



Clean Fuels Standard

State Transportation Investment Credit Revenue Generation Forecast

October 2024

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Executive Summary

The Washington State Clean Fuel Standard (CFS) law mandates that fuel suppliers reduce the lifecycle carbon intensity of transportation fuels by 20% below 2017 levels by 2034. The program enables the generation of credits from state transportation investments funded through omnibus transportation appropriations, which the Washington State Department of Transportation (WSDOT) is tasked with identifying and assessing. This annual report represents WSDOT's third submission, presenting a comprehensive 10-year forecast of potential credit revenue, an analysis of eligible investments, and a recommended reinvestment strategy to further greenhouse gas (GHG) reductions and transportation sector decarbonization.

This year's report highlights eligible transportation investments from WSDOT and other proviso state agencies funded by the 2023-2025 biennial transportation budget. For the first time, the report forecasts credit revenues based on project data and modeling methods for fuel and energy use. Credit revenue estimates consider historical monthly credit price ranges in the Washington state and projected credits from qualified investments. Forecasts indicate a general increase in revenue generated from agencies' investments over time, with revenue growth from WSDOT's investments largely driven by deploying three hybrid-electric ferry vessels and the planned installation of shore power. This is projected to stabilize credit revenue generation from WSDOT's investments with annual revenue between \$1.5 million and \$4.5 million by 2030, contingent on credit price assumptions. In contrast, proviso state agencies including the Department of Enterprise Services (DES), Department of Natural Resources (DNR), and State Parks and Recreation Commission (Parks) are expected to generate minimal credit revenue, primarily due to the limited scope of their eligible projects. Significant revenues are forecasted for other entities with pass-through funding from WSDOT or DES, projected to reach a sum of \$2 million to \$7 million from 2029.

WSDOT has outlined key reinvestment criteria prioritizing projects that maximize credit generation, enhance carbon reduction per dollar invested, and benefit vulnerable and overburdened communities. While the report provides a detailed preferred reinvestment strategy by credit owning entity, it also identifies challenges affecting state agency participation in the CFS program and offers recommendations to address these issues, ensuring more effective participation and alignment with Washington's decarbonization goals.

SECTION 1 Introduction

The Washington State Clean Fuel Standard (CFS) law works alongside the Climate Commitment Act to target the largest sources of greenhouse gas (GHG) emissions associated with transportation fuels in Washington. The law requires fuel suppliers to gradually reduce the lifecycle carbon intensity of transportation fuels to 20 percent below 2017 levels by 2034. Entities required to meet the CFS can either reduce the carbon intensity of their fuels or purchase CFS program credits¹ from others who provide transportation fuels with emissions below the requirement. This market-based policy is designed to incentivize low-carbon fuels. Reducing carbon intensity means fewer GHG emissions entering the atmosphere over time, which helps address the impact of climate change.

The CFS program allows the generation of credits from state transportation investments funded in an omnibus transportation appropriations act, including the Move Ahead WA Transportation package. Under [RCW 70A.535.050](#), the omnibus transportation appropriations act is expected to generate credits for electrical grid and hydrogen fueling infrastructure investments, ferry operating and capital investments; electrification of the state ferry fleet, alternative fuel vehicle rebate programs, transit grants, infrastructure and other costs associated with the adoption of alternative fuel use by transit agencies, bike and pedestrian grant programs and other activities, complete streets and safe walking grants and allocations, rail funding, and multimodal investments.²

The Washington State Department of Transportation (WSDOT) is required to coordinate with the Washington State Department of Ecology (ECY) to assess and identify potential credit revenues likely to be generated from state transportation investments.² Beginning on November 1, 2022, and continuing annually, WSDOT must prepare a detailed 10-year projection of these credit revenues and develop a preferred reinvestment strategy for their use. This report is then submitted to the Joint Transportation Committee (JTC) for review. The legislature's intent is to maximize these credits to support further investment in reducing GHG emissions and decarbonizing the transportation sector. This may include, but is not limited to, additional funding for ferry electrification beyond four new hybrid electric vessels, as well as for active transportation and transit programs and projects in the years ahead.

In 2023, sections 104, 114, and 115 of the enacted 2023-2025 Washington Transportation Budget³ added CFS proviso language for other state agencies, including State Parks and Recreation Commission (Parks), the Department of Enterprise Services (DES), and the Department of Natural Resources (DNR). These agencies are required to register for the CFS program and collaborate with WSDOT to track revenue generation pursuant to chapter 70A.535 RCW for investments funded in an omnibus transportation appropriations act.

¹ Clean Fuel Standard credits are different from carbon cap and invest program allowances.

² [RCW 70A.535.050: Rules adopted under RCW 70A.535.025 and 70A.535.030—Generation of credits. \(wa.gov\)](#)

³ [1125-S.PL.pdf \(wa.gov\)](#)

This is WSDOT’s third annual CFS report, prepared by the Climate Mitigation and Adaptation Branch within WSDOT’s Environmental Services Office (ESO).⁴ The report builds on previous years’ reports and includes lists of current eligible transportation investments with most recent inputs from various WSDOT divisions and proviso state agencies. It outlines the calculation methods used to determine fuel and energy usage and, for the first time, presents credit revenues forecasts based on available project data and modeling efforts. Additionally, the report thoroughly discusses a preferred reinvestment strategy for these credit revenues.

Although the statute allows for a wide range of eligible projects, such as active transportation, transit expansion, complete streets, and multimodal investments, the current program rules do not provide a fuel pathway for these types of projects to generate credits. As a result, this report focuses on projects related to alternative fuels and electrification, where a clear pathway for credit generation exists.⁵

Investment Eligibility for Credit Generation

Generation of CFS credits requires the generation or transfer of a fuel with a carbon intensity lower than the standard set by ECY. In addition, the entity generating or transferring the fuel must be an eligible and registered reporting entity or credit generator in Washington fuels reporting system (WFRS)⁶, and the fuel must have a pathway for determining its carbon intensity and calculating credits. [WAC 173-424](#) designates fuel reporting entities for liquid fuels, gaseous fuels, and electricity. The first fuel reporting entity is the initial entity responsible for reporting within the CFS program, and by default, it is the initial credit generator and may transfer credits per program rules.

For liquid fuels (WAC 173-424-200), the first reporting entity is the fuel producer or importer. For gaseous fuels (WAC 173-424-210), the first reporting entity is determined based on the fuel and vehicle types, either the fuel producer or importer or the owner of the fueling supply equipment where the gaseous fuel is dispensed to motor vehicles for transportation use. For electricity (WAC 173-424-220), the first fuel reporting entity depends on the equipment the electricity is used to power: for residential electric vehicle (EV) charging equipment, the entity is the electric utility providing the electricity; for non-residential EV charging, including public, workplace, or fleet EV charging, the entity is the owners of EV charging stations dispensing electricity.

Based on the credit pathway requirements listed in Part 5 of WAC 172-424, current state-funded transportation investments eligible to generate credits as the first fuel reporting

⁴ The 2022 Report is available online: <https://wsdot.wa.gov/sites/default/files/2022-10/Clean-Fuels-Program-Credit-Revenue-Generation-Forecast-October2022.pdf>; The 2023 Report is available online: <https://wsdot.wa.gov/sites/default/files/2023-10/Clean-Fuels-Standard-Credit-Revenue-Generation-Report-October2023.pdf>

⁵ [Chapter 173-424 WAC](#):

⁶ [Requirements - Washington State Department of Ecology](#)

entity include:

- Electrification of the ferry vessel fleet, including terminal charging infrastructure.
- Zero-emission fueling infrastructure, including EV charging and green hydrogen refueling infrastructure.
- Transit electrification and other activities that result in the conversion to lower carbon-intensity fuels, such as hydrogen and propane.
- Electrification of port and rail vehicles and associated infrastructure, as well as providing electric shore power for hoteling vessels.

The omnibus transportation appropriation act funds support WSDOT and proviso agencies' investments, grants that WSDOT and proviso agencies makes to others, and pass-through funding to others managed by WSDOT or proviso agencies. The sections below identify which entity will earn credits from the various types of investments and funding arrangements:

- **WSDOT-owned equipment:** WSDOT has received funding to continue work on electrifying ferry vessels. As the owner of the fleet and charging infrastructure, and as the transit operator, Washington State Ferries (WSF) will be the credit generator for these ferry electrification investments.
- **Non-State projects funded through WSDOT:** WSDOT manages grant programs that fund project types eligible for credit generation. WSDOT also manages agreements for pass-through funding that goes directly to non-WSDOT entities named in the transportation budget. The entities receiving funding for these projects, or the users of these project-funded infrastructure improvements if they choose to register and participate, will be the credit generators for these investments.
- **Parks, DES and DNR:** Parks has secured funding to replace agency vehicles and equipment with electric alternatives. DES has received funding to support the installation of zero-emission electric vehicle supply equipment (EVSE) infrastructure at facilities that state agencies occupy. DNR has obtained funding to expand fleet charging infrastructure and to procure and deploy electric pickup trucks, supporting future large-scale electric vehicle adoption. These investments are eligible to generate credits, with the respective charger owning agency designated as the credit generator.
- **Other State Organization projects funded through DES:** DES allocates the majority of its transportation budget appropriation to fund EVSE installations for other state organizations. The installation locations are prioritized based on state efficiency and environmental performance, focusing on areas where zero-emission fleet vehicles are either already in use or scheduled for procurement. If these agencies choose to register and participate, they will serve as the credit generators for these investments.

Credits can be traded within the WFRS between registered parties following issuance by Ecology. Transaction timing is flexible and is determined by market supply and demand dynamics, which impact credit prices. Upon completion of a credit sale, funds are transferred directly from the credit buyer to the seller. A [Clean Fuels Transportation Investment Account](#)

has been established within the state treasury to receive revenues generated from clean fuel credits associated with transportation investments under Chapter 70A.535 RCW. Additionally, a [Clean Fuels Credit Account](#) has been created to accommodate credit revenues generated by agencies through activities funded outside the transportation budget, such as those from the operating or capital budgets. These non-transportation revenues are not included in the revenue forecasts presented in this report.

Reporting and Forecasting Process

Beginning November 1, 2022, and annually thereafter, WSDOT must present a 10-year credit revenue forecast report for state transportation investments funded in an omnibus transportation appropriations act that are eligible for credit generation. As detailed in the 2023 CFS report⁴, determining project credits and forecasting the 10-year credit revenue is a four-step process:

- (1) **Determine energy dispensed and forecast it over 10 years** based on the type and quantity of energy dispensed and the type of equipment the energy is used in.

The most accurate information will come from a full year of actual energy-dispensed data collected from the metered charging infrastructure once the project is operational. If the project has not yet begun operation, the energy dispensed may be forecasted based on project features using a modeling approach.

- (2) **Estimate the number of credits for each investment for 10 years** using Ecology's latest CFS Obligation Estimator⁷.

The estimator is valuable for determining the expected number of credits an investment can generate. It utilizes energy efficiency ratios (EERs) for various alternative fuels and equipment types to estimate credits from changes in fuel use. The results provided by the calculator tool indicate the number of credits a project will generate annually from 2023 through 2038.

- (3) **Determine and assign the value of credits** based on market price⁸ and consultation with Ecology.

Ecology publishes monthly credit trading activity reports on its website.⁹ From August 2023 to June 2024, the average price of these credits was \$70.07, with a total of 844,763 credits

⁷ https://www.ezview.wa.gov/Portals/_1962/Documents/clean-fuel/CFS-ObligationEstimator-June%202024.xlsx

⁸ [Washington Department of Ecology; Clean Fuel Cost Benefit Analysis Report](#) forecasts the carbon abatement costs to be \$156 per MMT CO₂ equivalent for the first 10 years of the program

⁹ Ecology posts monthly credit trading activity reports at: [Department of Ecology - Committees, Boards, and Workgroups \(wa.gov\)](#)

transferred. Although Ecology tracks credit transfers, they do not manage the market or set prices. The value of credits is based on market price and varies over time. The history of monthly credit prices also provides insight into how prices have developed over time.

- (4) **Forecast credit revenues for 10 years** based on the number of credits estimated from Ecology's credit calculator tool multiplied by the best estimate of future credit prices for each of the next 10 years.

Since the CFS took effect at the beginning of 2023, the report identifies only projects funded in the current 2023-2025 biennium. In future years, the forecast will be updated with calculations based on additional data and newly funded investments as they become available.

SECTION 2 Current Investments

This section lists current projects and programs funded in the enacted 2023-2025 biennial transportation budget, as updated by the 2024 supplemental budget (ESHB 2134.SL), that are expected to be eligible to generate credit revenue. For the proviso agency, data has been received from DES and DNR. No project data is currently available for Parks.

Ferry Electrification

Table 1-A. Current Investments for Ferry Electrification

Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
EHSB 2134.PL Section 307	WSDOT	WSF Electrification	\$57,943,47 4	Direct to WSDOT	Acquisition of two 144-car hybrid electric vessels.	WSDOT	2031-2032
EHSB 2134.PL Section 307	WSDOT	WSF Electrification	\$49,658,36 0	Direct to WSDOT	Preliminary engineering and construction for the Seattle, Bainbridge, and Clinton terminals; and electrification system engineering and program management.	WSDOT	2027-2029
EHSB 2134.PL Section 307	WSDOT	WSF Electrification	\$74,918,15 2	Direct to WSDOT	Hybrid conversion of three Jumbo Mark II vessels M/V Wenatchee, M/V Tacoma, and M/V Puyallup.	WSDOT	2025-2027
EHSB 2134.PL Section 309	Skagit County	Guemes Island Ferry Replacement Project	\$24,000,00 0	Pass through – managed by local programs	Funding to replace the current 40 years M/V Guemes with a new all-electric ferry.	Non- WSDOT	Unknown

Electric Vehicles and Charging

Table 1-B. Current Investments for Electric Vehicles and Charging (including Provisos State Agency)

Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
ESHB 2134.SL Section 215 (1)	Grant recipients	Zero-Emission Vehicle Infrastructure Partnership (ZEVIP) Program	\$33,746,000; Additional \$15,000,000 available 1/1/2025	Grants – managed by WSDOT IP ¹⁰	Program funds the installation of DC fast chargers along priority corridors.	Non-WSDOT	2025-2026
ESHB 2134.SL Section 215 (2)	Facility owner	Douglas County PUD co-located H2 fueling and DCFC station	\$1,500,000	Pass through – managed by WSDOT IP	Installation of a co-located DC fast charger and hydrogen fueling station at the Douglas County PUD site in East Wenatchee.	Non-WSDOT	Unknown
ESHB 2134.SL Section 215 (5)(a)	Grant recipients	Expedited funding for zero-emission school buses	\$20,000,000	Pass through – managed by WSDOT IP	Funding for the replacement of fossil fuel powered school buses with zero-emission school buses and charging infrastructure, executed through Interagency Agreement with the Department of Ecology.	Non-WSDOT	Unknown
ESHB 2134.SL Section 215 (5)(b)	Equipment owners	Zero-emission medium- and heavy-duty point of sale	\$100,000,000; Additional \$10,000,000 available 1/1/2025	Grants – managed by WSDOT IP	Funding for a zero-emission medium-and heavy-duty point of sale voucher incentive program, with oversight by a third-party	Non-WSDOT	Unknown

¹⁰ Innovative Partnerships Division

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
		voucher incentive program			administrator, and designed based on the Joint Transportation Committee's program design report.		
ESHB 2134.SL Section 215 (6)	Equipment owners	Mount Vernon Library Commons charging mega site	\$2,100,000	Pass through – managed by WSDOT IP	Funding provided for the electric vehicle charging infrastructure at the Mount Vernon Library Commons project.	Non-WSDOT	2025
ESHB 2134.SL Section 215 (9)	Equipment owners	Bellevue and Redmond electric fire engines	\$800,000	Pass through – managed by WSDOT IP	Funding provided for the acquisition of electric fire engines for the cities of Bellevue and Redmond.	Non-WSDOT	Unknown
ESHB 2134.SL Section 215 (10)	Equipment owner	Tacoma Public Utilities medium-duty zero-emission utility vehicle pilot project	\$1,725,000	Pass through – managed by WSDOT IP	Funding provided to develop a medium-duty zero-emission utility vehicle pilot project that includes charging infrastructure and mobile battery units.	Non-WSDOT	Unknown
ESHB 1125 Sec 104	Equipment owners	Agency vehicles and equipment replacement	\$2,000,000	Parks Budget Allocation	Replacement of agency vehicles and equipment with electric alternatives.	WA Parks	Unknown
ESHB 1125 Sec 114	Equipment owners	EVSEs installation at state agencies and facilities	\$6,000,000	DES Budget Allocation	ZEV supply equipment infrastructure at facilities to accommodate charging station installations.	WA DES and other charger owner agencies	2025

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
ESHB 1125 Sec 115	Equipment owners	Sustainable Operations: BEV pilot and charger installations	\$2,200,000	DNR Budget Allocation	Fleet charging infrastructure expansion assessment to develop a charger installation plan and to procure and deploy electric SUVs and pickup trucks to gather practical information to support planning efforts and future large-scale electric vehicle adoption.	WA DNR	2024-2025

Public Transit Electrification and Hydrogen

Table 1-C. Current Investments for Public Transit Electrification and Hydrogen

Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
ESHB 2134.SL Section 221 (10)	Everett Transit	Induction Charging Infrastructure	\$1,824,000	Grant – managed by WSDOT PTD ¹¹	Install two inductive chargers at each of three locations: College Station, Everett Station, and Seaway Transit Center.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (9)	Everett Transit	2023-2025 Green Transportation Grant for Electric Buses	\$6,376,000	Grant – managed by WSDOT PTD	Purchase five replacement battery electric buses and six chargers.	Non-WSDOT	Jan-25
ESHB 2134.SL Section 221 (14)	Everett Transit	2023-2025 State Bus and Bus Facilities Grant for	\$5,120,000	Grant – managed by WSDOT PTD	Replace four diesel buses that have surpassed their useful life with four low-floor battery electric buses and six	Non-WSDOT	Jan-25

¹¹ Public Transportation Division

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
		Electric Buses			chargers.		
ESHB 2134.SL Section 221 (9)	Intercity Transit	Green Hydrogen Fuel Cell Electric Bus Demonstration Project	\$6,857,740	Grant – managed by WSDOT PTD	Acquire, field test, and evaluate metrics of two hydrogen fuel cell buses in demanding conditions. Install temporary or portable onsite Hydrogen (H2) fueling equipment and assess its dispensing and storing capabilities, scalability, and purchase/leasing options. Upgrade ventilation and safety features of maintenance facility to meet H2 regulatory requirements.	Non-WSDOT	Aug-26
ESHB 2134.SL Section 221 (5)	Intercity Transit	Zero-emission Hydrogen Demonstration Project	\$6,192,557	Grant – managed by WSDOT PTD	Replace up to three fossil fuel buses with three hydrogen-powered fuel cell electric buses to use on select routes and acquire portable or temporary hydrogen fueling equipment.	Non-WSDOT	Aug-26
ESHB 2134.SL Section 221 (9)	Jefferson Transit	JTA E Bus Application	\$1,000,000	Grant – managed by WSDOT PTD	Replace two 35-foot diesel buses with two 35-foot battery electric buses to sustain current fixed-route service levels.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (9)	King County Metro	Burien Transit Ctr Layover Charging Infrastructure	\$4,974,311	Grant – managed by WSDOT PTD	Deploy charging infrastructure for 100 battery-electric buses in the field at layover (on route) site in South King County.	Non-WSDOT	May-26
ESHB 2134.SL Section 221 (9)	King County Metro	Interim Base Electrification	\$7,000,000	Grant – managed by WSDOT PTD	Fully electrify Interim Base at South Campus to operate a 120-battery electric bus fleet.	Non-WSDOT	Oct-25

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
ESHB 2134.SL Section 221 (9)	King County Metro	South Annex Base Electrification	\$9,000,000	Grant – managed by WSDOT PTD	Construct a new bus base at Metro's South Campus facility that will support up to 250 new battery electric buses.	Non- WSDOT	Sep-28
ESHB 2134.SL Section 221 (14)	King County Metro	Interim Base Chargers and Zero Emissions Fleet Conversion	\$5,412,000	Grant – managed by WSDOT PTD	Purchase equipment and construct three battery electric bus chargers to support the conversion to zero emissions operations at the new South Base Campus Interim Base. Purchase three 60-foot extended-range battery electric buses to replace aging diesel electric hybrid transit buses.	Non- WSDOT	Oct-25
ESHB 2134.SL Section 221 (9)	Kitsap Transit	Inductive Charging Infrastructure	\$3,840,000	Grant – managed by WSDOT PTD	Install up to twelve inductive charging stations at maintenance facilities and transit centers for in-route and parked off-hour charging. Induction chargers will primarily be installed at KT's Charleston Base and North Base. Charging infrastructure will also be placed at chosen in-route transit centers throughout Kitsap Transit's service area.	Non- WSDOT	Sep-25
ESHB 2134.SL Section 221 (14)	Kitsap Transit	Inductive Charging Units for Transit Centers	\$1,412,558	Grant – managed by WSDOT PTD	Install a total of eight inductive charging stations at transit centers throughout Kitsap County. The transit centers receiving the inductive chargers will be the Bremerton Transit Center,	Non- WSDOT	Jan-26

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
					Bainbridge Island Transit Center, Wheaton Way Transit Center, and the Sedgewick/Sidney Transit Center.		
ESHB 2134.SL Section 221 (9)	Link Transit	Urban Bus Fleet Electrification	\$5,942,718	Grant – managed by WSDOT PTD	Purchase nine battery electric buses to replace aging gasoline powered cutaway buses operated in urban fixed route service.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (14)	Pullman Transit	Battery Electric Bus and Charger	\$555,286	Grant – managed by WSDOT PTD	Purchase one battery electric bus and charging station to replace a 1990s diesel bus.	Non-WSDOT	May-25
ESHB 2134.SL Section 221 (9)	Spokane Transit	2023 Fleet Electrification	\$4,950,000	Grant – managed by WSDOT PTD	Replace six diesel buses with three 35-foot and three 40-foot battery electric buses.	Non-WSDOT	Feb-24
ESHB 2134.SL Section 221 (10)	Lewis County Transit	Southwest Washington Corridor e-Transit Station	\$2,109,586	Grant – managed by WSDOT PTD	The project will construct an e-transit station along the I-5 corridor between Exit 48 and Exit 71, including bicycle and pedestrian access and the purchase of one replacement zero-emission transit bus.	Non-WSDOT	Jul-24
ESHB 2134.SL Section 221 (5)	Lewis County Transit	Southwest Washington e-Transit Corridor	\$2,772,480	Grant – managed by WSDOT PTD	Replace two fossil fueled buses with hydrogen buses to operate along the I-5 and Highway 12 corridors.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (14)	Lewis County Transit	Zero-emission Vehicle Infrastructure and Equipment	\$907,720	Grant – managed by WSDOT PTD	Purchase one vehicle and equipment lift and two electric charging pads and control equipment to service the zero-emission fleet. Construct two bus pullouts: one at the Lewis County Mall and one at the Chehalis	Non-WSDOT	Jul-25

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
					Library. Purchase 12 in-vehicle annunciators and monitors to improve ADA accessibility and coordination of transfers from various routes.		
ESHB 2134.SL Section 221 (14)	Lewis County Transit	Zero-Emission Vehicle Acquisition	\$1,658,316	Grant – managed by WSDOT PTD	Replace two diesel buses with two hydrogen fueled 35- to 40-foot buses.	Non-WSDOT	Jul-26
ESHB 2134.SL Section 221 (3)	Community Transit	Rideshare Replacement Vehicles	\$404,000	Grant – managed by WSDOT PTD	Replace five gas rideshare vehicles with battery electric vehicles.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (12)	Jamestown S'Klallam Tribe	ADA Electric Transit Shuttle	\$90,250	Grant – managed by WSDOT PTD	Purchase one expansion ADA electric light duty vehicle.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (12)	Lummi Indian Business Council	Lummi Transit Electric Bus Acquisition	\$799,613	Grant – managed by WSDOT PTD	Purchase one expansion electric bus.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (1)	San Juan Islands Shuttle System	Island Rides Electric Vehicles	\$308,750	Grant – managed by WSDOT PTD	Purchase three expansion light duty electric vehicles.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (3)	Kitsap Transit	Electric Rideshare Vehicles	\$235,440	Grant – managed by WSDOT PTD	Purchase five expansion light duty battery electric vehicles.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (12)	Cowlitz Indian Tribe	Electric ADA Vehicle Purchase	\$142,500	Grant – managed by WSDOT PTD	Purchase one expansion ADA electric light duty vehicle.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 221 (12)	Nisqually Indian Tribe	Rural Mobility Initiative - EV Capital Project	\$242,250	Grant – managed by WSDOT PTD	Purchase three expansion electric light duty vehicles.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	Lopez Community Land Trust	Lopez Community Land Trust	\$80,213	Pass through – managed by WSDOT	Expand the Lopez Community Land Trust carshare by purchasing one electric	Non-WSDOT	Jul-25

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
		Carshare		PTD	vehicle and one charging station, and funding operating, planning, and mobilization costs.		
ESHB 2134.SL Section 215 (4)	Mobility for All	Town Square Share	\$199,537	Pass through – managed by WSDOT PTD	Expand the Town Square carshare site by purchasing one electric vehicle and one charging station and sustaining operations.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	San Juan Islands Shuttle System	OPAL Green Carshare	\$188,551	Pass through – managed by WSDOT PTD	Establish a carshare program on Orcas Island by purchasing two electric vehicles and two charging stations, and providing funds for planning, mobilization, and operations.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	Tabor 100	TABOR 100 Carshare	\$133,650	Pass through – managed by WSDOT PTD	Expand the Tabor 100 carshare site by purchasing one charging station and sustaining operations. This carshare was originally established by the ZAP grant program in the 2021-2023 biennium.	Non-WSDOT	Jan-25
ESHB 2134.SL Section 215 (4)	Women of Wisdom Tri-Cities	WoW Pasco Carshare	\$200,000	Pass through – managed by WSDOT PTD	Expand the WOW carshare program by establishing a carshare site in Pasco, WA. This includes purchasing two electric vehicles and two charging stations, as well as funding planning, mobilization, and operating costs.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	Women of Wisdom Tri-Cities	WoW Kennewick ADA Carshare	\$200,000	Pass through – managed by WSDOT	Expand the WOW carshare program by establishing an ADA-accessible carshare site	Non-WSDOT	Jul-25

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
				PTD	in Kennewick, WA. This includes purchasing one ADA-accessible electric vehicle and one charging station, as well as funding planning, mobilization, and operating costs.		
ESHB 2134.SL Section 215 (4)	Women of Wisdom Tri-Cities	WoW Kennewick Carshare	\$200,000	Pass through – managed by WSDOT PTD	Expand the WOW carshare program by establishing a carshare site in Kennewick, WA. This includes purchasing two electric vehicles and two charging stations, as well as funding planning, mobilization, and operating costs.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	Zero-Emission Vehicle Cooperative	Shoreline Share	\$167,021	Pass through – managed by WSDOT PTD	Establish a new carshare site in Shoreline, WA by purchasing one electric vehicle and one charging station, as well as funding planning, mobilization and operating costs.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	Zero-Emission Vehicle Cooperative	Des Moines Share	\$199,979	Pass through – managed by WSDOT PTD	Establish a new carshare site in Des Moines, WA by purchasing two electric vehicles and one charging station, as well as funding planning, mobilization and operating costs.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	Zero-Emission Vehicle Cooperative	Gonzaga Share	\$199,912	Pass through – managed by WSDOT PTD	Establish a new carshare site in Spokane, WA. This includes purchasing two electric vehicles and one charging station, as well as funding	Non-WSDOT	Jul-25

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
					planning, mobilization and operating costs.		
ESHB 2134.SL Section 215 (4)	Zero-Emission Vehicle Cooperative	Estelita's Share	\$199,434	Pass through – managed by WSDOT PTD	Expand the carshare site at Estelita's Library by purchasing one electric vehicle and one charging station.	Non-WSDOT	Jul-25
ESHB 2134.SL Section 215 (4)	Zero-Emission Vehicle Cooperative	Port Townsend Share	\$199,943	Pass through – managed by WSDOT PTD	Expand the carshare site in Port Townsend by purchasing one electric vehicle and one charging station.	Non-WSDOT	Jul-25

Port and Rail Electrification

Table 1-D. Current Investments for Port and Rail Electrification

Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
ESHB 2134 SL Section 308 (10)	Northwest Seaport Alliance (NWSA)	Zero-Emission Drayage Trucks	\$6,300,000	Pass through – managed by RFP ¹²	Funding for a zero-emission drayage truck demonstration project.	Non-WSDOT	2025
ESHB 2134 SL Section 308 (11)	Northwest Seaport Alliance (NWSA)	Shore Power Electrification	\$14,000,000; Additional \$14,000,000 available 1/1/2025	Pass through – managed by RFP	Funding for a zero-emission shore power infrastructure demonstration project (container ship).	Non-WSDOT	2028 Q3
ESHB 2134 SL Section 308 (15)	Port of Bremerton	Shore Power Electrification	\$2,000,000	Pass through – managed by RFP	Purchase and installation of zero-emission port shore power systems and other zero-emission infrastructure, equipment (passenger ferry),	Non-WSDOT	2025

¹² Rail, Freight, and Ports Division

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
					and technology.		
ESHB 2134 SL Section 308 (16)	Port of Anacortes	Shore Power Electrification	\$500,000; Additional \$1,500,000 available 1/1/2025	Pass through – managed by RFP	Purchase and installation of zero-emission port shore power systems at Curtis Wharf and fleet conversion to battery electric vehicles for ship types including tug, fishing, and work boat.	Non-WSDOT	2024-2025
ESHB 2134 SL Section 308(14)	Northwest Seaport Alliance	Planned Reducing Ship to Shore (PRESS)	\$2,638,030	Grant – managed by WSDOT RFP	Planning project, no credit value in this project.	Non-WSDOT	Mar-28
ESHB 2134 SL Section 308(14)	Port of Anacortes	Electrifying the Port of Anacortes	\$1,030,599	Grant – managed by WSDOT RFP	Upgrade infrastructure at A-Dock with electric power and zero-emission charging, including shore power. Install a portable solar-powered charging station at the Anacortes Regional Airport. Transition to reduced and zero-emission equipment used by Port Staff.	Non-WSDOT	Mar-26
ESHB 2134 SL Section 308(14)	Port of Kalama	Electrified Tugboat Dock	\$1,424,948	Grant – managed by WSDOT RFP	Install a spud barge dock with 3 shore power connections for docked tugboats.	Non-WSDOT	Jan-26
ESHB 2134 SL Section 308(14)	Port of Seattle	Pier 66 Cruise Shore Power Extension (Phase II)	\$1,000,000	Grant – managed by WSDOT RFP	Install shore power for cruise ships at Pier 66.	Non-WSDOT	May-27
ESHB 2134 SL Section 308(14)	Port of Port Angeles	Clean Ports Program	\$525,408.37	Grant – managed by WSDOT RFP	Shore Power infrastructure upgrades and zero-emission cargo handling equipment.	Non-WSDOT	Mar-28
ESHB 2134 SL Section 308(14)	Port of Bellingham	Bellingham Shipping Terminal Shore Power	\$2,805,907	Grant – managed by WSDOT RFP	Shore Power infrastructure expansion.	Non-WSDOT	Sep-26

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Appropriation	Project Owner	Program Name	Funding	How Funded	Description	Credit Ownership	Project Year of Opening
		Expansion					
ESHB 2134 SL Section 308(14)	Port of Ridgefield	Port of Ridgefield's Electrification Upgrades	\$1,154,462.92	Grant – managed by WSDOT RFP	Install three level II dual-head ChargePoint EV chargers and seven level III ChargePoint chargers and replace fossil fuel-powered vehicles with zero- or reduced-emission vehicles.	Non-WSDOT	Mar-26
ESHB 2134 SL Section 308(14)	Port of Everett	Powering the Port: Greening the Supply Chain	\$4,287,618	Grant – managed by WSDOT RFP	Install zero-emission charging infrastructure, purchase zero-emission yard trucks, and replace a tier 0 generator with a tier 3 generator.	Non-WSDOT	Aug-29
ESHB 2134 SL Section 308(14)	Port of Benton	Port of Benton Barge Terminal Shore Power Electrification	\$2,701,730	Grant – managed by WSDOT RFP	Provide shore power to the Port's barge complex.	Non-WSDOT	Mar-26
ESHB 2134 SL Section 308(14)	Port of Edmonds	North Port Walk & Seawall Reconstruction (Phase 2)	\$1,500,919	Grant – managed by WSDOT RFP	Install five level 2 DC EV chargers and a boat charging station and provide electrical infrastructure upgrades to support future expansion of charging capabilities.	Non-WSDOT	Apr-25
ESHB 2134 SL Section 308(14)	Port of Friday Harbor	Port of Friday Harbor Electrification	\$7,032,887.71	Grant – managed by WSDOT RFP	Establish charging infrastructure, adding a 200A shore power pedestal for cruise ships, purchasing one electric pickup truck, and replacing a diesel boat lift with an electric version.	Non-WSDOT	Jan-27

SECTION 3 Credit Revenue Forecast Results

Since most current investments in the 2023-2025 biennium won't be operational until 2025 or later, the CFS credit and revenue forecast reported in this section are estimates based on the best available data and information.

Energy Dispensed Forecasts

The annual energy consumption is initially estimated at each project level, where sufficient data are available, using the methodology described in **Appendix A**. It is noteworthy that WSDOT is projected to have the largest energy consumption from ferry electrification compared to other categories, with annual energy dispensed expected to exceed 61 million kWh beginning in 2030. Those projections are based solely on the first batch of three Jumbo Mark II Class vessels invested for hybrid and full-electric conversion under the current biennial budget, and the operating schedule reflects WSF's most recent Fleet Status Projection. The energy estimates are then aggregated based on the project year of opening, credit ownership, investment type, project management agency/division, and credit calculator category. Given the current data limitation and resources in forecasting energy consumption trends and charging needs for each project, a constant energy dispense rate is assumed for each future year after the project becomes operational. **Table 2** summarizes the estimated energy dispensed from eligible investments where project data is available, in kWh, over the 10-year period from 2024 to 2033. Details regarding the estimated energy dispensed of each project are shown in **Appendix B**.

Credits Generation Forecasts

Ecology has defined the methodology for calculating credits in WAC Section 173-424-540¹³, and has provided several program documents to guide users through the process¹⁴. The CFS Obligation Estimator, commonly known as the "credit estimator," is designed based on the calculation method outlined in the WAC. It incorporates the required emission factors for conventional and substitute fuels, fuel energy intensity values, and EERs for most use cases. The credit estimator calculates the number of credits a project may generate annually through 2038. The credit amounts vary each year due to changes in the program's annual carbon intensity requirements and the carbon intensity of the fuels utilized. Notably, the carbon intensity of electricity is expected to decrease over time as utilities introduce more renewable energy resources and phase out coal and natural gas power plants to comply with the Clean Energy Transformation Act requirements.

¹³ <https://app.leg.wa.gov/WAC/default.aspx?cite=173-424&full=true#173-424-540>

¹⁴

https://www.ezview.wa.gov/site/alias_1962/37847/clean_fuel_standard_guidance_documents.aspx

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Table 2-A. Estimated 10-Year Annual Energy Dispensed in kWh by Credit Ownership, Investment Type, Project Management, and Credit Calculator Category (2024-2028)

Credit Ownership	Investment Type	Project Management	Fuel Category	2024	2025	2026	2027	2028
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a hybrid Jumbo Mark II vessel (EER = 1.26)	0	3,177,140	6,521,895	6,327,554	2,982,799
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a full-electric Jumbo Mark II vessel (EER = 2.6)	0	0	0	0	21,298,604
Non-WSDOT	Charging infrastructure*	WSDOT IP	Electricity in an on-road light-duty vehicle	0	30,485	325,023	325,023	325,023
Non-WSDOT	Charging infrastructure*	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	0	7,975,055	10,694,055	10,694,055	19,606,055
Non-WSDOT	Charging infrastructure*	WSDOT PTD	Electricity in an on-road light-duty vehicle	0	38,747	38,747	38,747	38,747
Non-WSDOT	Charging infrastructure*	WSDOT RFP	Electricity in an ocean-going vessel (EER = 2.6)	10,642	255,402	255,402	255,402	6,100,622
Non-WSDOT	Electric vehicles and equipment**	WSDOT IP	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	0	0	0	0	936,000
Non-WSDOT	Electric vehicles and equipment**	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	394,775	394,775	2,508,015	2,508,015	2,508,015
Non-WSDOT	Electric vehicles and equipment**	WSDOT PTD	Electricity in an on-road light-duty vehicle	0	52,272	52,272	52,272	52,272
Non-WSDOT	Electric vehicles and equipment**	WSDOT PTD	Hydrogen in a heavy-duty on-road vehicle	14,775	86,883	235,082	235,082	235,082
Non-	Electric	WSDOT	Electricity in an on-road	0	416,320	416,320	416,320	416,320

WSDOT Clean Fuels Standard – 2024 Credit Revenue Forecast Report

Credit Ownership	Investment Type	Project Management	Fuel Category	2024	2025	2026	2027	2028
WSDOT	vehicles and equipment**	RFP	Heavy-duty vehicle (Truck or Bus)					
Non-WSDOT	Electric vehicles and equipment**	WSDOT RFP	Electricity in a heavy rail (EER = 4.6)	0	0	594,000	594,000	594,000
DNR	Electric Vehicles and charging infrastructure	DNR	Electricity in an on-road light-duty vehicle	33,880	33,880	33,880	33,880	33,880
DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	0	2,346	2,346	2,346	2,346
Non-DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	0	412,878	412,878	412,878	412,878

* Include electric, alternative fueling vehicles and shore power; ** Include off-road port and rail.

Table 2-B. Estimated 10-Year Annual Energy Dispensed in kWh by Credit Ownership, Investment Type, Project Management, and Credit Calculator Category (2029-2033)

Credit Ownership	Category	Project Management	Fuel Category	2029	2030	2031	2032	2033
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a hybrid Jumbo Mark II vessel (EER = 1.26)	0	0	0	0	0
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a full-electric Jumbo Mark II vessel (EER = 2.6)	43,720,851	61,043,177	61,043,177	61,043,177	61,043,177
Non-WSDOT	Charging infrastructure*	WSDOT IP	Electricity in an on-road light-duty vehicle	325,023	325,023	325,023	325,023	325,023
Non-WSDOT	Charging infrastructure*	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	19,606,055	19,606,055	19,606,055	19,606,055	19,606,055

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Credit Ownership	Category	Project Management	Fuel Category	2029	2030	2031	2032	2033
Non-WSDOT	Charging infrastructure*	WSDOT PTD	Electricity in an on-road light-duty vehicle	38,747	38,747	38,747	38,747	38,747
Non-WSDOT	Charging infrastructure*	WSDOT RFP	Electricity in an ocean-going vessel (EER = 2.6)	11,856,602	11,856,602	11,856,602	11,856,602	11,856,602
Non-WSDOT	Electric vehicles and equipment**	WSDOT IP	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	13,256,000	13,256,000	13,256,000	13,256,000	13,256,000
Non-WSDOT	Electric vehicles and equipment**	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	2,508,015	2,508,015	2,508,015	2,508,015	2,508,015
Non-WSDOT	Electric vehicles and equipment**	WSDOT PTD	Electricity in an on-road light-duty vehicle	52,272	52,272	52,272	52,272	52,272
Non-WSDOT	Electric vehicles and equipment**	WSDOT PTD	Hydrogen in a heavy-duty on-road vehicle	235,082	235,082	235,082	235,082	235,082
Non-WSDOT	Electric vehicles and equipment**	WSDOT RFP	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	416,320	416,320	416,320	416,320	416,320
Non-WSDOT	Electric vehicles and equipment**	WSDOT RFP	Electricity in a heavy rail (EER = 4.6)	594,000	594,000	594,000	594,000	594,000
DNR	Electric Vehicles and charging infrastructure	DNR	Electricity in an on-road light-duty vehicle	33,880	33,880	33,880	33,880	33,880
DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	2,346	2,346	2,346	2,346	2,346
Non-DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	412,878	412,878	412,878	412,878	412,878

* Include electric, alternative fueling vehicles and shore power; ** Include off-road port and rail.

EERs are used to calculate how much fuel would have been consumed in the absence of the investment. For example, this could represent the amount of gasoline a vehicle would have required if it were not electric. Table 4 of Chapter 173-424 WAC provides typical Washington EER values for fuels in vehicles. These ratios are integrated into the credit estimator. However, for some less common equipment types, the EER must be provided separately. This includes, for example, the EER between electric or hybrid-electric and conventional diesel-powered Washington State ferries. In November 2023, WSF engaged a consultant to develop EER estimates for Jumbo Mark II class vessels by comparing energy use and calculating energy efficiency across diesel, hybrid, and fully electric systems.¹⁵ For this report, the projected credits generated from investments are estimated using the latest version of the CFS Obligation Estimator, as of June 2024, based on the forecasted energy dispensed for each year by fuel category from the previous section. **Table 3** summarized the forecasted number of credits that can be generated over the 10-year period based on previous estimated energy dispensed by credit ownership, investment type, project management and fuel category.

Credit Valuation

The value of credits generated is determined by market price and can fluctuate over time. Although Ecology tracks credit transfers and publishes monthly credit trading activity, they do not control the market or set prices. **Figure 1** presents a comparison of the historical annual average credit prices in the three West Coast states of California, Oregon, and Washington, providing insight into how prices have evolved over time under similar clean fuels program.¹⁶ Credit prices are influenced by multiple factors, including market supply and demand dynamics, carbon intensity reduction targets, fuel production costs and availability, regulatory changes and policy signals, and broader socio-economic conditions. Currently, credit prices are showing a decreasing trend across all three states. While regulators may attempt to increase credit prices by intensifying and extending carbon-intensity compliance targets or by other means to restrict credit supply and boost demand, the ZEV mandates and advancements in electrification are expected to drive the majority of compliance with the CFS. These factors will continue to be reflected in future credit prices.

¹⁵ Cambridge Systematics prepared for Washington State Ferries. *Ferry energy efficiency ratios: Jumbo Mark II class*. November 8, 2023.

¹⁶ California (CA) price obtained from: <https://ww2.arb.ca.gov/resources/documents/lcfs-credit-transfer-activity-reports>; Oregon (OR) price obtained from: <https://www.oregon.gov/deq/ghgp/cfp/pages/monthly-data.aspx>; Washington (WA) price obtained from: [Department of Ecology - Committees, Boards, and Workgroups \(wa.gov\)](https://www.ecy.wa.gov/Programs/Committees%20Boards%20and%20Workgroups).

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Table 3-A. Estimated 10-Year Annual Credits Generated by Credit Ownership, Investment Type, Project Management, and Fuel Category (2024-2028)

Credit Ownership	Category	Project Management	CFS credit calculator category	2024	2025	2026	2027	2028
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a hybrid Jumbo Mark II vessel (EER = 1.26)	0	881	1,800	1,738	809
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a full-electric Jumbo Mark II vessel (EER = 2.6)	0	0	0	0	15,381
Non-WSDOT	Charging infrastructure	WSDOT IP	Electricity in an on-road light-duty vehicle	0	31	330	327	322
Non-WSDOT	Charging infrastructure	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	0	12,788	16,990	16,832	30,387
Non-WSDOT	Charging infrastructure	WSDOT PTD	Electricity in an on-road light-duty vehicle	0	40	39	39	38
Non-WSDOT	Charging infrastructure	WSDOT RFP	Electricity in an ocean-going vessel (EER = 2.6)	8	190	189	187	4,405
Non-WSDOT	Electric vehicles and equipment	WSDOT IP	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	0	0	0	0	1,451
Non-WSDOT	Electric vehicles and equipment	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	639	633	3,985	3,947	3,887
Non-WSDOT	Electric vehicles and equipment	WSDOT PTD	Electricity in an on-road light-duty vehicle	0	54	53	53	52
Non-WSDOT	Electric vehicles and equipment	WSDOT PTD	Hydrogen in a heavy-duty on-road vehicle	134	768	2,024	1,970	1,889
Non-WSDOT	Electric vehicles and equipment	WSDOT RFP	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	0	668	661	655	645
Non-WSDOT	Electric vehicles and equipment	WSDOT RFP	Electricity in a heavy rail (EER = 4.6)	0	0	849	841	829
DNR	Electric Vehicles and charging infrastructure	DNR	Electricity in an on-road light-duty vehicle	35	35	34	34	34

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Credit Ownership	Category	Project Management	CFS credit calculator category	2024	2025	2026	2027	2028
DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	0	2	2	2	2
Non-DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	0	423	419	416	409

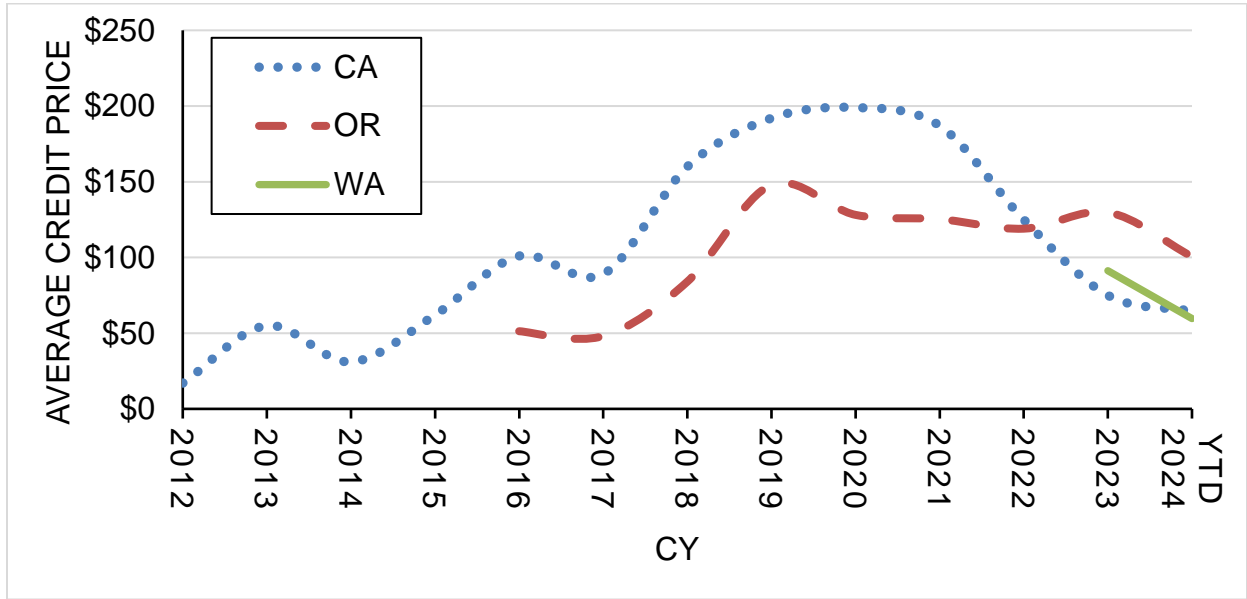
Table 3-B. Estimated 10-Year Annual Credits Generated by Credit Ownership, Investment Type, Project Management, and Fuel Category (2029-2033)

Credit Ownership	Category	Project Management	CFS credit calculator category	2029	2030	2031	2032	2033
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a hybrid Jumbo Mark II vessel (EER = 1.26)	0	0	0	0	0
WSDOT	Ferry electrification	WSDOT WSF	Electricity in a full-electric Jumbo Mark II vessel (EER = 2.6)	31,097	42,754	42,086	42,262	42,436
Non-WSDOT	Charging infrastructure	WSDOT IP	Electricity in an on-road light-duty vehicle	317	312	307	308	309
Non-WSDOT	Charging infrastructure	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	29,918	29,447	28,975	29,031	29,087
Non-WSDOT	Charging infrastructure	WSDOT PTD	Electricity in an on-road light-duty vehicle	38	37	37	37	37
Non-WSDOT	Charging infrastructure	WSDOT RFP	Electricity in an ocean-going vessel (EER = 2.6)	8,433	8,304	8,175	8,209	8,242
Non-WSDOT	Electric vehicles and equipment	WSDOT IP	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	20,228	19,909	19,590	19,628	19,666
Non-WSDOT	Electric vehicles and equipment	WSDOT PTD	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	3,827	3,767	3,706	3,714	3,721
Non-WSDOT	Electric vehicles and equipment	WSDOT PTD	Electricity in an on-road light-duty vehicle	51	50	49	50	50
Non-WSDOT	Electric vehicles and equipment	WSDOT PTD	Hydrogen in a heavy-duty on-road vehicle	1,809	1,729	1,648	1,648	1,648

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Credit Ownership	Category	Project Management	CFS credit calculator category	2029	2030	2031	2032	2033
Non-WSDOT	Electric vehicles and equipment	WSDOT RFP	Electricity in an on-road Heavy-duty vehicle (Truck or Bus)	635	625	615	616	618
Non-WSDOT	Electric vehicles and equipment	WSDOT RFP	Electricity in a heavy rail (EER = 4.6)	816	803	790	792	794
DNR	Electric Vehicles and charging infrastructure	DNR	Electricity in an on-road light-duty vehicle	33	33	32	32	32
DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	2	2	2	2	2
Non-DES	Charging infrastructure	DES	Electricity in an on-road light-duty vehicle	403	397	391	392	393

Figure 1. History of Annual Average Credit Price in California, Oregon and Washington



The highest monthly average price per credit in Washington occurred in August 2023, reaching \$106.66. By July 2024, the price had fallen to a historic low of \$32.21. The volume-weighted average price of credit transactions stands at \$65.77. Although forecasting future credit prices is challenging, we can use these historical prices in Washington to estimate potential credit revenue ranges.

Credit Revenue Forecasts

The initial credit revenue forecast is based on the lowest, average, and highest monthly credit prices from Washington's credit transaction history, multiplied by the estimated credits generated from eligible investments funded in the 2023-2025 biennium under the current program rules. **Figure 2** shows the 10-year CFS credit revenue forecasts by credit ownership agency, such as WSDOT, DES, DNR, and other pass-through entities. The solid lines represent the credit revenue forecasted using the historical average price of \$65.77 per credit, while the shaded areas indicate the range between the minimum (\$32.21 per credit) and maximum (\$106.66 per credit) revenue forecasts.

The forecasted credit revenue generally increases over time for most agencies, with some fluctuations. The "WSDOT Pass-Through" category (light blue) shows the most significant increase, particularly after 2026 when most projects are expected to begin operating. While the forecasted revenue for WSDOT (red) is lower than for the "WSDOT Pass-Through" category, it remains significantly higher than that of the other categories. The increase in WSDOT revenue is driven by the operation of more hybrid vessels from 2024 to 2029. This trend stabilizes after 2030 at approximately \$3,000,000, with the installation of shore power and the full electrification of the affected vessels. The "DES Pass-Through" category (pink), which includes funds transferred from DES to other state agencies, forecasts an average revenue of about \$25,000 per year. In contrast, the forecasted credit revenues for DES

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(yellow) and DNR (green) remain relatively flat throughout the period, indicating minimal to no expected growth for these agencies. For a detailed breakdown of the forecasted credit revenues for each category in real dollars, please refer to **Table 4**.

Figure 2. 10-Year CFS Credit Revenue Forecasts by Credit Ownership Category

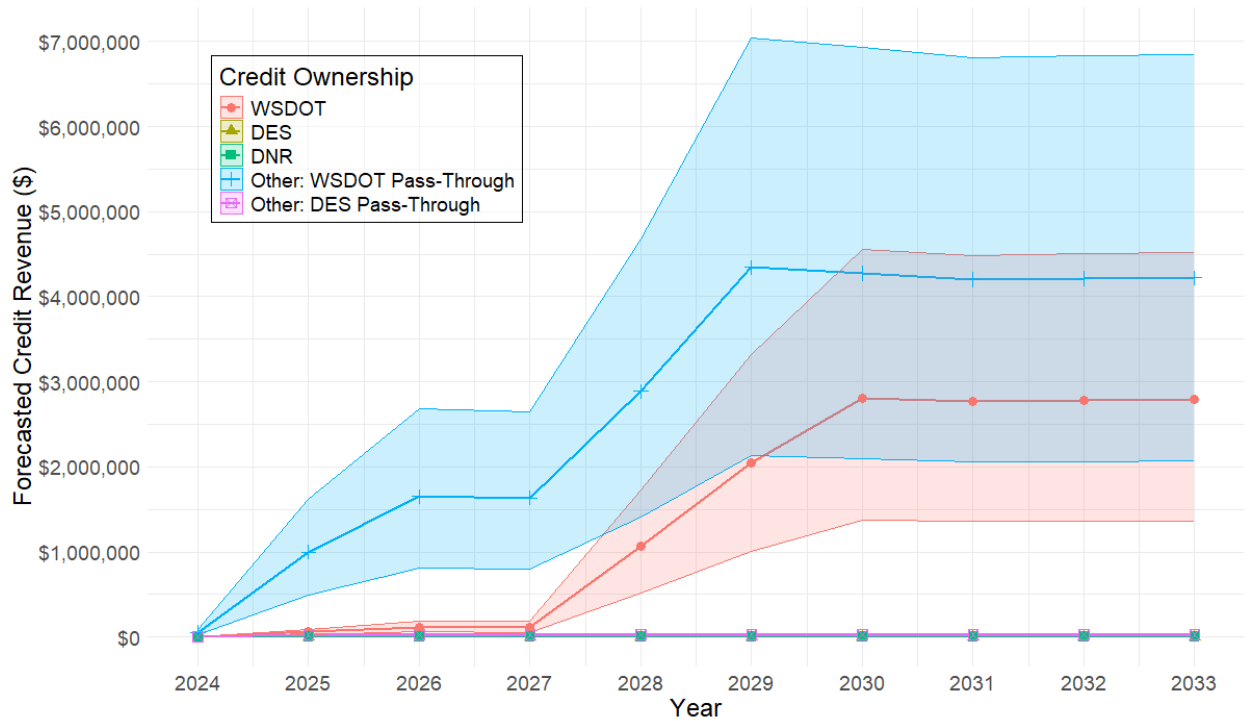


Table 4. Detail 10-Year CFS Credit Revenue Forecasts in Real Dollars by Credit Ownership Category

Year	Credit Ownership Category	Minimum Revenue (\$32.21/credit)	Maximum Revenue (\$106.66/credit)	Average Revenue (\$65.77/credit)
2024	WSDOT	\$0	\$0	\$0
2025	WSDOT	\$28,374	\$93,904	\$57,937
2026	WSDOT	\$57,982	\$191,892	\$118,393
2027	WSDOT	\$55,992	\$185,306	\$114,330
2028	WSDOT	\$521,457	\$1,725,780	\$1,064,771
2029	WSDOT	\$1,001,620	\$3,314,891	\$2,045,220
2030	WSDOT	\$1,377,102	\$4,557,561	\$2,811,921
2031	WSDOT	\$1,355,598	\$4,486,393	\$2,768,012
2032	WSDOT	\$1,361,261	\$4,505,134	\$2,779,575
2033	WSDOT	\$1,366,852	\$4,523,641	\$2,790,993
2024	DES	\$0	\$0	\$0
2025	DES	\$64	\$213	\$132
2026	DES	\$64	\$213	\$132

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Year	Credit Ownership Category	Minimum Revenue (\$32.21/credit)	Maximum Revenue (\$106.66/credit)	Average Revenue (\$65.77/credit)
2027	DES	\$64	\$213	\$132
2028	DES	\$64	\$213	\$132
2029	DES	\$64	\$213	\$132
2030	DES	\$64	\$213	\$132
2031	DES	\$64	\$213	\$132
2032	DES	\$64	\$213	\$132
2033	DES	\$64	\$213	\$132
2024	DNR	\$1,128	\$3,734	\$2,303
2025	DNR	\$1,118	\$3,701	\$2,282
2026	DNR	\$1,108	\$3,669	\$2,262
2027	DNR	\$1,098	\$3,637	\$2,242
2028	DNR	\$1,082	\$3,583	\$2,209
2029	DNR	\$1,065	\$3,528	\$2,175
2030	DNR	\$1,049	\$3,473	\$2,142
2031	DNR	\$1,032	\$3,418	\$2,108
2032	DNR	\$1,035	\$3,428	\$2,114
2033	DNR	\$1,038	\$3,439	\$2,120
2024	Other: WSDOT Pass-Through	\$25,148	\$83,275	\$51,350
2025	Other: WSDOT Pass-Through	\$488,656	\$1,618,133	\$997,793
2026	Other: WSDOT Pass-Through	\$809,123	\$2,679,324	\$1,652,158
2027	Other: WSDOT Pass-Through	\$800,484	\$2,650,719	\$1,634,519
2028	Other: WSDOT Pass-Through	\$1,414,217	\$4,683,029	\$2,887,707
2029	Other: WSDOT Pass-Through	\$2,128,173	\$7,047,221	\$4,345,544
2030	Other: WSDOT Pass-Through	\$2,093,142	\$6,931,218	\$4,274,013
2031	Other: WSDOT Pass-Through	\$2,057,998	\$6,814,841	\$4,202,251
2032	Other: WSDOT Pass-Through	\$2,062,511	\$6,829,786	\$4,211,467
2033	Other: WSDOT Pass-Through	\$2,066,968	\$6,844,545	\$4,220,567
2024	Other: DES Pass-	\$0	\$0	\$0

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Year	Credit Ownership Category	Minimum Revenue (\$32.21/credit)	Maximum Revenue (\$106.66/credit)	Average Revenue (\$65.77/credit)
	Through			
2025	Other: DES Pass-Through	\$13,620	\$45,102	\$27,811
2026	Other: DES Pass-Through	\$13,502	\$44,711	\$27,570
2027	Other: DES Pass-Through	\$13,384	\$44,318	\$27,328
2028	Other: DES Pass-Through	\$13,184	\$43,658	\$26,921
2029	Other: DES Pass-Through	\$12,982	\$42,990	\$26,509
2030	Other: DES Pass-Through	\$12,781	\$42,324	\$26,098
2031	Other: DES Pass-Through	\$12,579	\$41,654	\$25,685
2032	Other: DES Pass-Through	\$12,617	\$41,781	\$25,764
2033	Other: DES Pass-Through	\$12,655	\$41,907	\$25,841

SECTION 4 Reinvestment Strategy

Reinvestment Strategy Requirement

RCW 70A.535.050(5)(b) directs WSDOT to establish a preferred reinvestment strategy for revenues generated under state transportation investments funded in an omnibus transportation appropriations act. This preferred reinvestment strategy is to align with the legislature’s intent for maximizing credits to allow further investment in efforts to reduce greenhouse gas emissions and decarbonize the transportation sector (RCW 70A.535.050(5)(a)). These efforts are to include additional funding in future years for ferry electrification, active transportation, and transit programs and projects; but can include additional actions that will further decarbonize the sector. This direction sets the foundation for WSDOT’s reinvestment strategy recommendation and our approach.

Reinvestment Strategy Approach

For omnibus transportation appropriations act investments managed through WSDOT programs, WSDOT established criterion and factors to evaluate and identify preferred credit revenue reinvestments project types. For omnibus transportation appropriations act investment managed by non-WSDOT state agencies (DES, DNR and Parks), WSDOT conducted outreach to identify these agencies’ preferred credit revenue reinvestment project types.

The criterion and factors were established by seeking input within the agency and aligning with the legislative intent. This process ensured a uniform strategy was agreed upon and a consistent approach could be utilized. The primary criterion used to inform WSDOT credit revenue reinvestment project types identified was:

- **Reinvest in projects with potential to maximize credit-generation and reinvestment potential.** WSDOT recommends that investments made with credit revenues maximize the State’s ability to generate additional credits. This criterion supports the legislative intent that “credits will be maximized to allow further investment in efforts to reduce greenhouse gas emissions.”

In addition to the primary criterion, two decision-making factors to further inform where and how revenues should be invested were identified:

- **Seek to maximize the carbon reduction per dollar invested.** Seeking investments that maximize the amount of carbon reduction per dollar invested supports state efforts to meet greenhouse gas reduction limits by maximizing additional emission reductions. In addition, where these investments are eligible to earn additional credit revenue, this approach will enable greater credit revenue and carbon reduction. At the time of writing this report, there is not enough data to establish a carbon reduction per dollar invested

metric to inform our reinvestment strategy. This will be a critical factor for consideration as the data becomes available over the coming biennium.

- **Locate investments to benefit vulnerable populations and overburdened communities.** WSDOT is working to ensure that its transportation system investments serve all Washingtonians. To this end, the agency is in the process of determining how environmental justice principles will be incorporated into relevant decision-making factor processes so that vulnerable populations and overburdened communities will benefit from the investments equitably.

The primary criterion combined with the two decision-making factors represents WSDOT's approach for identifying project types for reinvesting credit revenues of omnibus transportation appropriation act investments.

WSDOT's Reinvestment Strategy Implementation

WSDOT's primary criterion and decision-making factors are woven into our reinvestment strategy for current state funded transportation investments and broken down according to the entity owning the credit revenues: WSDOT owned equipment, Non-WSDOT projects, and Non-WSDOT State Agencies. A description of the reinvestment strategy per credit owning entity is described in more detail in the subsections below. This reinvestment strategy represents WSDOT's initial recommendation for reinvesting credit revenues in the near term. This recommendation is subject to change as progress towards electrification of the state's fleet and charging infrastructure is made.

Reinvestment in ferry vessel electrification

Currently, ferry vessel electrification is the only WSDOT managed omnibus transportation act investment type eligible to generate credits that will return revenues to the state. WSDOT recommends reinvestment of these credit revenues into additional ferry electrification efforts under this System Electrification Plan. By investing in the project type through which WSDOT can earn additional credits, reinvesting credit revenue in ferry electrification will maximize the generation of credit revenues while simultaneously decarbonizing the transportation sector.

In addition, WSF vessels operate in the Puget Sound region; exhaust from these diesel vessels contributes to air pollution in the area. According to the Washington State Health Disparities Map,¹⁷ areas near the Puget Sound, particularly on the east side of the sound, have some of the highest health disparities and represents vulnerable and overburdened populations. Dramatically reducing the exhaust from the vessels through the fleet-wide electrification plan will reduce the pollution burden for people living and working in the region, particularly close to ferry routes and terminals.

¹⁷ <https://fortress.wa.gov/doh/wtnibl/WTNIBL/>

WSDOT grant programs and pass-through funding

WSDOT manages grant programs and pass-through funding under an omnibus transportation appropriation act that are eligible to earn credits. These investments are non-WSDOT projects that are controlled by the entity (implementor of the project) receiving the funding. These investments can earn credit revenues that can be reinvested by the user generating the credits. Our reinvestment strategy per grant program or pass-through funding is discussed in the following subsections.

EV infrastructure grants

For Zero-emission Vehicle Infrastructure Partnership grant agreements, WSDOT uses the following WAC and grant guidelines, “bidders and their private sector partners can reinvest any proceeds from ongoing operations to upgrade equipment and expand the site to accommodate higher utilization rates in the future.” Higher utilization rates establish a pathway for grant recipients to further increase future credit generation, which aligns to our primary criterion for reinvestment.

Public transit grants

WSDOT’s Public Transportation Division is including language in grant agreements that requires recipients that generate credit revenue from the funded projects to reinvest in services and projects consistent with the grant program. Services and projects consistent with the program hold the potential to generate more credits, increasing the reinvestment potential of the investment.

Port electrification grants

WSDOT’s port electrification grant program requires recipients that receive credit revenue from grant-funded investments to reinvest credit revenue consistent with the grant program. This requirement aligns with our primary criterion to maximize credit generation potential and decarbonize the transportation sector.

Directly funded projects

The 2023-2025 transportation budget identifies funds that WSDOT is to distribute to specific entities. WSDOT is working through contracting processes to determine how best to ensure credit revenues from these investments are reinvested to provide additional emission reductions and maximize credit generation potential.

Non-WSDOT State Agencies Reinvestment Strategy Implementation

Non-WSDOT State Agencies (State Agencies) may be eligible to generate credits, specifically State Parks, DES, and DNR. Reinvestment project or investment types were provided by State Agencies during engagement sessions. Based on the feedback received, State Agencies recommend the state legislature focus reinvestments under the omnibus transportation appropriation act funds on:

- Investments in zero emissions state fleets and associated EV charging or fueling infrastructure.
- Option to use credit revenues to offset participation fees.
- Ongoing maintenance and repair for EVSE installed.
- Conducting building electrical assessment feasibility studies for future EVSE installations.
- Investments to support installation of anti-theft/security items for EVSE installed.
- Investments to support educational material for electrification (i.e. ride and drive events, etc.).

These project types align with the with the legislature’s intent for maximizing credits to allow further investment in efforts to reduce greenhouse gas emissions. Reinvestment opportunities will vary between State Agencies. For example, DES might find that focusing on EV facility feasibility studies and ongoing EV charger maintenance will maximize credit generation and revenue potential, while State Parks may focus on installing EV chargers to maximize credit generation. WSDOT recommends the legislature engage State Agencies generating the credits to identify which project opportunities will allow State Agencies to maximize their own credit generation.

In addition, the State Agencies also identified the need for expansion and resiliency of our power generation system to meet state facilities’ baseline operating needs, making EV implementation attainable. We recommend that the State continue to promote investments into the power generation sector within Washington state, including underserved communities and remote areas where electricity is unable to meet baseline needs. These investments should focus on expanding the electrical grid to meet electricity demand from electrification within the transportation sector, and system improvements to provide system reliability to mitigate and adapt to increased frequency in extreme weather events (e.g., heat waves, wildfires, severe storm events) and to invest in projects that lead to a reduction in energy conservation.

SECTION 5 CFS Participation Considerations for State Agencies

WSDOT and partnering state agencies have identified several concerns that could impact effectiveness of state agency participation in the CFS. These concerns, and recommendations to address them, are described below.

Threshold for Financially Beneficial Participation

Ecology imposes a participation fee for the CFS program, which is designed to cover the administrative costs of managing the program. The fee is calculated annually based on the estimated budget for the upcoming year. In 2023, each credit generator paid \$982, while in 2024, this fee decreased to \$274. This reduction is attributed to a significant increase in the number of registered participants, which rose from 130 in 2023 to 372 in 2024. Although the program's overall costs remain relatively stable, the increase in registered participants results in a lower fee per participant.

WSDOT and the proviso agencies are mandated by the legislature to register for the CFS program and begin tracking credit revenue generation. However, as indicated by the forecasted credit revenue by ownership category in **Table 4**, the cost-effectiveness of registering in the CFS program varies based on the scale of each agency's transportation electrification investments. The participation fee is the critical threshold for determining the financial viability of participating in the CFS program. For WSDOT and DNR, the potential revenue from generated credits significantly exceeds the registration fee, making participation highly cost-effective. The state can expect a substantial return on investments through these agencies, as the credits generated hold significant market value, helping to offset both the registration fee and future project costs. In contrast, agencies with smaller-scale projects and lower expected credit generation may find their revenues insufficient to cover the registration fee. For example, DES has only two EVSE installations to date. Even in the scenario with the maximum projected credit price, the forecasted revenue is insufficient to cover the cost of the CFS participation fee in 2024. In such cases, it would be more cost effective for agencies to register for participation when they have transportation electrification investments sufficient to generate a net benefit to the state.

Managing CFS Participation

Several state agencies voiced concern that some state agencies lack staff resources to effectively manage the registration, data and tracking systems, reporting and sale of credits, which are required to participate in the CFS. Furthermore, there is concern that agencies individually selling CFS credits in the market would yield inconsistent strategy for credit sales and could result lower sales value. To address these challenges, we recommend Ecology engage state agencies to identify what would be required to enable a state organization to function as a backstop aggregator and centrally manage state agencies credit generation and sales. A centralized backstop aggregator may allow State Agencies to provide consistent

credit pricing state agency generated credits; efficiently use state resources for managing EV charging data, tracking, and reporting; and reduce burdens on State Agencies for managing CFS credit revenues.

Use of Advance Crediting

In section WAC 173-424-550, WSDOT and other public entities that are implementing projects and programs to be funded through the omnibus transportation appropriations act are eligible to apply for advance credits, provided that the projects and programs decarbonize the transportation sector and are eligible to generate credits. This includes investments in medium and heavy-duty vehicles, light-duty vehicles if they are part of a program to fully electrify its fleet within a 15-year time period, electrification of the state ferry fleet and other types of investments that Ecology may identify. Ecology may advance no more than six years of credits for any single investment or program. Advance credits must be “paid back” through actual credit generation within a payback period that may not exceed nine years. The issuance of advance credits each year is capped at five percent of the total number of deficits generated in the prior compliance year.

Use of Advance Crediting commits the public entity receiving the credits to investing the revenues from the credits into the project for which the advance credits were granted and making those investments on a timeline that will enable compliance with the payback period. Meeting this commitment by state agencies requires a mechanism to ensure the applicable funds are timely committed to the correct project through the state appropriations process. WSDOT recommends the legislature and effected state agencies coordinate to identify and establish a process that will ensure funds generated through Advance Crediting are allocated in a timely manner to the projects that generated those funds.

SECTION 6 Next Steps

This 2024 credit revenue forecast report identifies current projects and programs funded in the enacted 2023-2025 biennial transportation budget, as updated by the 2024 supplemental budget, that are expected to be eligible to generate credit revenue. For the first time, credit revenue was forecasted based on the estimated energy dispensed from each project, using the best available data and assumptions. As projects are gradually implemented over the next few years, the ability to accurately estimate credit revenue is expected to improve. In future years, real-world data on energy dispensed from metered chargers will be used to estimate the credits generated. Ecology is also proposing changes to enhance and streamline the CFS program through the current rulemaking process. These proposed changes include the introduction of capacity credits aimed at supporting the installation of additional low carbon fueling infrastructure, specifically DC fast charging and hydrogen refueling stations. Additionally, the rulemaking may establish requirements for a third-party verification program and refine the compliance and enforcement process. As a result, the credits generated will be contingent on the specific requirements established through the final rulemaking.

In the interim, WSDOT is undertaking several initiatives to support this work:

- Collaborating with current funding recipients and proviso state agencies to collect project data and improve energy dispensed estimations.
- Reviewing data and exploring options to refine future credit value assumptions.
- Leading discussions with proviso state agencies and Ecology on how best to direct the reinvestment of credit revenue into additional emission reduction efforts.

Appendix A: Energy Dispersed Calculation Methodology and Tool

Energy dispersed data will be used to estimate credits. Below are general approaches to calculate energy dispersed based on project details.

Ferry Vessel Electrification

Washington State Ferries (WSF) aims to achieve an emission-free fleet by 2050 by converting six existing vessels to hybrid-electric power, constructing 16 new hybrid-electric vessels, and adding shore charging to 16 terminals. As a result, ferry vessel electrification will generate credits based on displaced diesel fuel consumption through hybrid conversion or energy dispersed from terminal shore power charging in full electric mode, depending on the vessel and route.

Since WSF began converting their first batch of three largest ferries to hybrid-electric power in August 2023, no real-world operational data is available at this time. WSF developed a System Electrification Plan (SEP)¹⁸ in 2020 to evaluate alternatives and efficient strategies for using hybrid-electric vessels throughout the system. Based on the SEP analysis, WSF has conducted other internal calculations periodically in annual funding applications and to conform with legislative requirements. To forecast the credits that may be generated from ferry vessel electrification, this report will rely on the WSF's SEP and their fuel consumption analysis¹⁹.

Considering the implementation schedule, WSF has estimated the annual fuel usage under three scenarios: business-as-usual, hybrid without shore power, and full-electric with shore power. The annual fuel displaced by hybrid or full-electric modes is calculated as the difference relative to the business-as-usual scenario. The methodology for calculating the energy dispersed in kWh is detailed in the "Ferries Forecast for CPRG app 2024" document²⁰:

1. Subtract the hybrid or full-electric mode annual fuel usage from the business-as-usual annual fuel usage to calculate the annual fuel displaced by ferry vessel electrification.
2. Calculate the pounds of diesel displaced per year by multiplying the annual fuel displaced in gallons by 7.1 lbs./gallon (Diesel No. 2 weight) to yield the total annual pounds.
3. Use a specific fuel consumption of 0.345 lbs./hp-hr based on reference material.²¹ Multiply the annual pounds of diesel by 1 hp-hr/0.345 lbs. to yield the annual hp-hr.

¹⁸ <https://wsdot.wa.gov/sites/default/files/2021-11/WSF-SystemElectrificationPlan-December2020.pdf>

¹⁹ Raw data provided by WSF: "23038-006-809-0 2020 Plan Update Final w_reserves Utility Emissions.xlsx"

²⁰ Manor, J. (2024, February 7). EPA GHG Grant Assumptions Memorandum. Elliott Bay Design Group.

²¹ Fay, E. M. (2020). *Ship Performance Data 8110-2020-001, Rev A*. Seattle: Washington State Department of Transportation.

4. Convert hp-hr to kWh using a conversion factor of 1 hp-hr = 0.7456 kWh to obtain the annual kWh needed to replace the diesel consumption of ferry vessels.

In addition, several assumptions are made in the calculations:

- The baseline annual fuel consumption per vessel is based on average historical fuel usage data up to and including 2018 (before COVID-19). The same fuel consumption data is used as the baseline in the WSF’s SEP analysis.
- The three vessels invested for hybrid conversion in the 2023-2025 biennium are M/V Tacoma, M/V Wenatchee, and M/V Puyallup, all of which are Jumbo Mark II Class ferries. M/V Tacoma and M/V Wenatchee operate on the Seattle to Bainbridge route, while M/V Puyallup operates on the Edmonds to Kingston route. According to the latest WSF Fleet Status Projection from January 2024, these ferries will be out of service for a full year for hybrid conversion. Afterward, they will operate as hybrid vessels for two years, then go out of service again for a year for midlife maintenance, and finally transition to full electric mode once the port shore power electrification is completed.
- It is also assumed that all vessels will consistently operate on the same route.
- Hybrid mode for the Jumbo Mark II Class is estimated to reduce annual fuel usage by 13.5% compared to a pre-hybridized Jumbo Mark II.²¹
- Full electric mode for the Jumbo Mark II Class Ferry is estimated to reduce annual fuel consumption by 78.4% on the Edmonds to Kingston route and by 90% on the Seattle to Bainbridge route compared to the baseline Jumbo Mark II.²²
- Without shore charging installation, the Jumbo Mark II is assumed to operate in hybrid mode.
- If a vessel is scheduled to be decommissioned, it is assumed to operate for the entire year and retire at the end of that calendar year.²³
- It is assumed that if a vessel is out of service, it will remain out of service for a complete calendar year.²³

To summarize, the general equation to calculate annual electricity dispensed is:

$$\begin{aligned}
 & \text{Annual Energy Dispensed (kWh)} \\
 & = \text{Displaced Annual Diesel Consumption (gallon)} \times 7.1 \frac{\text{lbs.}}{\text{gallon}} \\
 & \div 0.345 \frac{\text{lbs.}}{\text{hp} \cdot \text{hr}} \times 0.7456 \frac{\text{kWh}}{\text{hp} \cdot \text{hr}}
 \end{aligned}$$

Electric Vehicle Charging Infrastructure

This approach estimates the annual energy use of charging infrastructure based on actual metered usage or assumptions about how the chargers will be used. The level of available information was provided by grant recipients or the relevant managing divisions at WSDOT

²² Elliot Bay Design Group. (2024). 19097-001-809-0_Fuel Emissions Estimate (BWK2). Seattle.

²³ Ruden, M. V. (2024). GHR Projection Input Jan 2024. Seattle: Washington State Department of Transportation.

or other state agencies. It is best applicable when chargers supply energy to vehicles from multiple owners, such as publicly available vehicle chargers, where the charging infrastructure owner will claim the credits. If the charging infrastructure is operational, real-world annual utilization data from each charger will be used to report energy dispensed. However, if the charging infrastructure does not have sufficient full-year of energy-dispensed data or is planned to operate in a future year, the energy dispensed could be estimated based on default assumptions from the Clean Infrastructure Tool of Washington Climate Mitigation Emissions Calculator v1.2.²⁴ The Clean Infrastructure Tool was developed by WSDOT based on the Argonne National Lab’s 2023 Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) tool’s Charging and Fuel Infrastructure (CFI) tab²⁵. This tool includes calculators for assessing energy or fuel use and related emission benefits for various electrification and alternative fueling projects. It provides default input values for weekly utilization, average session power and charging time for Level 2 and DC fast chargers by venue type based on data from several sources including Chicago, New York State, Columbus, Austin, Seattle, and numerous locations from the EV project²⁶. **Table A-1** shows the default inputs values for public electric vehicle charging infrastructure from the Washington Climate Mitigation Emissions Calculator Clean Infrastructure Tool. Whenever the project data is insufficient, the WSDOT calculator’s default input values will be utilized to estimate annual energy dispensed for each charger based on the assumed utilization level.

²⁴ Contact WSDOT’s Climate Mitigation and Adaptation Branch for tool access.

²⁵ Argonne National Laboratory Alternative Fuel Life-Cycle Environmental and Economic Transportation Tool (<https://greet.anl.gov/afleet>)

²⁶ User Guide for AFLEET Tool 2023: <https://greet.anl.gov/files/afleet-tool-2023-user-guide>

Table A-1. Default Charging Infrastructure Inputs by Venue Type and Utilization for Level 2 and DC Fast Charger

(a) Level 2 charger

Venue	Session Power (kW)	Charge Time (hr/session)	Low Utilization (session/week/charger)	Moderate Utilization (session/week/charger)	High Utilization (session/week/charger)
Parking Lot	4	2.5	0.5	4.5	6.5
Retail & Leisure	4	1.5	1.0	5.5	7.0
Education	4	2.5	1.5	6.0	9.0
Healthcare	4	2.5	3.5	6.5	7.0
Workplace	4	2.5	1.0	4.5	7.5
Multi-Unit Dwelling	4	3.5	0.5	3.0	4.0
Single-Unit Dwelling	4	2.0	3.0	6.0	7.5

(b) DC fast charger

Venue	Session Power (kW)	Charge Time (hr/session)	Low Utilization (session/week/charger)	Moderate Utilization (session/week/charger)	High Utilization (session/week/charger)
Parking Lot	24	0.36	6.5	15	26
Retail & Leisure	24	0.36	6.5	15	26
Education	24	0.36	6.5	15	26
Healthcare	24	0.36	6.5	15	26
Workplace	24	0.36	6.5	15	26
Multi-Unit Dwelling	24	0.36	6.5	15	26
Single-Unit Dwelling	24	0.36	6.5	15	26

The general equation to calculate annual energy dispensed is:

$$\begin{aligned}
 & \text{Annual Energy Dispensed (kWh)} \\
 & = \text{Number of Chargers of the Same Type} \\
 & \times \text{Number of Charge Sessions per Charger per Year} \\
 & \times \text{Charge Time per Session (hr)} \times \text{Average Session Power (kW)}
 \end{aligned}$$

This equation can also be applied to calculate the annual energy dispensed from shore power in port electrification projects. For Washington State Ferries (WSF), on a route-by-route

basis, the annual energy dispensed will be determined by the annual charge cycle counts, average charge rate (MW), and cycle charging time (minutes).

Public Transit and Off-Road Equipment Electrification

When one entity owns both the vehicle and the charging infrastructure, or the investments only add new electric vehicle and share the usage of existing charger, the energy dispensed from the new vehicle can be estimated using an activity-based approach.

This approach requires inputs of activity and vehicle energy efficiency data. Activity is measured in vehicle miles traveled (VMT) or hours of use each year, while energy efficiency refers to the energy consumed per mile or hour of use. Energy efficiency data may be obtained from vehicle manufacturer information, peer-reviewed literature, or project engineering calculations.

For transit and off-road equipment electrification projects, the general equation to calculate annual electric vehicle or equipment energy consumption is:

$$\begin{aligned} & \text{Annual Energy Consumption (kWh)} \\ & = \text{Activity} \left(\frac{\text{mile}}{\text{year}} \text{ or } \frac{\text{hr}}{\text{year}} \right) \times \text{Energy Efficiency} \left(\frac{\text{kWh}}{\text{mile}} \text{ or } \frac{\text{kWh}}{\text{hr}} \right) \end{aligned}$$

Appendix B: Project-Specific Energy Dispensed Estimates

Ferry Electrification

Table B-1. WSF Annual Fuel Usage Estimates (gallon), BAU Scenario

VESSEL	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ferry-TACOMA	1533760	1533760	1533760	1533760	1533760	1533760	1533760	1533760	1533760	1533760
Ferry-WENATCHEE	1614676	1614676	1614676	1614676	1614676	1614676	1614676	1614676	1614676	1614676
Ferry-PUYALLUP	1439942	1439942	1439942	1439942	1439942	1439942	1439942	1439942	1439942	1439942

Table B-2. WSF Ferry Electrification Schedule*

VESSEL	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ferry-TACOMA	OOS	Yellow		OOS	Green					
Ferry-WENATCHEE		OOS	Yellow		OOS	Green				
Ferry-PUYALLUP			OOS	Yellow		OOS	Green			

* Yellow: hybrid mode; Green: full electric mode; based on WSF Fleet Status Projection January 2024

Table B-3. Estimated Fuel Reduction % from Ferry Electrification plan

VESSEL	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ferry-TACOMA		13.5%	13.5%		90.5%	90.5%	90.5%	90.5%	90.5%	90.5%
Ferry-WENATCHEE			13.5%	13.5%		90.5%	90.5%	90.5%	90.5%	90.5%
Ferry-PUYALLUP				13.5%	13.5%		78.4%	78.4%	78.4%	78.4%

Table B-4. Estimated Fuel Savings (in lbs., converted from gallon)

VESSEL	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ferry-TACOMA	9419587	1470109			9855175	9855175	9855175	9855175	9855175	9855175
Ferry-WENATCHEE			1547667	1547667		10375101	10375101	10375101	10375101	10375101
Ferry-PUYALLUP				1380184	1380184		8015293	8015293	8015293	8015293

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Table B-5. Convert Fuel Savings (lbs.) to Annual Estimated Energy (kWh)

VESSEL	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Ferry-TACOMA		3177140	3177140		21298604	21298604	21298604	21298604	21298604	21298604
Ferry-WENATCHEE			3344755	3344755		22422246	22422246	22422246	22422246	22422246
Ferry-PUYALLUP				2982799	2982799		17322326	17322326	17322326	17322326
Sum - Hybrid		3177140	6521895	6327554	2982799					
Sum - Full-electric					21298604	43720851	61043177	61043177	61043177	61043177

Electric Vehicles and Charging

Table B-6. Project-Specific Energy Dispensed Estimates (kWh) for Electric Vehicle Charging Infrastructure

Project Owner	Program Name	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)	Note
City of Mount Vernon	Mount Vernon Library Commons	2025	10	Mount Vernon	LV2	72	Low	18771	
City of Mount Vernon	Mount Vernon Library Commons	2025	10	Mount Vernon	DCFC	4	Low	11713	
School Districts	Ecology's Air Quality Clean School Bus Grant Program	2028	10	Statewide	LV2	39	Low	10168	Used EV energy estimates to avoid double-counting
Vehicle Owners	Medium- and Heavy-Duty Vehicle Incentive Program	2029	10	Statewide	DCFC	352	Low	1030777	Used EV energy estimates to avoid

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Project Owner	Program Name	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)	Note
Energy Northwest	ZEVIP	2026	10	Winthrop	DCFC	2	Low	5857	double-counting
Energy Northwest	ZEVIP	2026	10	Winthrop	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Okanogan	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Okanogan	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Tonasket	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Tonasket	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Republic	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Republic	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Colville	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Colville	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Cusik	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Cusik	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Newport	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Newport	LV2	1	Low	261	

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Project Owner	Program Name	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)	Note
Energy Northwest	ZEVIP	2026	10	Sedro-Woolley	DCFC	4	Low	11713	
Energy Northwest	ZEVIP	2026	10	Sedro-Woolley	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Anacortes	DCFC	4	Low	11713	
Energy Northwest	ZEVIP	2026	10	Anacortes	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Port Townsend	DCFC	4	Low	11713	
Energy Northwest	ZEVIP	2026	10	Port Townsend	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Burbank	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Burbank	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Clarkston	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Clarkston	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Pullman	DCFC	2	Low	5857	
Energy Northwest	ZEVIP	2026	10	Pullman	LV2	1	Low	261	
Energy Northwest	ZEVIP	2026	10	Washtucna	LV2	1	Low	261	
Douglas County PUD	ZEVIP	2026	10	Wenatchee	DCFC	2	Low	5857	
Western Washington	ZEVIP	2026	10	Ritzville	DCFC	2	Low	5857	

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Project Owner	Program Name	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)	Note
Clean Cities									
Western Washington Clean Cities	ZEVIP	2026	10	Tacoma	DCFC	2	Low	5857	
Forth Mobility	ZEVIP	2026	10	Toutle	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Toutle	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Raymond	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Raymond	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Spanaway	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Spanaway	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Ashford	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Ashford	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Belfair	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Belfair	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Carnation	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Carnation	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Lacey	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Lacey	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Yelm	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Yelm	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Lynnwood	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Lynnwood	LV2	1	Low	261	

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Project Owner	Program Name	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)	Note
Forth Mobility	ZEVIP	2026	10	Seattle	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Seattle	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Federal Way	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Federal Way	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Fife	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Fife	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Renton	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Renton	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Maple Valley	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Maple Valley	LV2	1	Low	261	
Forth Mobility	ZEVIP	2026	10	Enumclaw	DCFC	4	Low	11713	
Forth Mobility	ZEVIP	2026	10	Enumclaw	LV2	1	Low	261	

* Default inputs from the Washington Climate Mitigation Emissions Calculator v1.2 were used to calculate the annual energy dispensed based on the corresponding utilization level.

Table B-7. Project-Specific Energy Dispensed Estimates (kWh) for Electric Vehicles

Project Owner	Program Name	Start Year	Vehicle Useful Life	Vehicle Type	Model Year	Number of Vehicles	Annual VMT (miles/vehicle)	ZEV Efficiency (kWh/mile)	Annual Estimated Energy (kWh)
School Districts, Multiple	Ecology's Air Quality Clean School Bus Grant Program	2028	15	Bus	2028	39	12000	2	936,000
Vehicle Owner	M/HD Incentive Program	2029	18	M/HD	2029	352	10000	3.5	12,320,000

Public Transit Electrification and Hydrogen

Table B-8. Project-Specific Energy Dispersed Estimates (kWh) for Public Transit Electrification and Hydrogen

Transit Org.	Project Name	Vehicle Purchase? (Y/N)	Charging Infrastructure? (Y/N)	Start Date	Total Miles per Year	Vehicle Efficiency (kWh/mile)	Annual Estimated Energy (kWh)	First Year Credits	Credit Owner (if not the transit agency)/Comments
Everett Transit	Induction Charging Infrastructure	N	Y	Jul-25	N/A	N/A	1158768	929	
Everett Transit	2023-2025 Green Transportation Grant for Electric Buses	Y	Y	Jan-25	191215	3.50	669253	1073	
Everett Transit	2023-2025 State Bus and Bus Facilities Grant for Electric Buses	Y	Y	Jan-25	142112	3.50	497392	798	
Intercity Transit	Green Hydrogen Fuel Cell Electric Bus Demonstration Project	Y	N	Aug-26	98734	0.45	44879	193	Fuel supplier because the fueling equipment is leased
Intercity Transit	Zero-emission Hydrogen Demonstration Project	Y	N	Aug-26	162294	0.45	73770	318	Fuel supplier because the fueling equipment is leased
Jefferson Transit	JTA E Bus Application	Y	N	Jul-25	89266	2.30	205312	165	
King County Metro	Burien Transit Ctr Layover	N	Y	May-26	N/A	N/A	2635000	2039	PTD0777

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Transit Org.	Project Name	Vehicle Purchase? (Y/N)	Charging Infrastructure? (Y/N)	Start Date	Total Miles per Year	Vehicle Efficiency (kWh/mile)	Annual Estimated Energy (kWh)	First Year Credits	Credit Owner (if not the transit agency)/Comments
	Charging Infrastructure								
King County Metro	Interim Base Electrification	N	Y	Oct-25	N/A	N/A	5349000	5439	
King County Metro	South Annex Base Electrification	N	Y	Sep-28	N/A	N/A	8912000	6906	
King County Metro	Interim Base Chargers and Zero Emissions Fleet Conversion	Y	Y	Oct-25	N/A	N/A		See PTD0777	To avoid double counting the estimates are included under the related project PTD0777
Kitsap Transit	Inductive Charging Infrastructure	N	Y	Sep-25	N/A	N/A	126000	101	
Kitsap Transit	Inductive Charging Units for Transit Centers	N	Y	Jan-26	N/A	N/A	84000	133	
Link Transit	Urban Bus Fleet Electrification	Y	N	Jul-25	358000	1.60	572800	455	
Pullman Transit	Battery Electric Bus and Charger	Y	Y	May-25	17749	1.36	24139	19	
Spokane Transit	2023 Fleet Electrification	Y	N	Feb-24	91035	1.90	172967	639	
Spokane Transit	2023 Fleet Electrification	Y	N	Feb-24	110904	2.00	221808	-	Combined credits with last row
Lewis	Southwest	Y	N	Jul-24	32505	0.45	14775	67	

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Transit Org.	Project Name	Vehicle Purchase? (Y/N)	Charging Infrastructure? (Y/N)	Start Date	Total Miles per Year	Vehicle Efficiency (kWh/mile)	Annual Estimated Energy (kWh)	First Year Credits	Credit Owner (if not the transit agency)/Comments
County Transit	Washington Corridor e-Transit Station								
Lewis County Transit	Southwest Washington e-Transit Corridor	Y	N	Jul-25	158638	0.45	72108	319	
Lewis County Transit	Zero-emission Vehicle Infrastructure and Equipment	N	Y	Jul-25	N/A	N/A	150504	121	
Lewis County Transit	Zero-Emission Vehicle Acquisition	Y	N	Jul-26	65010	0.45	29550	127	
Community Transit	Rideshare Replacement Vehicles	Y	N	Jul-25	43515	0.26	11314	6	These vehicles will be charged at any publicly available charger, so neither WSDOT nor the transit agency will generate the credit.
Jamestown S'Klallam Tribe	ADA Electric Transit Shuttle	Y	N	Jul-25	31200	0.53	16536	13	
Lummi Indian Business Council	Lummi Transit Electric Bus Acquisition	Y	N	Jul-25	84829	1.36	115367	92	
San Juan Islands	Island Rides Electric Vehicles	Y	N	Jul-25	30027	0.32	9609	24	

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Transit Org.	Project Name	Vehicle Purchase? (Y/N)	Charging Infrastructure? (Y/N)	Start Date	Total Miles per Year	Vehicle Efficiency (kWh/mile)	Annual Estimated Energy (kWh)	First Year Credits	Credit Owner (if not the transit agency)/Comments
Shuttle System									
Kitsap Transit	Electric Rideshare Vehicles	Y	Y	Jul-25	40000	0.37	14800	12	These vehicles will be charged at any publicly available charger, so neither WSDOT nor the transit agency will generate the credit.
Cowlitz Indian Tribe	Electric ADA Vehicle Purchase	Y	N	Jul-25	13476	0.53	7142	6	
Nisqually Indian Tribe	Rural Mobility Initiative - EV Capital Project	Y	N	Jul-25	10000	0.53	5300	4	
Lopez Community Land Trust	Lopez Community Land Trust Carshare	Y	Y	Jul-25	N/A	N/A	2172	2	
Mobility for All	Town Square Share	Y	Y	Jul-25	N/A	N/A	1407	1	
San Juan Islands Shuttle System	OPAL Green Carshare	Y	Y	Jul-25	N/A	N/A	2814	2	
Tabor 100	TABOR 100 Carshare	N	Y	Jan-25	1576	0.32	504	1	
Women of Wisdom Tri-	WoW Pasco Carshare	N	Y	Jul-25	N/A	N/A	4104	3	

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Transit Org.	Project Name	Vehicle Purchase? (Y/N)	Charging Infrastructure? (Y/N)	Start Date	Total Miles per Year	Vehicle Efficiency (kWh/mile)	Annual Estimated Energy (kWh)	First Year Credits	Credit Owner (if not the transit agency)/Comments
Cities									
Women of Wisdom Tri-Cities	WoW Kennewick ADA Carshare	Y	Y	Jul-25	N/A	N/A	2052	2	
Women of Wisdom Tri-Cities	WoW Kennewick Carshare	Y	Y	Jul-25	N/A	N/A	4104	3	
Zero-Emission Vehicle Cooperative	Shoreline Share	Y	Y	Jul-25	N/A	N/A	1000	1	
Zero-Emission Vehicle Cooperative	Des Moines Share	Y	Y	Jul-25	N/A	N/A	1000	1	
Zero-Emission Vehicle Cooperative	Gonzaga Share	Y	Y	Jul-25	N/A	N/A	2000	2	
Zero-Emission Vehicle Cooperative	Estelita's Share	N	Y	Jul-25	N/A	N/A	1790	1	
Zero-Emission Vehicle Cooperative	Port Townsend Share	N	Y	Jul-25	N/A	N/A	1000	1	

Port and Rail Electrification

Table B-9. Project-Specific Energy Dispersed Estimates (kWh) for Shore Power based on US EPA Calculator

Project Owner	Port	Ship Type	Start Year	Annual Charging Sessions	Project Useful Life (yrs)	Displaced Fuel Type	Calculation Tool	Annual Estimated Energy (kWh)
NWSA	Seattle	Container	Q3 2028	131-260 vessel calls; 5274 at-berth hours	30	HFO (Bunker fuel)	U.S EPA Shore Power Emissions Calculator (SPEC) Ver.2023	5,845,220 - 11,601,200
Port of Bremerton	Bremerton	Passenger Ferry	2025	200	50	Diesel		Included in Ferry Electrification Calculations

Table B-10. Project-Specific Energy Dispersed Estimates (kWh) for Shore Power based on Port Inputs

Project Owner	Start Year	Ship Type	Charging Power (kW)	Charging Duration (hr)	Annual Charging Sessions	Displaced Fuel Type	Displaced Fuel (gallon/year)	Project Useful Life (yr)	Annual Estimated Energy (kWh)
Port of Anacortes	2025	Tug (aux)	166.28	8	100	Diesel	8806	15	133022
Port of Anacortes	2024	Tug (prop)	166.28	8	8	Diesel	704	15	10642
Port of Anacortes	2025	Fishing (Aux)	166.28	16	32	Diesel	5636	15	85134
Port of Anacortes	2025	Fishing (Prop)	166.28	4	8	Diesel	410	15	5321
Port of Anacortes	2025	Work Boat (Aux)	166.28	4	16	Diesel	820	15	10642
Port of Anacortes	2025	Work Boat (Prop)	166.28	4	16	Diesel	704	15	10642

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Table B-11. Project-Specific Energy Dispensed Estimates (kWh) for ZE Drayage Trucks

Project Owner	Start Year	Number of Trucks	Annual Miles per Truck	ZEV Efficiency (miles/kWh)	Project Useful Life (yr)	Displaced Fuel Type	Calculation Tool	Annual Estimated Energy (kWh)
NWSA	2025	15	31200	1.124	TBD (> 10 years)	Diesel	ZEV efficiency from Washington Climate Mitigation Emissions Calculator for electric drayage truck	416,320

Table B-12. Project-Specific Energy Dispensed Estimates (kWh) for ZE Locomotives

Project Owner	Start Year	Power Type	Number of Switcher Locomotive	Displaced Fuel Type	Displaced Fuel Consumption (gallon)	Annual Operating Hours	Project Useful Life	Annual Estimated Energy (kWh)
Tacoma Rail	2026	Battery powered	3	ULSD	95,000	16,200	Batteries 10 years; Locomotives 50 years	594,000

Proviso State Agencies

Table B-13. Project-Specific Energy Dispersed Estimates (kWh) for Electric Vehicle Charging Infrastructure from DES

Funds Management	Project Owner	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)
DES	Bellingham Technical College	2025	10	Bellingham	LV2	4	Moderate	9386
DES	Criminal Justice Training Center	2025	10	Burien	LV2	12	Moderate	28157
DES	Department of Children, Youth and Families	2025	10	Kent	LV2	6	Moderate	14079
DES	Department of Children, Youth and Families	2025	10	Richland	LV2	6	Moderate	14079
DES	Department of Children, Youth and Families	2025	10	Bellingham	LV2	5	Moderate	11732
DES	Department of Children, Youth and Families	2025	10	Ellensburg	LV2	3	Moderate	7039
DES	Department of Children, Youth and Families	2025	10	Puyallup	LV2	4	Moderate	9386
DES	Department of Children, Youth and Families	2025	10	Centralia	LV2	4	Moderate	9386
DES	Department of Children, Youth and Families	2025	10	Port Angeles	LV2	3	Moderate	7039
DES	Department of Enterprise Services	2025	10	Seattle	LV2	1	Moderate	2346
DES	Department of Fish and Wildlife	2025	10	Naches	LV2	4	Moderate	9386
DES	Department of Fish and Wildlife	2025	10	Centralia	LV2	4	Moderate	9386
DES	Department of Fish and Wildlife	2025	10	Issaquah	LV2	4	Moderate	9386
DES	Department of Fish and Wildlife	2025	10	Mill Creek	LV2	2	Moderate	4693
DES	Department of Fish and Wildlife	2025	10	Omak	LV2	2	Moderate	4693
DES	Department of Fish and Wildlife	2025	10	Kalama	LV2	4	Moderate	9386
DES	Department of Corrections	2025	10	Connell	DCFC	2	Moderate	13515
DES	Department of Corrections	2025	10	Monroe	DCFC	3	Moderate	20273
DES	Department of Corrections	2025	10	Clallam Bay	DCFC	1	Moderate	6758

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Funds Management	Project Owner	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)
DES	Department of Social and Health Services	2025	10	Arlington	LV2	4	Moderate	9386
DES	Department of Social and Health Services	2025	10	Arlington	DCFC	1	Moderate	6758
DES	Department of Social and Health Services	2025	10	Vancouver	LV2	4	Moderate	9386
DES	Department of Social and Health Services	2025	10	Vancouver	DCFC	1	Moderate	6758
DES	Department of Social and Health Services	2025	10	Bremerton	LV2	5	Moderate	11732
DES	Department of Social and Health Services	2025	10	Toppenish	LV2	3	Moderate	7039
DES	Department of Social and Health Services	2025	10	Bremerton	LV2	1	Moderate	2346
DES	Department of Social and Health Services	2025	10	Walla Walla	LV2	1	Moderate	2346
DES	Department of Social and Health Services	2025	10	Kennewick	LV2	5	Moderate	11732
DES	Department of Social and Health Services	2025	10	Tacoma	LV2	4	Moderate	9386
DES	Department of Social and Health Services	2025	10	Everett	LV2	4	Moderate	9386
DES	Department of Social and Health Services	2025	10	Everett	DCFC	1	Moderate	6758
DES	Department of Social and Health Services	2025	10	Bremerton	LV2	1	Moderate	2346
DES	Department of Ecology	2025	10	Spokane	DCFC	1	Moderate	6758
DES	Department of Ecology	2025	10	Lacey	DCFC	4	Moderate	27031
DES	Health Care Authority	2025	10	Olympia	LV2	8	Moderate	18771

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Funds Management	Project Owner	Start Year	Charger Useful Life	Location (County/City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)
DES	Liquor and Cannabis Board	2025	10	Tacoma	LV2	3	Moderate	7039
DES	Liquor and Cannabis Board	2025	10	Olympia	LV2	5	Moderate	11732
DES	State Auditor Office	2025	10	Tumwater	LV2	1	Moderate	2346
DES	Secretary of State	2025	10	Tumwater	LV2	3	Moderate	7039
DES	State School for the Blind	2025	10	Vancouver	LV2	3	Moderate	7039
DES	Utilities and Transportation Commission	2025	10	Lacey	LV2	3	Moderate	7039
DES	Washington State Patrol	2025	10	Shelton	LV2	2	Moderate	4693
DES	Washington State Patrol	2025	10	Shelton	DCFC	3	Moderate	20273

* Default inputs from the Washington Climate Mitigation Emissions Calculator v1.2 were used to calculate the annual energy dispensed based on the corresponding utilization level.

Table B-14. Project-Specific Energy Dispensed Estimates (kWh) for Electric Vehicle Charging Infrastructure from DNR

Project Owner	Start Year	Charger Useful Life (yr)	Location (City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)	Comments
DNR	2025	7	Enumclaw	LV2 non-networked	1	High	3389	Used EV energy estimates to avoid double-counting
DNR	2025	7	Enumclaw	LV2 non-networked	1	High	3389	Used EV energy estimates to avoid double-counting
DNR	2025	7	Forks	LV2 networked	2	High	6779	Used EV energy estimates to avoid double-counting
DNR	2025	7	Port Angeles	LV2 non-networked	1	High	3389	Used EV energy estimates to avoid double-counting
DNR	2025	7	Castle Rock	LV2 networked	3	High	10168	Used EV energy

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Project Owner	Start Year	Charger Useful Life (yr)	Location (City)	Charger Type	Number of Chargers	Estimated Utilization Level*	Annual Estimated Energy (kWh)	Comments
DNR	2025	7	Colville	LV2 non-networked	1	High	3389	estimates to avoid double-counting Used EV energy estimates to avoid double-counting

* Default inputs from the Washington Climate Mitigation Emissions Calculator v1.2 were used to calculate the annual energy dispensed based on the corresponding utilization level.

Table B-15. Project-Specific Energy Dispensed Estimates (kWh) for Electric Vehicles from DNR

Project Owner	Start Date	Vehicle Model	Number of Vehicles	Annual Miles per Vehicle*	Vehicle Efficiency (kWh/mile)	Annual Estimated Energy (kWh)
DNR	April-August 2024	2023 F-150 Lightning extended range	12	4000	0.48	23040
DNR	April-August 2024	2023 Tesla Model Y long range	4	4000	0.28	4480
DNR	April-August 2024	2024 Chevrolet Silverado EV	3	4000	0.53	6360

* Specially equipped vehicle use category