide ongoing funding for zero-emissions vehicle staff positions at six agencies.
$571 million	Interagency total

Protect nation-leading EV policy

Motor vehicle emission standards

The federal Clean Air Act requires states choose between federal and California motor vehicle emission standards. Washington law directs Ecology to adopt California's cleaner standards, which require auto and truck manufacturers to sell a certain number of ZEVs over time. This is Washington's most essential EV-related policy, and the state may need to respond to changing actions by the federal Environmental Protection Agency (EPA), which recently approved California's waiver (and therefore Washington's authority) to implement the standards.

Advanced Clean Cars II (ACC II)

Washington is one of 17 states to adopt a ZEV standard for light-duty vehicles, which requires automakers make ZEVs an increasing share of their sales until they reach 100% starting in 2035. According to TES analysis, ACC II is essential for the state's emissions reduction requirements. Without it, in 2030 the state would have an EV adoption rate of 59%, versus 68% with it. Automakers have nearly doubled their ZEV market share since 2022, reaching more than 20% consistently in the second half of 2024. They can reach 35% market share with model year 2026 vehicles – the first year of the policy – with strong growth in the year ahead.

Advanced Clean Trucks

For medium- and heavy-duty trucks, there is a similar policy known as Advanced Clean Trucks (ACT), which requires manufacturers make ZEV trucks an increasing share of their sales in Washington starting in 2025. Without ACT, Washington would fall far behind the pace needed to meet emission limits in state law.

CARB's recent findings on price spikes by truck manufacturers in the U.S. compared to European markets appear to be a market failure that may require policy action. This dynamic is counter-intuitive for two reasons: (1) ACT's ZEV sales requirements should lead to price decreases and increased demand, and (2) battery prices have continued to decline, which should also contribute to lower prices. Instead, truck manufacturers are raising prices despite an economic incentive to do the opposite.

EV charging

Acting in its responsibility to advise the governor and Legislature on energy policy, Commerce also developed recommendations for EV charging statutory changes to speed up projects and improve reliability:

- Amending RCW 43.31.9707 to provide authority to move project selection earlier in the budget cycle (TES recommendations 2.9, 2.24, and 2.32).
- Adding a new chapter to RCW Title 19 to set a 97% uptime standard and require compliance with the standard to be eligible for state and ratepayer funds (TES recommendation 2.19). Uptime is the percentage of time a charging station's hardware and software are online and available for use or in use and successfully dispensing electricity.
- Amending RCW 43.31.970 to require that Commerce develop and distribute model ordinances, development regulations, electric vehicle supply equipment (EVSE) siting and installation guidance, and best practices (TES recommendation 2.15, 2.16, and 2.17).

[7] RCW 43.31.970.

Part 2: Passenger Vehicles

- More Washington drivers go electric in 2024
- State investments begin to build charging network at scale
- What are we doing about broken chargers?



More Washington drivers go electric in 2024

But slowed growth shows the state needs to ramp up incentives, information, and reliability to address high prices and consumer questions

Progress: State incentives bolster demand

In 2023, Washington led the nation in EV growth for personal light-duty passenger vehicles. While growth slowed in 2024, it did not stop as state programs expanded access and bolstered demand by reducing upfront EV prices through rebates and tax incentives. This resulted in 9,500 more EVs sold through November 2024 than in all of 2023.

Commerce launches $46 million EV Instant Rebates program

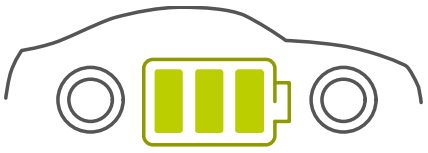
Commerce launched the state's first EV rebate program in August. Low-income households were eligible for discounts of $2,500 to $9,000 at the point of sale or lease. The program proved overwhelmingly popular, providing rebates to about 6,200 people in less than 90 days. When factoring in carbon reduction, fuel savings, and purchase price savings, the program is expected to generate $3.90 in benefits over five years for every $1 spent.

Through the program, Washington was the first state to offer a low-cost EV lease option – with several models available for under $200 per month. That innovation drove the program's popularity, with leases making up 68% of rebates. Customers gave the program an average rating of 9.6 out of 10, with 90% saying they would not have gotten an EV without the rebate. The average household income for recipients was $51,200, and 75% reported that monthly costs were decreasing.

> "The EV Rebate program made the impossible possible! […] The performance of this electric vehicle is beyond expectations. Thank you for the rebates and incentives. I could never have reached this without the help." (EV Instant Rebate Participant)

Sales tax exemption saves EV buyers an estimated $52 million in 2023-2025 budget cycle

Joint Legislative Accountability and Review Committee (JLARC) analysis of the state's sales and use tax exemption for "clean alternative vehicles" – primarily EVs – estimates that customers will see $52 million in savings between July 1, 2023, and June 30, 2025. Tax incentives vary by purchase price and type but average about $1,000. This means about 52,000 EV buyers will receive the incentives, though it is unclear how many will choose an EV because of the discount.



State incentives helped an estimated 58,000 Washington residents afford EVs in the 2023-2025 budget cycle.

WSDOT funds 18 electric car-share programs

WSDOT funds the Zero-Emissions Access Program (ZAP), which funds zero-emission car share pilot programs in underserved and low- to moderate-income communities throughout Washington. In 2024, ZAP continued funding for 12 car share programs it funded in previous years,

TES priority recommendations

1.2: Promote public information campaigns about financial incentives for and the benefits of getting an EV

3.1: Launch Commerce's targeted, up-front point-of-sale EV rebate program

3.2: Create a state-supported low-cost leasing program with an EV equity objective

3.7: Extend and expand the state sales and use tax exemptions for battery electric vehicles (BEVs)

3.8: Increase consumer awareness of incentives

and added six new car share locations. Three of the existing programs expanded by adding new vehicles throughout the year.

Key Policy: Advanced Clean Cars (ACC) II

Washington is one of 17 states to adopt a zero-emission vehicle (ZEV) standard for light-duty vehicles, which requires automakers to make ZEVs an increasing share of their sales until they reach 100% starting in 2035. According to TES analysis, ACC II is essential for the state's emissions reduction requirements. Without it, the state would have an EV adoption rate of 59% versus 68% with it in 2030.

Gap: Prices still too high, and consumer information remains unclear

Based on previous sales rates, EV sales were not as high as expected in 2024. Washington's experience reflects national trends, as EV consideration nationally slightly decreased since a peak in 2022.[8] This should not indicate a downturn in consumer interest, but instead a market failure to offer affordable options. After coming within $2,000 of price equivalence with the average new vehicle in December 2023, that gap has widened again to about $7,000, even after accounting for incentives.

Price may not be the most significant barrier. With early adopters already in the EV market, drivers who still have questions about EVs are key to growing the state's adoption rate. According to Cox Automotive's 2024 EV survey, 56% of those considering EVs say education would be a motivator for choosing electric, and 38% say the same about price reduction.

Average price differential

Between EVs and gasoline vehicles:

New: $7,000 | Used: $5,500

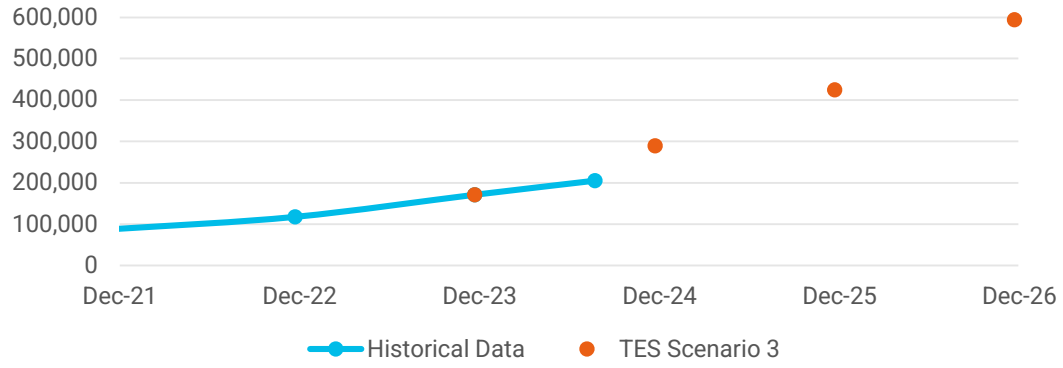
Source: Cox Automotive and Recurrent

EV adoption falls behind TES targets to achieve state requirements

While Washington remains second in the nation behind California in EV market share, as shown in 2, EV adoption has slowed enough to fall behind the 2024 TES target for EV adoption – set specifically to maximize the state's growth opportunity before ACC II ramps up.

[8] Cox Automotive 2024 Path to EV Adoption Study Suggests Electric Vehicle Consideration Will Surge in Second Half of Decade - Cox Automotive Inc. (coxautoinc.com)

Figure 2: Total EV population, historical data through August 2024 and TES targets



Data source: Washington Department of Licensing and Transportation Electrification Strategy.

Resource needs

Commerce requested $103.2 million to:

- Continue the EV Instant Rebates program
- Provide reliable EV information for consumers

Income-based rebates or broad-based sales tax exemption

The TES recommends funding both more rebates and tax exemptions – but if funding is limited, rebates offer a more cost-effective option. Table 3 compares the estimated outcomes of using maintenance level funding for rebates versus a sales and use tax exemption.

Table 3: Comparison of rebates and sales and use tax exemption programs

	Point-of-sale rebates	Sales and use tax exemption
Incentive amount	Assumed to be $6,000 for leases, $4,000 for new, $2,000 for used	Assumed to be an average of $1,500 for new and $750 for used
Appropriation for incentives	$103 million	$103 million
Incentives budget	$94 million (9% administrative rate)	$98 million (5% administrative rate)
Percent leases	60%	35%
Number of rebates/exemptions	19,745	83,277
Rebates/exemptions for new leases	11,847	29,147
Rebates/exemptions for new sales	3,949	12,491
Rebates/exemption for used vehicles	3,949	41,638
Average rebate	$4,769	$1,175
Emissions avoided (metric tons)	44,426	39,942
$/metric ton of CO2 avoided (5 years)	$464	$516
New EV % increase	5%	3%
Social benefit of carbon avoided (5 years)	$48 million	$43 million
Fuel savings (5 years)	$112 million	$101 million
2027/2028 used EV market % increase	15%	8%
Avoided costs from increased used EV supply	$102 million	$50 million
Direct consumer benefits	$94 million	$98 million
Total public benefit (5 years)	$356 million	$292 million
Return on investment	$3.46	$2.84

Assumptions:

Emissions reduced per vehicles = 3 metric tons CO2 (EPA AVERT + assuming less electricity carbon emissions over time)

Total public benefits are based on (1) social cost of carbon is $217/ton (EPA), (2) fuel savings, (3) direct consumer savings, and (4) indirect consumer savings from vehicles coming off leases after 3 years

2028 used EV baseline = 60,000 EVs, $20,000 average price

Fuel savings -> Argonne National Laboratory: Adoption of Plug-in Electric Vehicles: Local Fuel Use and Greenhouse Gas Emissions Reductions Across the U.S. and using reported mileage from program participants

Rebate program = 60% leases

Sales tax exemption = 35% of new vehicles are leases (latest market data), 50% used (based on JLARC report)

Rebate essentiality is 70% for rebate program, 16% for sales tax exemption. This is based on current program findings (89.5%) and assumption that it would go down proportionally to rebate amount multiplied by 1.25, and then .9 if there is no low-income requirement.

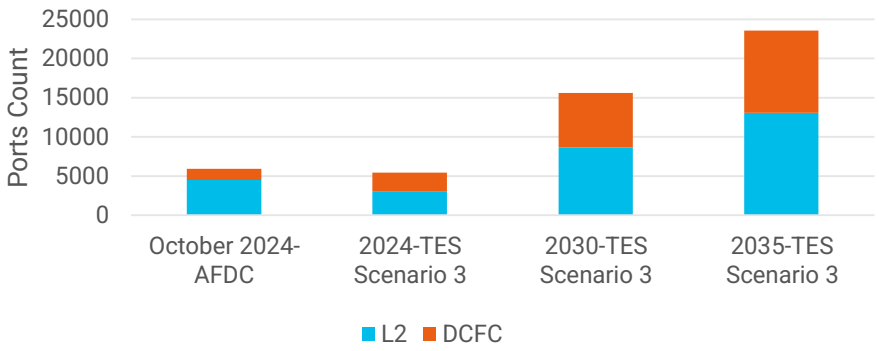
Return on investment does not include federal clean vehicle credit dollars brought into Washington.

State investments in public chargers are closing gaps while the focus on residential charging starts to take shape

Progress: State agencies expand access to charging in Washington communities

Charging availability was an issue that agencies addressed on multiple fronts in 2024. Collectively, the EV Council's member agencies are administering state programs and federal funding that have or will install between 10% and 42% (depending on the sector) of the light-duty charging ports needed by the end of 2025 for multifamily, public, fleet depot, and workplace charging purposes.

Figure 3: Public EVSE chargers and TES Scenario 3 Goal



Data source: AFDC and TES.

According to TES modeling results, based on state-of-the-art Replica trip data and federal charging data, Washington is ahead of 2024 TES targets for public Level 2 charging but behind in DCFC installations. However, as shown in Figure 3, the state's public charging needs will ramp up significantly in the coming years. By 2030, the state needs 8,671 Level 2 ports and 6,926 DCFC ports; by 2035, those numbers grow to 13,068 Level 2 and 10,522 DCFC ports, respectively.

TES priority recommendations

2.5: Support planning and building necessary utility-side charging infrastructure

2.15: Develop model site designs

2.17: Develop recommendations for building codes and corresponding parking and charging requirements

2.24: Continue funding WSDOT's ZEVIP grant program to provide support for charging along state routes

2.32: Encourage deployment of EV charging in multifamily housing

3.1: Launch Commerce's targeted, up-front point-of-sale EV rebate program

3.2: Create a state-supported low-cost leasing program with an EV equity objective

Key findings

Percent of 2025 TES-modeled needed public EV charging ports currently installed: 114% (Level 2), 45% (DCFC)

Percent increase in number of public charging points needed by 2035: 327% (Level 2), 340% (DCFC)

Commerce in communities, WSDOT along corridors

Across the country, state energy offices and departments of transportation have taken on different roles in the work to build an EV charging network, with expertise in both electricity and travel between agencies.

In Washington, the two agencies co-chair the EV Council to bring both areas of expertise to bear, and split responsibilities based on whether the charging is residential or in community centers (Commerce) or located along highway corridors for long distance travel (WSDOT).

Commerce funds $100 million in community-based chargers
In late 2023, Commerce launched the Washington EV Charging Program (WAEVCP), which will install charging ports at apartment complexes and in public spaces across the state. Commerce awarded more than $100 million in contracts, resulting in more than 5,500 additional charging ports. Ground has been broken on several projects, and many are expected to be completed in 2025.

WSDOT leads the way in EV corridor charging
WSDOT continued to implement a host of programs[9] that fund charging infrastructure along state and federal highways. WSDOT also released its first NEVI request for proposals (RFP) in late 2024. Through the NEVI program, WSDOT administers $71 million in federal funds for the siting, installation, operation, and maintenance of EV charging at 50-mile intervals along all federal highways and U.S. routes. Applications for the initial $25 million RFP are due in January 2025, with future funding opportunities to follow.

While federal funding supports charging infrastructure along interstate highways, WSDOT continued implementing its Zero-Emission Vehicle Infrastructure Program (ZEVIP) along state highways, funding more than 200 fast-charging plugs and 50 Level 2 plugs. WSDOT also led the development of the Zero-Emissions Vehicle Mapping and Forecasting Tool (ZEV-MFT), which will be released in early 2025. The ZEV-MFT will provide the locations and other essential information about charging infrastructure across the state. Meanwhile, DES received funding to install over 400 charging ports at leased and state-owned facilities to support state fleet electrification.

Table 4 summarizes EVSE-related appropriations for the 2023-2025 biennium; not all the charging ports noted in the table are yet installed.

[9] Including the Zero-Emission Vehicle Infrastructure Program (ZEVIP), Zero-Emission Access Program (ZAP), and Green Transportation Capital program. WSDOT also got separate funding to install 76 charging ports in Mount Vernon.

Table 4: 2023-2025 EVSE investments (real and estimated data)

Program	23-25 Biennium Appropriation[10]	Multifamily Level 2 (L2)	Public L2	Public Direct Current Fast Charging (DCFC)	Fleet and Workplace L2/DCFC
Commerce WAEVCP	$105,000,000	3,142	733	588	1,262
WSDOT ZEVIP	$48,746,000	0	52	208*	0
WSDOT Mount Vernon	$2,100,000	0	72	4	0
DES state agency fleets	$23,342,000[11]	0	0	0	252**
DOC fleet	$600,000	0	0	0	13**
State total	$183,788,000	3,142	812	800	1,527
Charging and Fueling Infrastructure (CFI)	$29,192,000	0	12	168***	0
WSDOT NEVI	$25,000,000	0	0	99^	0
Ecology Volkswagen settlement	$3,520,000	89^^	89^^	0	89^^
Federal/other total	$57,712,000	89	101	267	89
Total	$241,500,000	3,231	913	1,267	1,616
Current known ports[12]		No data	4,954	1,460	No data
Need by end of 2025[13]		31,839	3,912	3,030	6,986
Public charging surplus (gap)^^^		N/A	1,955	(303)	N/A
Percent of need funded^^^		10%	23%	42%	23%

* Assumes 4 DCFC ports per site funded by ZEVIP.

** Estimate based on DES estimate of $45,000 per charging port.

*** Based on information included by Federal Highway Administration. Does not include Northwest Seaport Alliance project focused on drayage truck charging (covered below). Includes Mount Vernon DCFC charging assumed to be funded by WSDOT pass-through funding.

^ Estimate based on ZEVIP cost per charging port.

^^ Assumes three rounds of $3.52 million spent on 269 L2 public charging ports. First round funded 14 multifamily, 49 public, and 22 fleet/workplace. Assumes even spread across the three categories in total.

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[10] Analysis of budget bills signed into law.
[11] In response to the Office of Financial Management's request to agencies to propose operating budget savings options, DES proposed letting the $12 million in EVSE funding in the 2024 supplemental budget lapse. The Governor's proposed 2025 supplemental budget included this reduction.
[12] Alternative Fuels Data Center: Alternative Fueling Station Counts by State (energy.gov). As of July 2024
[13] Washington Transportation Electrification Strategy | Tableau Public

^^^ Assumes all 23-25 funded projects are completed by Dec. 31, 2025, including any projects that require re-appropriations into FY26.

Gap: EVSE needs will ramp up significantly in the coming years

While the state is progressing toward the charging targets identified in the TES, significant gaps remain. As determined through TES modeling, the total number of light-duty EVSE charging ports (encompassing all use cases) needs to grow more than 20-fold from 2023 to 2035, from 147,000 to nearly three million. Likewise, meeting TES-recommended medium- and heavy-duty vehicle (MHDV) charging port numbers by 2035 requires a 30-fold increase from 2023. To meet these goals, the state may need to provide funding to help make up the difference while lowering barriers that inhibit the private sector from fully participating in Washington's EV charging market.

Resource needs

EV Council 2025-2027 agency budget requests totaled $206 million to:

- $105 million to continue the WAEVCP
- $60 million for a single-family home charging rebate program
- $40 million to continue the NEVI program
- $15 million in reappropriations for ZEVIP
- $1 million to conduct an EVSE reliability standards rulemaking, as well as develop model codes, ordinances, and an energization process

In addition, there is a policy need to update state statute to enable more effective management of the TES. This includes:

- Amend RCW 43.31.970 to provide authority to move up project selection to earlier in the budget cycle.
- Remove the restrictions on EV programs in RCW 35.92.450 and RCW 54.16.430.
- Add a new chapter to RCW Title 19 to require all public chargers to meet a 97% uptime standard.
- Amend RCW 43.31.970 to require that Commerce develop and distribute model ordinances, development regulations, EVSE siting and installation guidance, and best practices.
- Amend RCW 19.27.110 to require clearly labeled emergency shutoff devices near all DCFC EVSE.

What are we doing about broken chargers?

Federal funds will help fix many broken chargers, but additional funding will be needed to fill the gap

Progress: funding secured to improve EVSE reliability

TES priority recommendations

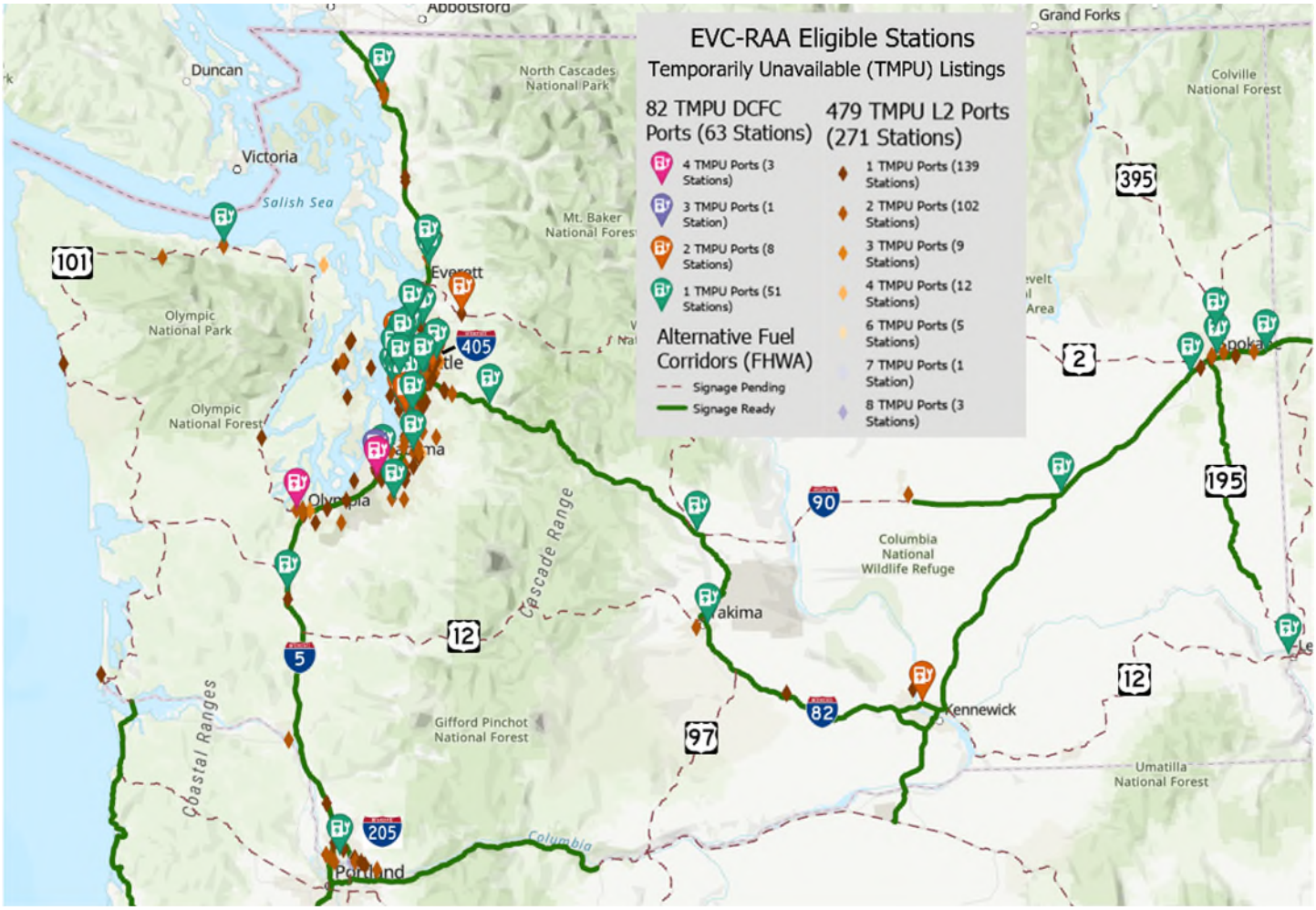
2.19: Establish reliability standards for EV chargers

Key funding opportunity

WSDOT secures $10 million to address broken EV chargers

To address charger reliability by repairing broken chargers, WSDOT secured $10 million through the EV Charging Reliability and Accessibility Accelerator (EVC-RAA) program (a part of the NEVI Formula Program set-aside fund). The funding allows the state to develop and implement an open, competitive grant program for chargers listed as temporarily unavailable on the Alternative Fuels Data Center (AFDC) station list as of October 2023. In total, 563 ports (330 stations) are eligible to apply for repair or replacement under the EVC-RAA program. The funds must be disbursed to repair or replace charging stations so that they meet NEVI standards. The project costs will vary based on a variety of factors, which makes it difficult to determine exactly how many of those 563 ports will ultimately be repaired through this funding source. WSDOT released a request for proposals for this funding in December 2024, with applications due at the end of January 2025.

Figure 4: Map of non-functioning chargers in Washington as of October 2023



Data source: WSDOT, "Electric Vehicle Charging Reliability and Accessibility Accelerator grant"

Key findings

About 10% of publicly available charging points are unavailable in Washington. About 20% of charging attempts fail according to national studies.

Many contract provisions available that ensure a reliable, consistent EV charging experience.

Commerce develops proposal for EVSE reliability standards rulemaking
Commerce, with significant input from engaged stakeholders and the public, requested funding to implement two initiatives: an EVSE reliability standards rulemaking and a set of model codes, ordinances, and an energization process. The EVSE reliability standards rulemaking would result in rules for public charging reliability, increased private sector effort to improve reliability, the development of best practices, and better data for policymakers.

Existing grant agreements for state-funded programs may include reliability provisions such as:

- Operating and maintaining the charger for a minimum of five years

- Average annual or quarterly port uptime requirements greater than 97%
- Use of a defined port uptime calculation
- Reliability metrics reporting mandates
- Interoperability, communication, and cybersecurity standards
- Requiring insurance and manufacturer's warranties
- Withholding reimbursements or the right to recoup funding for violations

Gap: Despite some improvement, about 20% of charging attempts still fail

The need for greater charger reliability has reached a point that requires public sector intervention.

- A Harvard Business School study of more than one million consumer reviews of public chargers nationally estimates an average reliability score of only 78%.[14]
- J.D. Power's annual EV charging satisfaction survey finds that "19% of all EV owners say they visited a charger but were not able to charge their vehicle, a scant improvement of a single percentage point from 2023. Though the reasons for inability to charge vary somewhat by region, the predominant problem nationwide is the charger was out of service or just wouldn't work, which affected 61% of the failed visits."[15]
- The leading effort to address reliability at the federal level, ChargeX Consortium, found that those with at least one major concern about the public charging networks are twice as likely to revert to an internal combustion vehicle for their next vehicle purchase.[16]

As of October 2024, AFDC data shows that 663 Level 2 and 29 DCFC ports are temporarily unavailable. EVC-RAA funds will go towards repairing a maximum of 563 of those, likely fewer. The current absence of EVSE reliability standards and detailed data on usage and uptime limits the state's ability to track and estimate the impacts of funding allocated for EVSE repairs. As the work to repair and replace charging stations gets underway, the state will better understand the costs per charger, which will inform future requests for funding. The long-term goal is for the state to use its learnings to support the effective use of funds in areas with the highest number of broken chargers and then support private-sector groups to fund the remaining charger needs.

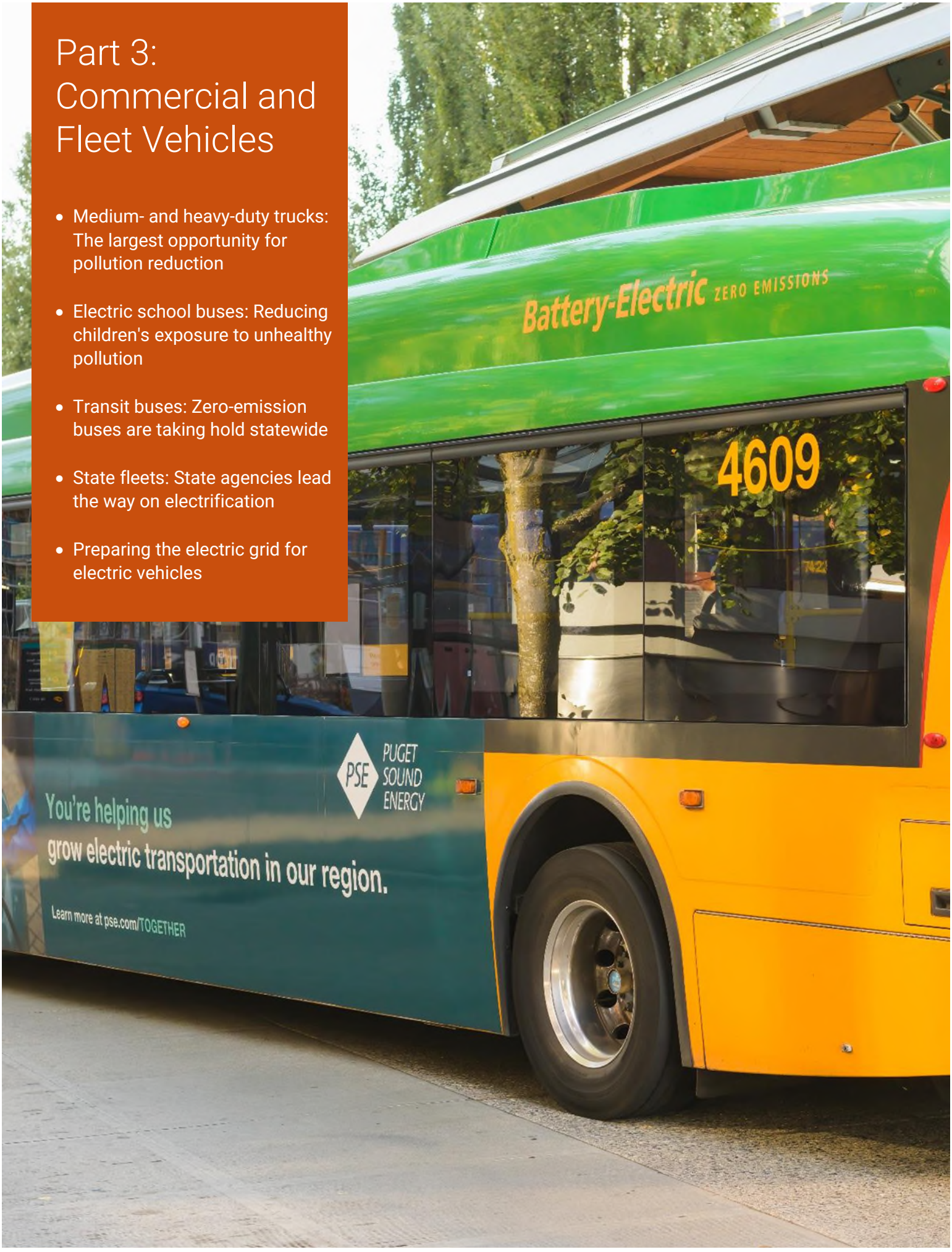
Resource needs

- $1 million to implement an EVSE reliability standards rulemaking

[14] Harvard Business School: The state of EV charging in America: Harvard research shows chargers 78% reliable and pricing like the 'Wild West'
[15] 2024 U.S. Electric Vehicle Experience (EVX) Public Charging Study | J.D. Power
[16] Customer-Experience-at-Public-Charging-Stations_INLRPT-23-74951_12-12-23_Optimized-1.pdf

Part 3: Commercial and Fleet Vehicles

- Medium- and heavy-duty trucks: The largest opportunity for pollution reduction
- Electric school buses: Reducing children's exposure to unhealthy pollution
- Transit buses: Zero-emission buses are taking hold statewide
- State fleets: State agencies lead the way on electrification
- Preparing the electric grid for electric vehicles



Medium- and heavy-duty trucks: The largest opportunity for pollution reduction

Key policy

Advanced Clean Trucks (ACT)
As is the case with light-duty vehicles, the federal Clean Air Act only allows states to choose between federal or California MHDV motor vehicle emission standards. Washington law directs Ecology to adopt California's cleaner standards, known as ACT, which requires manufacturers to make ZEV trucks an increasing share of their sales in Washington starting in 2025.

TES priority recommendations

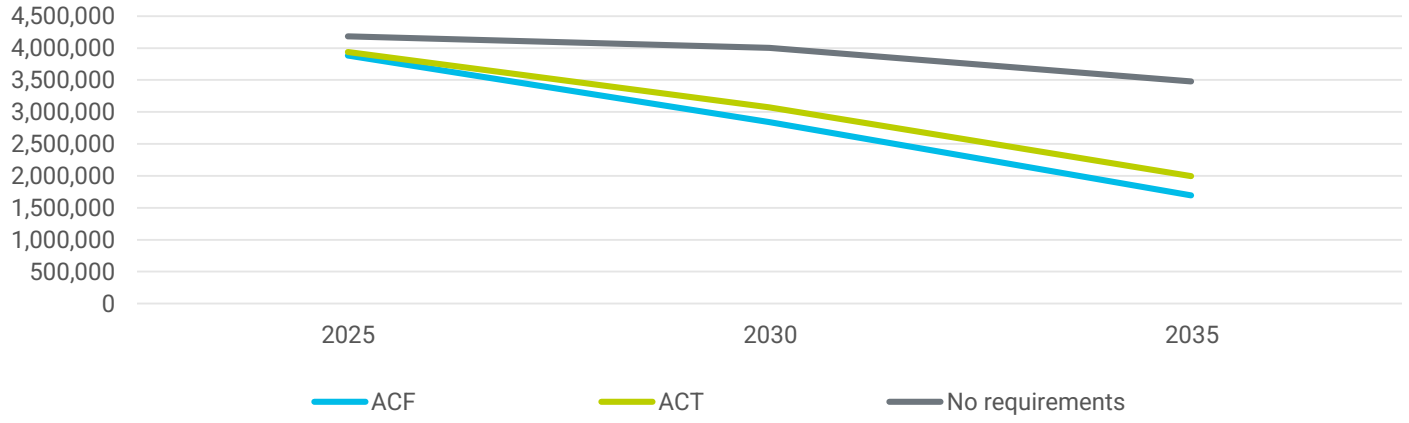
4.1: Pursue ACF adoption rates

4.4: Fund and implement a MHDV incentive and infrastructure program

Progress: Groundwork in place for market transformation in 2025

Moving forward with ACT to make trucks cleaner
Figure 5 shows MHDV carbon emission trends to 2035 as modeled in the TES; the "no requirements" scenario removes the incentives contained in the state-level ACT and Advanced Clean Fleets policies, as well as the federal Inflation Reduction Act (IRA), to see what EV adoption might look like without those top-down policies. As demonstrated in Figure 5, any combination of ACT delay and federal repeal of IRA tax credits could add one million metric tons of carbon pollution in 2030, making it impossible to meet the state's statutory emissions limit.

Figure 5: Medium- and heavy-duty vehicle carbon emissions (metric tons), by TES scenario



Data source: Transportation Electrification Strategy.

In 2024, Ecology worked with other states that adopted best-in-the-nation clean vehicle standards under Section 177 of the Clean Air Act (known as S177 states) to prepare to implement ACT's first effective year in 2025 and ensure that manufacturers are meeting the standards set out in the regulation. Ecology also began

implementing Heavy-Duty Low-NOx Omnibus, a measure that will reduce engine emissions of particulate matter and low oxides of nitrogen (NOx) by 50% and 75%, respectively, starting in 2026.[17]

In November 2024, Ecology announced a rulemaking to consider amendments currently adopted by the California Air Resources Board to ACT and Heavy-Duty Low NOx Omnibus. These technical amendments clarify program requirements and add additional compliance flexibility to address known concerns from industry. Ecology is also soliciting comments in this rulemaking on additional California motor vehicle emission standards that the agency may be required to adopt in future rulemakings.

WSDOT begins implementing $110 million ZEV commercial truck incentive program
While ACT is an essential supply-side policy that drives manufacturers to deliver ZEV trucks, it needs to be matched by demand-side incentives that make it cost-effective for fleets and independent owner-operators to switch to electric. Washington moved forward in 2024, when lawmakers appropriated $100 million to WSDOT to implement a voucher program that covers higher upfront costs for electric trucks and reduces the price of charging infrastructure, with an extra $10 million available in January 2025. The state's Joint Transportation Committee released a report in February 2024 that recommended incentive amounts for the program; those are shown in Table 5.

Table 5: MHDV incentive amounts as proposed by Joint Transportation Committee report

Vehicle weight (lbs.)	Vehicle class	Incentive amount
8,501-10,000	2b	$7,500
10,001-14,000	3	$45,000
14,001-19,500	4-5	$60,000
19,501-33,000	6-7	$85,000
33,001+	8	$120,000

Data source: Joint Transportation Committee, "Washington State Medium- and Heavy-Duty Zero-Emission Vehicle and Infrastructure Incentive Program Design Strategy.

WSDOT released an RFP to hire a third-party administrator for the voucher program in September 2024 and announced CALSTART as the apparent successful bidder in December 2024. After contract negotiation and program set-up, the program will launch in 2025. Per the budget proviso, WSDOT and CALSTART are partnering with Washington State University's Green Transportation Program to provide technical assistance to all fleets seeking to electrify.

Ecology funds ZEV trucks, too
While most of Ecology's clean vehicle investments are focused on electric school buses, the agency's Air Quality Program also funded ZEV trucks:

- **Clean Diesel grant program (Diesel Emissions Reduction Act matched funds):** $2.4 million to scrap and replace yard trucks and transit buses with zero-emission alternatives.

[17] Heavy-Duty Low NOx | California Air Resources Board

- **Volkswagen Settlement grant program**: $7.3 million to purchase the following zero-emission vehicles and equipment. 2024 purchases include one freight switcher, port cargo handling equipment (three forklifts and one yard truck), three refuse vehicles, and one street sweeper.
- **Ecology's Air Quality Program:** Helped Washington apply for Climate Pollution Reduction Grant (CPRG) funding from the EPA, including $100 million to implement an MHDV zero-emission vehicle scrap and replace program. However, Washington's application was unfunded. The work that went into the proposal could be reused for future funding proposals.

Ecology is also processing data collected on fleet reporting requirements under its ACT policy. In 2025, it will issue an aggregated report and provide it to utilities for electric grid planning purposes.

WSDOT and the Northwest Seaport Alliance secure federal funds for truck charging infrastructure
Washington received more than $100 million in federal awards through the CFI program for heavy-duty truck charging, which will help prepare the state for electric trucks that deliver goods from ports to warehouses and along the I-5 corridor. Those funds include:

- $102 million for a joint project with Washington, California, and Oregon for a West Coast Charging and Refueling Corridor project. WSDOT's portion of the federal funds is approximately $21 million, which will be used to build two truck fast-charging sites and one truck hydrogen refueling site along the I-5 corridor.
- The three states applied to build more MHDV public charging along I-5, filling in crucial gaps to meet the goals of Phases 1 and 2 of the National Zero-Emission Freight Corridor Strategy (establishing and linking hubs) by 2027. WSDOT is awaiting a funding decision from the Federal Highway Administration in mid-January 2025.
- $12 million secured by the Northwest Seaport Alliance for drayage truck charging infrastructure in and around the Ports of Seattle and Tacoma.

Gap: Resources to validate data

In its base scenario, the TES projected the following totals for ZEV registration of MHDV trucks and school buses (transit buses are excluded from ACT regulations): 818 ZEVs in 2023 and 3,999 ZEVs in 2024. Including transit buses, these projections increase to 1,455 and 4,882 ZEVs, respectively.

Ecology lacks access to comprehensive, current data on the number of registered trucks in Washington and their powertrains. However, this data can be obtained from the Department of Licensing (DOL). Ecology has an existing contract with DOL to pull data annually on the vehicle identification numbers of zero-emission and plug-in hybrid vehicles; this data request pulls information on all on-road vehicles but does not differentiate by weight class. Ecology will amend its existing data request in 2025 to differentiate by weight class and close this data gap.

Based on optional reported sales from automakers to earn early action credits under ACT for model years 2021-2023, preliminary data shows the state ahead of TES projections for registration of most weight classes of MHDV ZEVs in 2023 and 2024, although sales of ZEV Class 7-8 tractors (e.g., semi-trucks) have been slower than expected. Ecology is still validating these reports; once validated, they can be used to evaluate progress.

Key findings

Preliminary data estimates the state is ahead of TES projections for registration of MHDV ZEVs

Resource needs

Amend existing data request to DOL from Ecology to ask for additional data fields on all vehicles, such as weight class.

WSDOT requested re-appropriation of $110 million to:

- Implement the ZEV commercial truck incentive program.

Ecology requested $21 million to:

- Continue funding grant program to replace diesel-powered vehicles with electric models, especially in overburdened communities.
- Continue supporting vocational training programs for servicing MHDVs.
- Provide staffing for its Clean Vehicles program and economic analysis of motor vehicle emissions standards in Washington. Funding will support ACT implementation and the ACF rulemaking.

School districts are working through implementation challenges; purchases are accelerating

Progress: Well-balanced approach to funding and purchase requirements put into action

TES priority recommendations

4.5: Accelerate and fund school bus electrification to meet needed adoption rates

As of October 1, 2024, electric buses make up less than 1% of school buses in the Office of the Superintendent of Public Instruction's (OSPI) school bus directory – 85 out of 10,407. However, since state grant programs began five years ago, 3% of buses purchased have been electric. Overall, Ecology is spending $78 million to replace 220 diesel school buses with electric school buses. Of those new electric buses, 69 are on the road now (included in the 85 count).

Legislature passes purchase requirement law, joining other leading states

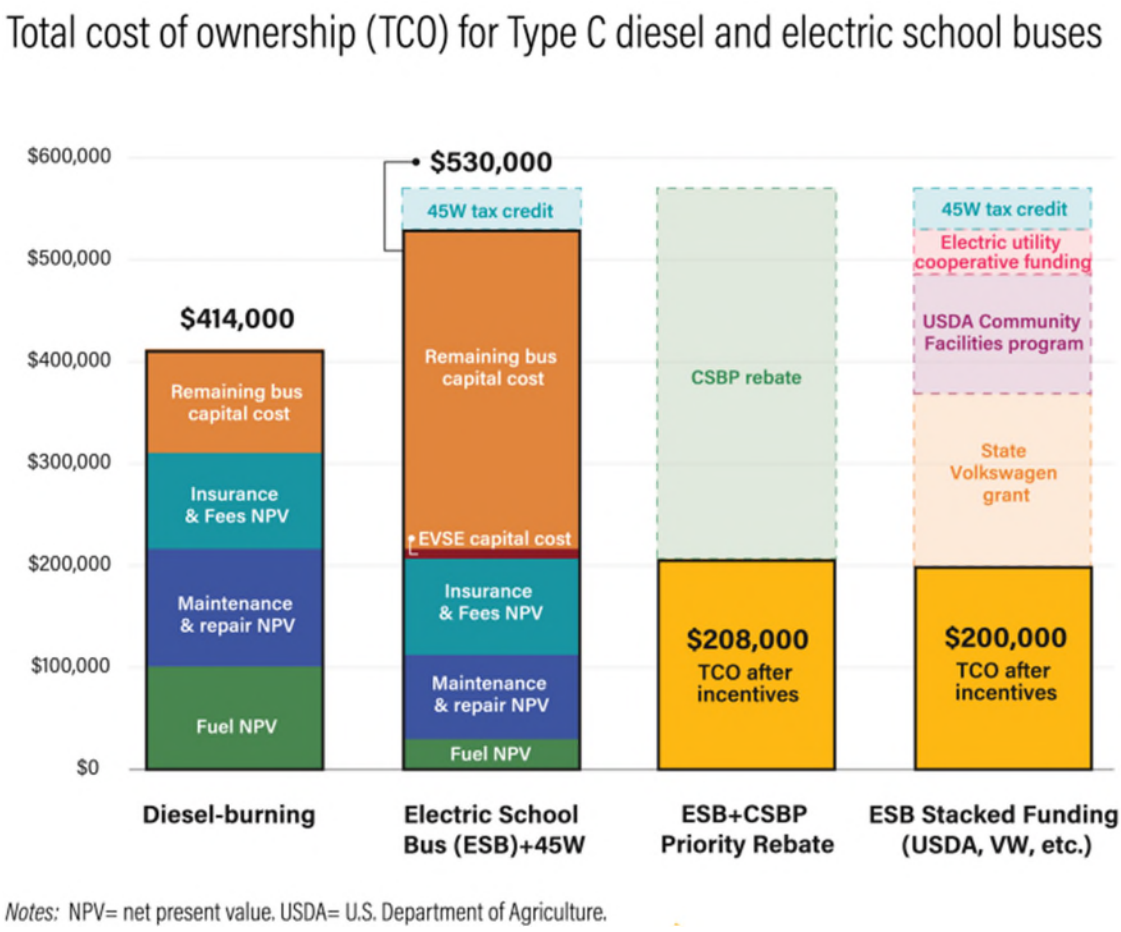
To accelerate and fund school bus electrification per the TES recommendation, in 2024 the Governor's Office and state legislators passed a bill requiring electric school bus purchases (Chapter 345, Laws of 2024).[18] Instead of setting a year in law for when school districts can only buy electric buses, the bill tasks OSPI and Ecology with determining when school buses will reach total cost of ownership (TCO) parity with diesel buses. At that point, electric models will be more financially prudent, making it the right time to put a purchase requirement in place.

Implementation is underway. OSPI is finalizing electric school bus TCO guidance for school districts. OSPI is also surveying school districts, charter schools, and state-tribal education compact schools to gather information about the uptake of zero-emission school buses. These analyses will point to additional gaps and resource needs.

Figure 6 provides an example of a TCO calculation performed by the World Resources Institute. The data is not specific to Washington but provides an illustration of the elements that go into a way TCO calculation for school buses.

[18] Chapter 345, Laws of 2024

Figure 6: Example of a TCO calculation from World Resources Institute



Notes: NPV= net present value. USDA= U.S. Department of Agriculture.

Data source: World Resources Institute, "All About Total Cost of Ownership (TCO) for Electric School Buses". Data not specific to Washington.

Federal and state funding help cover upfront costs

The upfront price differential between electric and diesel school buses can be as much as $300,000, and charging installation costs – which often require electrical upgrades at bus yards – make it difficult for school districts to make the switch. To address this barrier, the state has paired funding programs administered by Ecology with federal grants funded by the Bipartisan Infrastructure Law to make the financial decision viable. Additionally, in December 2024, Ecology was awarded a $3.9 million EPA grant to replace 13 additional diesel school buses with electric versions. The EPA funding will amplify the impacts of state funds and bring more electric school buses to the state.

Key finding

Upfront cost of zero emission school buses continues to limit adoption

Fiscal year 2023-25 state funding opportunities (awarded or pending awarding in 2024) include:

- **Round 1 Electric School Bus Grants**: $14 million awarded to replace 42 buses and install charging infrastructure in 23 school districts. Grants were awarded in the spring of 2024.
- **Round 2 Electric School Bus Grants**: WSDOT provided $20 million for the Ecology Early Action Bus Replacement Grant Program to expedite the replacement of older buses with cleaner, more efficient models. Ecology held a competitive grant opportunity and announced awards at the end of 2024.
- **Vocational Training Pilot Program**: Funding was appropriated in the 2021-23 biennium, and six recipients received $825,000 in grants in 2024. Recipients will use funding to train school bus mechanics, bus drivers, office staff, and high school students in the maintenance and operation of electric fleets.

Gap: Implementation ongoing

OSPI is currently finalizing electric school bus TCO guidance for school districts to implement Chapter 245, Laws of 2024. Simultaneously, OSPI surveyed school districts, charter schools, and state-tribal education compact schools to gather information about the uptake of zero-emission school buses. The final report from this survey is complete and points to several barriers. Those include the lack of appropriate facilities (such as bus sheds or additional parking), concerns with the electric grid's ability to handle bus charging, reliability concerns, electric school bus and charging infrastructure technology, and the cost to purchase and maintain electric school buses. As required by HB 1368, Ecology will submit a report by June 1, 2025, outlining recommendations and implementation considerations for transitioning from a grant program for zero-emission school buses to the depreciation schedule that OSPI implements for combustion engine school bus purchases. This report will incorporate findings from the survey and the final TCO approach.

Resource needs

- WSDOT requested re-appropriation of $18 million to fund Ecology's clean school bus program.
- Ecology requested $21 million to continue funding electric school buses, charging infrastructure, and workforce training through Ecology’s Clean Diesel Grant program.

Finding ways to support transit agencies with different needs

Progress: Green Transportation Program supports transit vehicle transition

Zero-emission bus numbers continue to increase
As of WSDOT's February 2024 annual asset inventory report, 592 of Washington's 8,409 (7%) public transit vehicles are zero-emission vehicles. This is an increase of 154 ZEVs from the previous year.

WSDOT's Green Transportation Capital Grant Program (established under RCW 47.66.120) awarded $50 million to 11 transit agencies across Washington's rural and urban areas in the 2023-25 biennium. The funds were used to purchase 21 battery electric buses (BEBs), two hydrogen fuel cell electric buses (FCEBs), and the associated charging/fueling infrastructure needed to support them.[19]

Planning for the ZEV bus transition
Since the program's inception and as of 2024, at least 16 zero-emission transition plans were funded through WSDOT's Green Transportation Capital Program. These plans are key to transitioning to zero-emission fleets. They are required for a transit agency to apply for the Federal Transit Administration's (FTA) Low or No Emission Grant program. At the federal level, in 2024, the Joint Office of Energy and Transportation launched the Clean Bus Planning Awards funding opportunity to fund transition plans and provide technical assistance.[20]

Key policy

WSDOT's Green Transportation Capital Program is fundamental in transitioning to zero emission bus fleets. In the 2023-2025 biennium, the program awarded $50 million to 11 transit agencies to purchase 21 battery electric buses, two hydrogen fuel cell buses, and their associated charging/fueling infrastructure.

Flexibility for smaller transit agencies
During the Green Transportation Capital Grant Program's 2023-25 biennium, WSDOT worked with the Washington State Transit Association to develop a tiered match system to determine the minimum required match. Rather than requiring a flat 20% match, which can be challenging for smaller transit agencies, the minimum match is now based on the transit agency's most recent operating budget. The tiered approach will lower the application barriers for smaller agencies and allow them to increase access to funding for ZEV buses. This match will be implemented for awards in the 2025-27 biennium. Table 6 shows the tiered matching system.

[19] WSDOT's 2023 Public Transportation Mobility Report
[20] Clean Bus Planning Awards · Joint Office of Energy and Transportation (driveelectric.gov)

Table 6: Green Transportation Capital Grant program transit agency tiered match requirements

Tier	Size of transit agency operating budget	Required match
Tier 1	$35 million or more	20%
Tier 2	$20 million to $34.9 million	15%
Tier 3	$10 million to $19.9 million	10%
Tier 4	$5 million to $9.9 million	5%
Tier 5	Less than $4.9 million	No match required

While not dedicated solely to electrification projects, five additional WSDOT programs provided $26 million in the 2023-25 biennium for 27 BEBs and 10 FCEBs, as well as their associated charging/fueling infrastructure.[21] Additionally, the FTA's Low or No Emission Grant and Bus and Bus Facilities Grant programs awarded transit agencies across Washington with $41 million in funds in fiscal year 2024 for BEB and FCEB projects.[22]

Investigations into hydrogen fuel cell electric buses
Several agencies are exploring the best available BEB and FCEB technologies as part of their zero-emission transition plans. Currently, organizations such as Lewis County Transit, Community Transit (Snohomish County), C-TRAN (Clark County), and Intercity Transit (Thurston County) have hydrogen fuel cell projects in progress. Through the U.S. Department of Energy Office of Clean Energy Demonstrations, Lewis County Transit was selected as a key partner in developing the Pacific Northwest Hydrogen Hub.[23]

Gaps: Support needs at all levels persists

Many of the barriers identified in Chapter 5 of the TES apply to transit, including but not limited to:

- Lack of trained EV and EVSE mechanics.
- Lack of charging and utility infrastructure.
- Lack of parity between the ranges of EVs versus gas-powered vehicles. Some agencies are exploring FCEBs for longer rural routes with fewer charging/fueling opportunities.
- Lack of vehicle options, particularly in the light- and medium-duty category, which are often used for paratransit and dial-a-lift services.[24]

Resource needs

Continued support for Green Transportation Program
Continue to fund transit grant programs like WSDOT's Green Transportation Capital Grant Program through the Legislature. This program was funded at $49 million during the 2023-2025 biennium and continues to receive applications for more funding than is available.

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[21] The Consolidated Grant Program, State Bus and Bus Facilities Grant Program, Regional Mobility Grant Program, Tribal Transit Mobility Grant Program, and Public Transit Rideshare Grant Program.
[22] FY24 FTA Bus and Low- and No-Emission Grant Awards | FTA
[23] Lewis County Transit Selected by U.S. Department of Energy to Develop Pacific Northwest Hydrogen Hub – Lewis County Transit
[24] Demand response services shift electric usage by consumers to decrease the demand on the grid

Support for nonprofits and tribes

The state should continue to fund nonprofits and tribal electrification efforts through WSDOT's Consolidated Grant Program and the Tribal Transit Mobility Grant Program. WSDOT's Green Transportation Capital Grant Program is for transit agencies that meet the definition of a transit authority under RCW 47.66.120(5). The Tribal Transit and Consolidated Grant programs focus primarily on Human Services transportation, which sustains baseline public transportation within communities, but may include electrification activities. There is no dedicated funding specifically for electrification for tribes and non-profit entities.

Supporting the shift to zero-emission vehicles with a focus on charging infrastructure and policy

Progress: Charging infrastructure installed

SEEP leads the charge
In 2024, the State Efficiency and Environmental Performance Office (SEEP) worked with DES to secure $6 million in funding for 16 agencies to support 40 construction projects with 241 L2 ports and 33 DCFC ports. SEEP also worked with agency staff to refine internal policies regarding EVSE usage for fleets, staff, and the public. It also supported DES efforts to finalize new statewide contracts for EVSE and vehicles that expand vendor options and improve equipment and vehicle availability.

Finally, SEEP coordinated with state agencies to assess opportunities to apply for the EPA's Clean Heavy-Duty Vehicles grant. This grant funding could be used to replace Class 6 and 7 non-zero emission heavy-duty vehicles with zero-emission models and associated EVSE infrastructure.

TES priority recommendations

1.5: Full fund agency staffing needs to implement the TES

3.14: Fund and support ongoing state agency efforts to implement EO 21-04

3.15: Provide charging for state fleets

4.9: Apply for a Clean Heavy-Duty Vehicles grant from the IRA

Aligning policy with current charging options
SEEP and Commerce staff completed a rulemaking to align the language in WAC chapter 194-28-070 with WAC 194-29-070. The rulemaking replaced existing language exempting agencies from purchasing BEVs due to the need for routine charging in the field. The new language aligns with the newer WAC 194-29-070, which deems an EV replacement practicable when "charging requirements can be met during routine use or through fleet management strategies." Harmonizing these rules provides consistency across state and local government, and better aligns with current vehicle availability and advanced public charging options.

Better tools to track EVSE
SEEP worked with WSDOT consultants and DES to build a suite of tools known as the State Agency Fleet EVSE (SAFE) tool. The goal of the SAFE tool is to provide more visibility for state employees into where and how they can charge state-owned EVs. The tool assists agencies in mapping and managing state-owned EVSE data, planning EVSE infrastructure, route planning, finding charging in the field, and submitting data to the AFDC. The SAFE tool is part of the ZEV-MFT, expected to go live in early 2025.

Executive Order 21-04 progress
SEEP works closely with DES to measure progress towards state fleet vehicle electrification goals described in Executive Order 21-04. As of November 2024, approximately 650 light-duty passenger vehicles leased from DES' state fleet are electric, making up 17% of leased light-duty vehicles (less SEEP exemptions). More accurate data regarding agency-owned vehicles will be collected in SEEP's 2024 annual reporting (due in February 2025), including the total number of light-duty agency-owned vehicles and the number that are electric. This may somewhat lower the overall (leased and owned) electric percentage as agency-owned vehicles trail leased vehicle electrification in state fleets.

Efforts are underway to increase the EVSE available to state fleets to meet their growing needs. In 2024, Washington cabinet agencies spent $8.9 million and added 254 ports to meet the needs of the electric fleets, bringing the number of ports owned or managed by agencies at state-owned or -leased facilities to 806. SEEP will publish a complete report regarding progress to meet the requirements of EO 21-04 by Feb. 15, 2025.

Gap: Limited staff and resources facing a shift in fleet management

EO 21-04 specifies fleet electrification targets for executive and small cabinet agencies. Implementing EO 21-04 requires a massive shift in how state agencies manage and operate fleet vehicles. Many new and different duties require additional staff capacity, such as agency-wide change management, identifying locations for, installing, and maintaining EVSE, and data analysis and reporting. Further, many state agencies lack the staffing and resources to apply for federal grant funding and tax credits. Given limited staff and resources, many agencies seek SEEP guidance on how to best approach these opportunities.

In 2023, SEEP coordinated with DES as it distributed state funds to six cabinet agencies for staffing needs.[25] The agencies each hired additional staff members on a project basis to support meeting the requirements of EO 21-04. In 2024, SEEP and DES continued coordinating with the Governor's Office and the Office of Financial Management (OFM) to help ensure continued funding for these critical staff.

Additional funds are also needed to continue installing EVSE at state facilities. In FY24, DES had 73 project applications for state agency EVSE that went unfunded. The unfunded projects totaled $15 million, including 363 L2 ports and 59 DCFC ports.

Resource needs

SEEP requested $20 million to:

- Fund additional EVSE installations at state facilities

SEEP requested $5 million to:

- Fund 17 zero-emission vehicles staff positions at seven state agencies

[25] Washington State Patrol, Department of Social and Health Services, Department of Children Youth and Families, the Washington State Military Department, Department of Corrections, and Labor and Industries.

Evaluating the current state of the grid to inform grid planning

Progress: Learning about Washington's power need to transition to electric vehicles

Re-envisioning the investor-owned utility's role in electrification
In mid-2024, the UTC began conducting a series of workshops to update its 2017 Policy Statement on Electric Vehicles and Electric Vehicle Supply Equipment. This statement will provide non-binding guidance to the investor-owned utilities (IOUs) on how to develop their Transportation Electrification Plans and associated EV offerings. The workshop process solicits feedback from the IOUs and interested parties on the inclusion of equity in IOU EV programs, the extent and timing of cost recovery, load forecasting, rate design, as well as other issues such as potential interoperability and maintenance standards. As part of the rate recovery section, the Policy Statement will discuss how EV-related grid upgrades are identified and the cost appropriately spread across ratepayers. The Commission aims to conclude this work in summer or early fall 2025.

Understanding the need for power
Commerce commissioned the Washington Utility-Side Charging Infrastructure Assessment (WUSCIA), completed in December 2024. The goal of the WUSCIA was to estimate the projected costs for electric utility infrastructure (down to the point of service delivery) needed to power all-electric vehicle charging in Washington through 2035. Commerce contracted with ICF to complete the analysis, using system load data from participating Washington utilities. The WUSCIA included a comparison of high-, medium- and low-cost scenarios based on how utilities implement managed charging policies. The high-cost scenario assumes all charging peaks are concurrent, while in the medium-cost scenario, chargers operate at a fraction of the peak load determined by usage pattern. Lastly, the low-cost scenario assumes a distributed load curve that is shifted from peak hours to late-night hours.

The difference between the low- and high-cost scenarios highlights the importance of managed charging policies that help utilities balance demand and minimize stress on the electric grid. To achieve the low-cost scenario, the study's findings recommend that utilities consider streamlining the process for upgrading charging-related infrastructure and invest in infrastructure upgrades soon due to the extended lead times of these projects. Improved planning and implementation of managed charging policies would reduce the cost of grid upgrades, the strain on the electric grid, and the costs borne by ratepayers from electrification and system upgrade requirements. Figure 7 on the following page offers a side-by-side comparison of the low-, medium-, and high-cost scenario results from the WUSCIA.

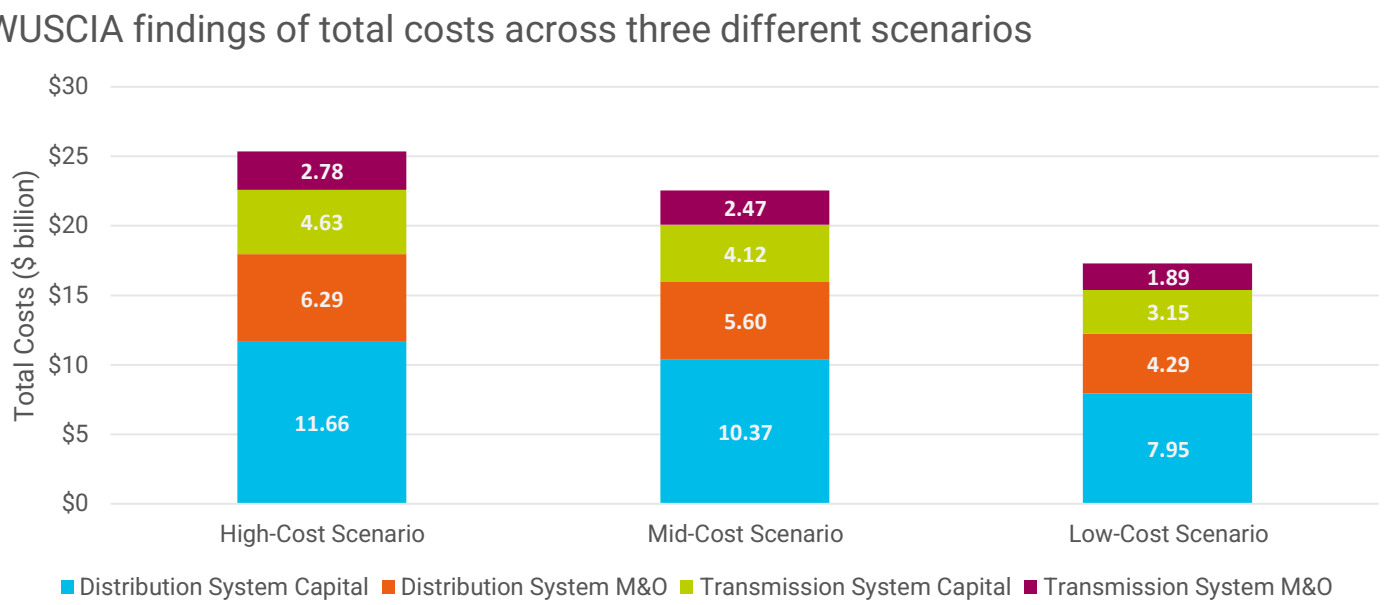
TES priority recommendations

2.3: Identify areas for increased grid investment

2.4: Evaluate time-variant electricity pricing and EV charging management

2.5: Support planning and building necessary utility-side charging infrastructure

Figure 7: Cost comparison of low-, medium-, and high-cost scenarios explored in the WUSCIA



Gap: Funding for utility infrastructure expansion, and utility planning

As noted above, the WUSCIA uncovered gaps in utility infrastructure funding. For example, there is a gap in support for "make-ready" infrastructure, which includes electric infrastructure up to the point of connection with a customer's utility meter. As part of Commerce's DP, $20 million of the funding for the WAEVCP would be dedicated to installing make-ready infrastructure.

Managed charging represents an unrealized opportunity to minimize the need for additional grid infrastructure. Though some utilities have already implemented managed charging policies like time-variant electricity pricing, there is no requirement to do so. These programs and possible requirements would also serve as a baseline standard as the market evolves with vehicle-to-grid and battery storage technology.

Resource needs

Make-ready infrastructure

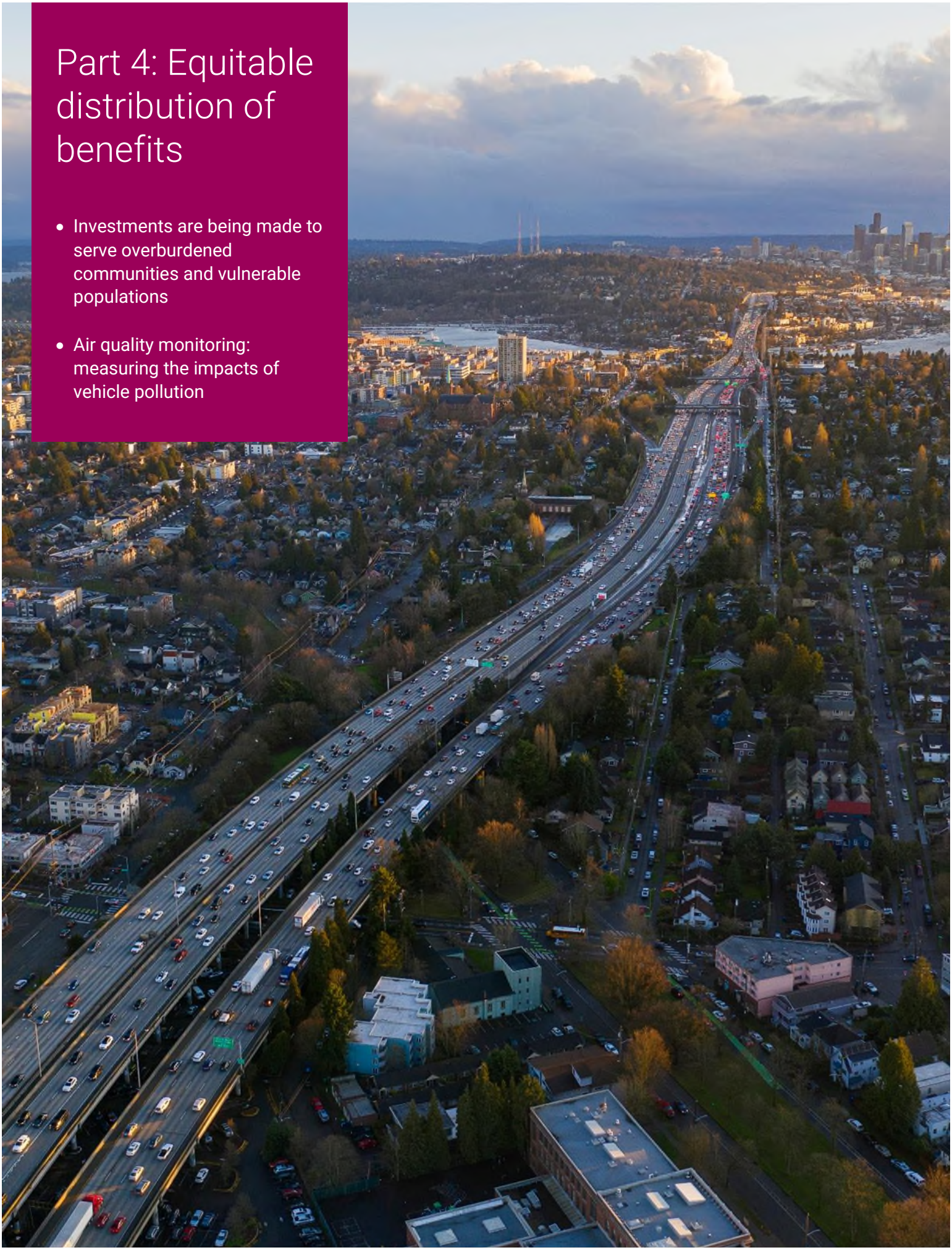
- $20 million of Commerce's WAEVCP funding request would provide make-ready infrastructure.

Additional data is needed to understand the situation for each utility

- Comprehensive data on how each utility handles managed charging, such as which ones are already implementing time of use rates or managed charging system load design, is missing. At this time, it is uncertain how the EV Council would gather this data.

Part 4: Equitable distribution of benefits

- Investments are being made to serve overburdened communities and vulnerable populations
- Air quality monitoring: measuring the impacts of vehicle pollution



Investments are being made to serve overburdened communities and vulnerable populations

Developing data will add visibility into disparities in funding

Progress: Data helps agencies target investments

Increased visibility for HEAL Act strategy and spending
After the passage of the Healthy Environment for All (HEAL) Act (codified in RCW 70A.02), five EV Council member agencies (Agriculture, Commerce, Ecology, Health, and WSDOT)[26] updated their strategic plans to incorporate environmental justice (EJ). HEAL Act implementation is being tracked via three dashboards published by OFM: A strategic planning dashboard outlining how the HEAL Act agencies are incorporating EJ into their strategic plans; an EJ assessment dashboard to track the types of actions that have prompted covered agencies to assess EJ impacts; and a budgets and funding dashboard tracking state agency investments made to benefit vulnerable populations in overburdened communities.[27]

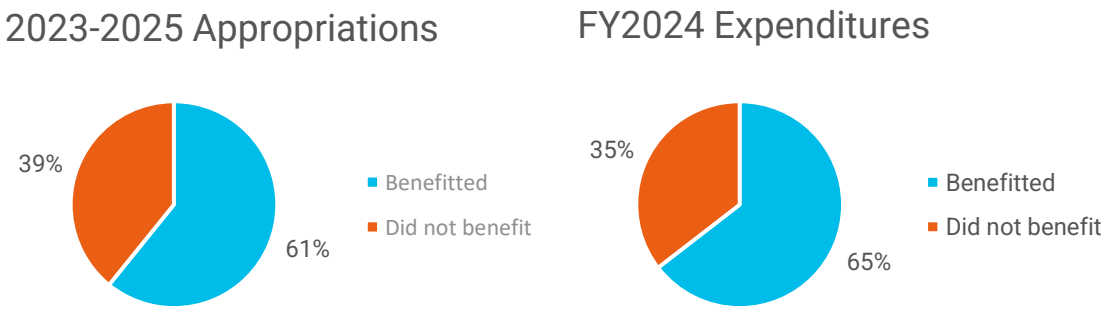
Member agencies fund projects benefitting vulnerable populations and overburdened communities
The OFM budgets and funding dashboard is helpful in tracking EV investments made to benefit overburdened communities and vulnerable populations; it monitors data down to the program level for the covered agencies. For example, the dashboard shows that Ecology's Clean Diesel Grant program distributed more than 60% of its funds to benefit vulnerable populations in overburdened communities, exceeding the 40% of expenditures requirement in the HEAL Act. The share of biennial appropriations and FY2024 expenditures for the Clean Diesel Grants is shown in Figure 8.

TES priority recommendations

1.7: Monitor equity indicators and measure outcomes

TES chapter 2 details a set of strategies to address transportation inequities

Figure 8: Department of Ecology Clean Diesel Grant funds benefitting vulnerable populations in overburdened communities, 2023-2025 appropriations and FY2024 expenditures



Source: Office of Financial Management, "HEAL Act Budgets and Funding Dashboard"

[26] As well as the Department of Natural Resources and the Puget Sound Partnership
[27] New HEAL Act dashboards show state agencies' progress in environmental justice | Office of Financial Management (wa.gov)

WSDOT data shows a similar pattern. In FY2024, approximately $23 million out of almost $29 million (79%) in WSDOT Climate Commitment Act expenditures related to EVs and EVSE went to vulnerable populations in overburdened communities. These funds supported programs like the Green Transportation Grants and the ZEV State Infrastructure Grants.

State departments are developing innovative ways to track their own equity-related data independent of the OFM dashboards. For example, the WAEVCP created a tool to track its success in distributing funds to overburdened communities.[28] As of August 2024, 51% of all project ports – representing 54% of project funding – are going to overburdened communities. More data is forthcoming, but the early results indicate that the program structure has successfully met the HEAL Act's targets.

Programs are being designed to benefit everyone
EV Council member agencies are making great strides in designing opportunities that benefit people across the state. Aimed at households with a total income of 300% of the federal poverty or less, the WA Instant Rebates program offered up to $9,000 in point-of-sale rebates for EV buyers. The program launched on Aug. 1 and was so popular that it ran out of funding before the end of October, months before it was planned to end. A resounding 89% of respondents said that the rebate was "essential" to their EV purchase, underscoring the importance of lowering the up-front cost barrier to purchasing an EV.

Gap: EV Registrations disparity

While progress is being made, more work lies ahead. An analysis using October 2024 EV population data, Census tract data, and data from the Washington Department of Health's Environmental Health Disparities map uncovered an EV registration disparity between overburdened communities and other communities in the state. Census tracts ranking 9 or 10 in the environmental health disparities map had approximately 30% fewer EVs per 1,000 residents than the rest of the state. With the requested resources, the EV Council can continue providing crucial opportunities like the Instant Rebates program to benefit everyone in Washington.

In addition, certain datasets remain to be developed. For example, there is no tool to track charging infrastructure distribution among Washington's communities. The AFDC,[29] for example, lacks the census tract-level data that would allow for easy analysis of disparities in EVSE distribution. Developing the appropriate tools to analyze charging infrastructure distribution is crucial to allocating funding to the communities that most need it.

[28] Funding Dashboard | Washington Electric Vehicle Charging
[29] Alternative Fuels Data Center: Alternative Fueling Station Counts by State

Air quality monitoring: Measuring the impacts of vehicle pollution

Air quality monitoring stations identify communities highly impacted by air pollution

Progress: Identifying overburdened communities and monitoring air pollution from automobiles

In 2023, Ecology identified 16 overburdened communities highly impacted by air pollution; these are shown in Figure 9.[30] Most are impacted by mobile sources of pollution, such as cars. Ecology is expanding air monitoring in these communities. Additionally, in August 2024, Ecology opened the funding cycle for its Air Quality in Overburdened Communities Grant, which will fund projects that reduce criteria air pollutants in those 16 identified communities. The planning and design of specific transportation electrification projects (such as public charging for MHDVs and utility grid upgrades) are among eligible projects.

TES priority recommendations

1.7: Monitor equity indicators and measure outcomes

Key funding opportunity

Air Quality in Overburdened Communities Grant
A $10 million funding opportunity to improve air quality in Washington communities that are historically overburdened with health, social, and environmental inequities and are highly impacted by criteria air pollution, such as ozone and fine particles. Reducing criteria air pollution will improve people's health.

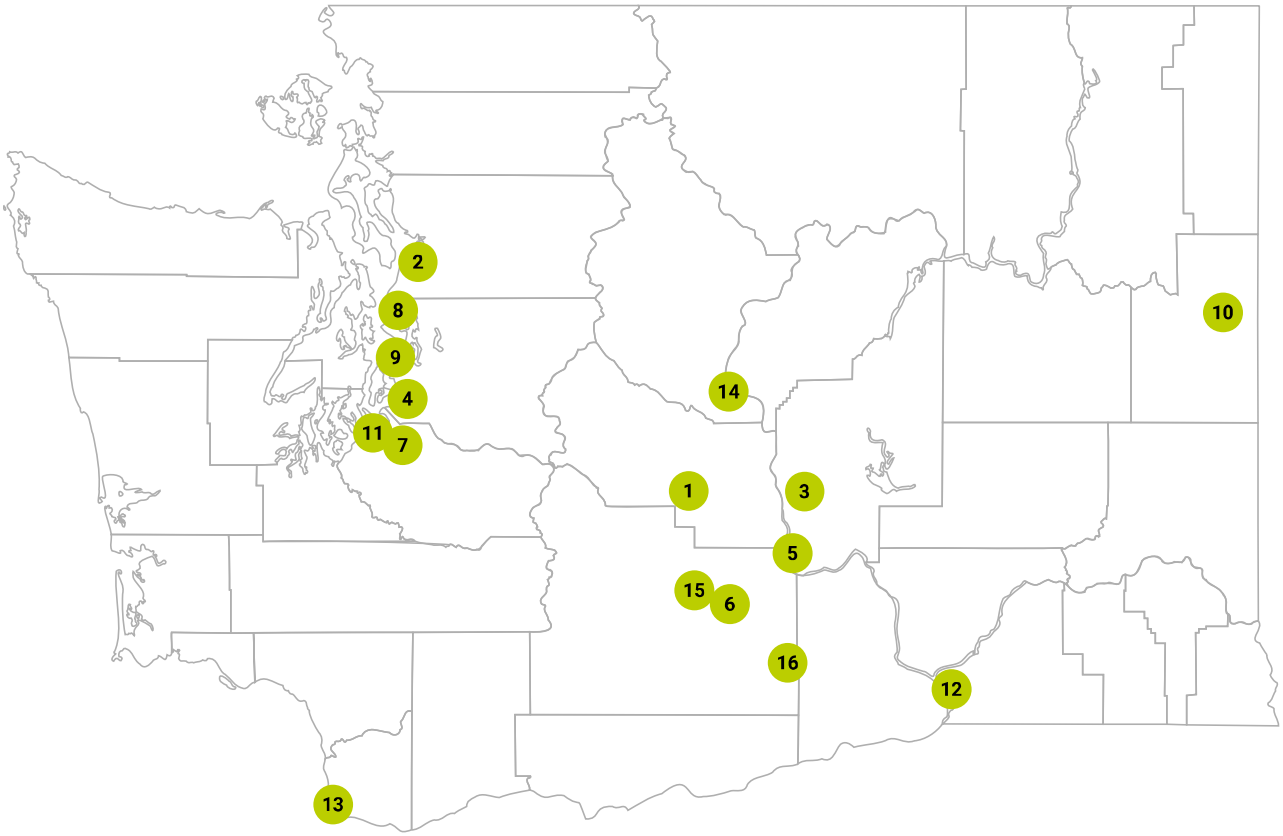
Gap: Need for additional stations to track air quality

Ecology maintains a pair of near-road monitoring sites adjacent to Interstate 5 in Seattle and Tacoma.[31] These two sites rarely register measurements of traffic-related pollutants that fall outside of the Environmental Protection Agency's "good" range on the Air Quality Index. However, the purpose of these stations is to monitor air pollution exposure in near-road environments for public health protection, not to assess the impact of vehicle electrification on statewide air quality. While reducing tailpipe emissions is expected to improve air quality in general, the complexities of air pollution and transportation emissions should be considered when interpreting near-road monitoring data for other purposes, such as assessing fleet composition impacts.

Ecology is installing additional outdoor air quality monitoring stations in and around those 16 overburdened communities to better characterize air quality. It will take some time for those stations to become operational and provide meaningful data to measure changes in criteria pollutant levels.

[30] Overburdened Communities Highly Impact by Air Pollution
[31] Near-Road Air Monitoring in Washington 2024 Summary

Figure 9: Map of the 16 communities identified by Ecology as being highly impacted by air pollution



Data source: Washington Department of Ecology, Improving Air Quality in Overburdened Communities

1) Ellensburg
2) Everett
3) George and West Grant County
4) South King County
5) Mattawa
6) Moxee Valley
7) Northeast Puyallup
8) North Seattle and Shoreline
9) South Seattle
10) Spokane and Spokane Valley
11) South and East Tacoma
12) Tri-Cities to Wallula
13) Vancouver
14) Wenatchee and East Wenatchee
15) East Yakima
16) Lower Yakima Valley