



ELECTRIC VEHICLES FOR WASHINGTON'S PUBLIC FLEETS & FACILITIES

*Addressing common questions to help public sector
facility and fleet managers make purchasing and
operating decisions*



Prepared by the State
Energy Office at the
Washington Department
of Commerce and the
Washington State
University Energy Program

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The world of electric vehicles, batteries and electric vehicle supply equipment (EVSE), also known as charging stations or EV infrastructure, is a rapidly evolving and sometimes confusing field. It has a bevy of unique acronyms. Media coverage seems to swing weekly between doom and gloom and giddiness regarding the future of electric vehicles. This document helps to answer common questions that you may have, and provides links to additional resources and tools to guide your decision-making around procurement and operation of electric vehicles and charging equipment.

ELECTRIC VEHICLES

Are agencies required to purchase electric vehicles?

- [RCW 43.19.648](#) requires state agencies (by June 1, 2015) and local governments (by June 1, 2018) to fuel publicly owned vehicles, vessels and construction equipment with electricity or biofuel, *to the extent practicable*. The definition of “practicable,” and guidelines for how agencies will be evaluated, can be found in [WAC 194-28](#). A separate rulemaking process for local governments is underway, and will be completed by June 1, 2015.
- In addition, [Executive Order 14-04](#) directs the Department of Enterprise Services (DES) to move forward with state procurement of electric vehicles, “where the lifecycle costs and benefits are comparable, including consideration of the benefits of emission reductions.”
- And as a member of the Pacific Coast Collaborative, Washington State has also agreed to the following goal in the [Pacific Coast Action Plan on Climate and Energy](#): “Take action to expand the use of zero-emission vehicles, aiming for 10% of new vehicle purchases by 2016.”

The bottom line, based upon the [total cost of ownership](#), is public fleet managers should think of battery electric vehicles as their default choice for sedan replacement, only moving on to plug-in hybrid or hybrid vehicles after they’ve determined that a battery electric vehicle is not practical for their typical daily use.

Will agencies need to replace vehicles before their normal replacement schedule?

No, agencies should plan to replace vehicles according to their normal replacement schedule.

Is there dedicated funding to help meet these requirements, or should agencies request special funding through the state budget process?

Agencies should plan to purchase or lease electric vehicles and charging equipment within existing resources with the exception of WSDOT, whose obligations are subject to the availability of funds appropriated for this specific purpose. The Alternative Fuels & Vehicles Technical Advisory Group (AFV-TAG) meets regularly and provides updates on policies, technologies and potential funding options for both electric vehicles and infrastructure.

How do the costs compare?

Based on a Total Cost of Ownership (TCO) [analysis](#) developed by Commerce, DES and the Washington State University Energy Program to guide procurement decisions under WAC 194-28, battery electric vehicles available through the state contract are consistently less expensive to operate, maintain, and repair. Nearly all battery electric vehicle options are within 5% of the total lifecycle cost of common hybrid vehicles, the threshold agencies and institutions of higher education are expected to consider prior to requesting DES [approval](#) of passenger vehicle purchases or leases.

What types of electric vehicles are available under the state contract?

The term Plug-in Electric Vehicle (PEV) refers to any vehicle with a plug. As of January 2014, the [state contract](#) offers two types of PEVs:

- Battery Electric Vehicles (BEVs or simply EVs) operate solely on electricity provided through grid charging and regenerative braking. These vehicles operate at freeway speeds, and include the Nissan Leaf and Ford Focus. BEVs are exempt from state sales tax through July 1, 2015.
- Plug-in Hybrid Electric Vehicles (PHEVs) use both gasoline and battery electricity, either in combination or in sequence. The first category includes the Ford Fusion, Ford C-Max, and Toyota Prius. The latter, also known as an Extended Range Electric Vehicle (EREV), includes the Chevy Volt. These vehicles are currently not exempt from state sales tax.

[Plug-In America](#) maintains a list of numerous PEVs, including their driving ranges. Although not all are available in Washington State, DES can help agencies develop unique solicitations for other types of PEVs to meet their needs.

Which government agencies own plug-in electric vehicles?

State and local governments are quickly adding plug-in vehicles to their fleets. Local governments have been particularly interested due to sustainability goals and more compact travel patterns. King County Metro established the nation's first electric vehicle [metropool](#), Olympia negotiated one of the first municipal leases in the country, and Sea-Tac Airport plans to fully electrify 650 ground support vehicles. Other leaders include Seattle, Tacoma and Snohomish County. WSDOT was the first agency to acquire PEVs, and is in the process of adding a dozen more. Other agencies with PEVs, or plans to acquire them in the near future, include Commerce, Ecology, Corrections, DES and the State Printer.

DES is also making several new "loaner" Leafs available through their motor pool for extended periods so state agencies can build their comfort level and determine if the vehicles meet agency needs before making a long-term commitment through vehicle replacement.

Will only hybrids meet our agency needs for long-distance travel?

Not necessarily. To optimize electric vehicle use, agencies may need to develop or modify fleet management strategies. For example, rather than acquiring a PHEV to accommodate occasional long-distance travel, it may be more economical to designate a certain percentage of the fleet as common hybrids or high-efficiency gas-powered vehicles, or use the state motor pool or rental vehicles. With a little planning, a BEV can also be used for long-distance travel provided there are adequate charging opportunities along the route and/or at the final destination.

Some units or divisions will be better served by PEVs used for routine driving patterns within the vehicle's range (e.g. inspectors, licensors, and so on), rather than just placing those vehicles on an as-needed basis within agency motor pools. Once employees become familiar with PEVs they often become the preferred choice for daily driving. Drivers with stop-and-go travel patterns, such as pick-up and delivery, enjoy the fact they are no longer exposed to the fumes and noise of an internal combustion engine.

What factors affect vehicle range?

As with gas-powered vehicles, many factors can affect range. In rough order of importance: speed, terrain, number and weight of occupants, and strong winds or heavy rain. Heating and air conditioning can also have a major impact, so if possible cool or heat the car while it's still connected to the charger. Rolling down windows can actually reduce range more than using the fan on a low setting because of increased drag. Wipers, headlights, radio and similar accessories do not have significant impacts. Conversely, use of cruise control and special dampening modes available in some PEVs can improve range. Until drivers become familiar with these variables, we recommend traveling no further than 75% of the estimated range before recharging.

Do hybrid vehicles meet federal alternative fuel requirements?

In March 2014, the US Department of Energy adopted a [final rule](#) for section 133 of the Energy Independence and Security Act regarding allocation of credits under the Alternative Fuel Transportation Program. In a nutshell, all BEVs and PHEVs available through the state contract are eligible for a full credit. Common hybrid vehicles are eligible for a one-half credit, and smaller off-road "neighborhood" EVs a one-quarter credit, when purchased during or after the 2014 federal fiscal year.

What guidance should we provide to new electric vehicle drivers?

At a minimum, new drivers should familiarize themselves with the full range of vehicle features, the charging process, and the location of chargers along their most commonly traveled routes. Some agencies may choose to provide internal training sessions and guidance, such as WSDOT's Chevy Volt orientation and King County's Nissan Leaf tip sheet (see Appendix). Seattle developed a video which drivers must view before they take the vehicle out for the first time.



ELECTRIC VEHICLE SUPPLY EQUIPMENT (Charging)

Electric Vehicle Supply Equipment (EVSE aka “EV Charger”) provides electricity to the charger, which is actually onboard a PEV. The car controls the charging process in order to protect its batteries. The speed of charging is a function of how many amps the EVSE can deliver, how fast the vehicle can store the energy, and the vehicle’s battery capacity.

There are several levels of charging:

- **Level 1 (120V AC):** A standard outlet protected by either a 15 or 20-amp circuit breaker with a ground fault interrupt (GFI). Installation can be as simple as an extension cord, or cost over one hundred dollars if a suitable exterior outlet isn’t readily available. PEVs automatically come with an electrical connection cord that matches the charging port on the vehicle. Level 1 charging is most suitable for PHEVs, or BEVs routinely parked overnight or for at least four or more hours each day.
- **Level 2 (240V AC):** Utilizes a dedicated circuit protected by a circuit breaker rated for at least 40 amps. All PEV models use the same standardized (SAE J1772) connector. The price of Level 2 chargers has been dropping rapidly, with some versions available for only a few hundred dollars. The larger cost is installation, which can range into the thousands of dollars depending upon the site. Level 2 chargers are most suitable where vehicles are routinely parked for 2-4 hours at a time.
- **DC Fast Charger (usually 480V DC):** Three different fast charger standards, each with a different connector, are used primarily by BEVs. PHEVs rarely offer fast charging since they have much smaller battery capacity. The most common standard, CHAdeMO, is used by Japanese manufacturers including Nissan and Toyota. The vast majority of fast chargers in Washington State are CHAdeMO. European and American manufacturers are promoting a new standard (SAE Combo). Tesla employs its own proprietary standard. Time will tell if one standard wins out, or they merge into a common format. Fast chargers are typically used for less than 30 minutes at a time—achieving an 80% charge in less than 20 minutes. Three-phase power is typically required, so locating these can be problematic with installation costs running into the tens of thousands of dollars.

Level 1 and 2 DC chargers which operate at higher amp rates are in development, further reducing charging times. Battery capacities are also expanding, which means fewer charging events in the future. And fast chargers offering both CHAdeMO and SAE Combo connectors are now being installed.

Multiple port chargers reduce installation costs by consolidating wiring and mounting locations, but longer charging times may result if multiple vehicles are charging simultaneously at ports without separate dedicated lines. This shouldn't be a problem for fleets charging primarily at night.

How long do vehicles currently available through the state contract take to charge?

	BEVs		PHEVs		
	Nissan Leaf	Ford Focus	Chevy Volt	Ford C-Max & Fusion	Toyota Prius
Battery Capacity (kWh)	24	23	16.5	7.6	4.4
Level 1 Slow Charging (hrs) 1.9 kW/hr	12 ² / ₃	12	8 ² / ₃	4	2 ¹ / ₃
Level 2 Medium Charging (hrs) 3.3 kW/hr PHEVs, 6.6 kW/hr BEVs	3 ² / ₃	3 ¹ / ₂	5	2 ¹ / ₃	1 ¹ / ₃
DC Fast Charging (hrs) generally 50 kW/hr	¹ / ₂	¹ / ₂	--	--	--

Remember, these times assume the vehicles are completely out of battery power when charged. Most drivers will charge before then, so the actual time needed to “top off” the batteries will likely be less.

Must agencies install electric vehicle supply equipment?

[RCW 43.19.648\(5\)](#) directs agencies to install electrical outlets for charging electric vehicles in each of the State’s fleet parking and maintenance facilities, to the extent practicable, by December 31, 2015. The key phrase is “capable of charging.” Efforts to implement this policy should take into account safety and ease of access, charging time, shared access and other considerations. Agencies with vehicles that routinely sit idle overnight may well be able to simply use 120V outlets to charge their PEVs. Unless a Level 2 charger is needed for specific purposes, such as workplace charging for employee and visitor vehicles or mid-day agency vehicle charging, you may want to hold off ordering and installing Level 2 chargers until you better understand your agency’s charging needs.

Are Level 2 chargers available under a state contract?

Yes, a variety of chargers are available through DES’ contract with [Granger](#). At the state’s request, a dual-port Level 2 charger was recently added which can simultaneously charge two vehicles on dedicated lines. Manufacturers available through the state contract include: Leviton, PEP, Schneider, General Electric, and Eaton. Less expensive options may be available outside of the state contract.

How do I decide among charging equipment options?

As with vehicles, chargers have numerous options, some of which may or may not be useful for your individual agency needs and circumstances. Besides the power level choice, charger features may include timers, access controls (RFID), data collection, multiple ports and charging levels, ability to collect fees, and in some cases, advertising. In most cases, Level 1 and 2 charging is sufficient to meet fleet needs. Unless you need to collect data regarding charging times and energy use, limit access through RFID cards, or eventually monetize your charging infrastructure, a basic “dumb” unit without network connectivity will usually suffice.

Which Olympia-area state agencies have electric vehicle supply equipment?

Electric vehicle supply equipment is rapidly being installed, with more coming online all the time. At the time of this report, the following state agencies in the Olympia-Lacey-Tumwater area provide Level 2 chargers: WSDOT, Corrections, Commerce, Ecology, State Parks, DES and numerous locations on the Capitol Campus. WSDOT also has a DC Fast Charger in its headquarters parking garage.

Agency charging equipment should be made available for recharging fleet vehicles, visitors on state business, and employee commuter vehicles. [RCW 43.01.250](#) “expressly authorizes the purchase of power at state expense to recharge privately and publicly owned plug-in electrical vehicles at state office locations where the vehicles are used for state business, are commute vehicles, or where the vehicles are at the state location for the purpose of conducting business with the state.”

How can I find out where other chargers are located?

A number of websites, and corresponding smartphone applications, display charging locations, pricing, and often availability. Free charging may be available through EV dealers, commercial establishments hoping to attract customers, or government offices as a public service. Increasingly, chargers are owned and maintained by various charging networks, much like branded gasoline stations. Pricing can vary by time of day, duration, energy consumption, or simply the event itself. Some networks even allow subscribers to reserve a charging station.

Common networks in our area are [Blink](#), [ChargePoint](#) and [AeroVironment](#). A fourth network, [SemaCharge](#), is just beginning to introduce chargers but at present they don't participate in the EZ-Card payment service provided through DES so you may wish to avoid them. To help sort out your options and plan your trip, we recommend using [PlugShare](#), a user-generated site to which drivers can add locations, offer private chargers for public use, and alert other drivers when equipment is non-operational. The driver comments regarding specific sites can be very helpful, especially when considering a trip with limited charging options.

The U.S. Department of Energy's [Alternative Fuels Data Center](#) also lists PEV charging locations by geography, ownership type, charge levels, and payment systems.

OPERATIONS

Must public agencies set fees for visitor and employee charging?

Nothing prohibits or requires state agencies to charge a use fee for visitors or employees. At the same time, [RCW 43.01.250](#) encourages electric vehicle use by expressly authorizing the purchase of power at state expense to allow charging by visitors and commuting employees. What is not clear is whether “commute vehicles” refers only to vehicles enrolled in commute trip reduction programs, commute vehicles not enrolled in an official program but serving more than one employee, or any electric vehicle used for commuting purposes by a state employee.

Further, this section is silent on the responsibilities of local governments to provide charging. Many local governments have decided that not charging a fee for employees or visitors is a “gifting” of public funds. Some allow free use for an introductory period while others allow charging at no additional expense over standard parking fees.

The decision of whether to charge fees for employee or visitor charging may also involve consideration of carbon emission reduction goals, union positions, and the cost to collect and manage fees. For employees, providing charging in dedicating parking spots for a flat fee with an automatic payroll deduction may be the simplest approach.

How might the various EV charging models impact our fleet?

It remains to be seen how charging infrastructure will be provided and monetized in the long run:

Model	Pros	Cons	Fleet Impact
No Cost	Easy to implement, especially when demand is fairly low	Employees may elect to only charge at work	Increases competition for charging during the day
Point-of-Sale Billing (flat fee or hourly)	Predictable; service provider can manage	More expensive hardware	Using system may make daily operations more complex
Memberships	Can be relatively simple; uses lower cost EVSE	Requires payment tracking and administration, often in advance; difficult for agencies	May be challenging to keep vehicles rotating on and off the chargers

Are PEVs included in state agency Commute Trip Reduction (CTR) programs?

Although the state CTR law does not specifically address electric vehicles, in June 2006 the State Ethics Board concluded the Ethics in Public Service Act would not be violated if an employee used state resources to plug in a personal vehicle used for commuting, so long as the employing agency included such usage in its policy consistent with state law regarding use of public funds for CTR ([RCW 43.01.230](#)) and the purposes of transportation demand management ([RCW 70.94.521](#)).

RESOURCES

Government Partnerships

- [WSDOT Plug-In Electric Vehicle Action Tool](#)
- [Electric Drive WA](#)
- [USDOE National Clean Fleets Partnership](#)
- [Western Washington Clean Cities EV Guidebook](#)
- [The EV Project](#)

Charging Infrastructure

- [PSRC EV Infrastructure Guide for Local Governments in Washington State](#)
- [California Electric Vehicle Supply Equipment Guidance Document](#)
- [Hawaii Guidebook for Commercial EV Charging Station Installations](#)

General Information

- [Seattle Electric Vehicle Association](#)
- [Clean Fleet Report](#)
- [Electric Vehicle News](#)
- [EV World](#)
- [Fleets & Fuels](#)
- [Go Electric Drive](#)
- [Green Car Congress](#)
- [Green Car Reports](#)
- [Plug In America](#)
- [Plug In Cars](#)

APPENDICES

- Commerce Nissan Leaf FAQs
- Commerce Charging Policy, Procedures and Registration Form
- DES Vehicle Purchase Approval Request Form
- Seattle Workplace EV Charging Guidelines
- WSDOT Electric Vehicle Charging Station Policy

Nissan Leaf: Frequently Asked Questions

Washington Department of Commerce, October 2014

Q: How do I use the new multi-network charge card?

The EZ-Charge card that comes with the car works with nearly all Level 2 and most DC Fast Charge stations in the state, except those on the SemaCharge network. Simply follow the instructions at the various stations. Nissan is providing 30 minutes of fast charging, and one hour of Level 2 charging, for free each day during the first two years of our three-year lease. If the EZ-Charge card doesn't work, nearly all stations provide a call-in number so you can pay with a credit card. The car also has a Voyager card to cover other costs, such as towing and repair.

Q: Why does the range indicator vary so much?

The range indicator is a rough estimate based on a sampling of recent speed and driving conditions. Much like old mechanical gas gauges, the indicator changes as you change speed and topography, such as driving up a long hill and coming back down the other side. Don't let this unnerve you, base your range on what the indicator says after you've been driving under average conditions for a few minutes.

Q: What is ECO mode and when should it be used?

ECO mode dampens acceleration and increases regenerative braking in order to increase range. While this yields the best results in town, it does reduce vehicle performance to a degree so you may be more comfortable using it at highway speeds. To engage, double shift into drive mode. Do the same to toggle back. An indicator on the dash displays whether you're in or out of ECO mode.

Q: Are there smart phone apps for the car?

Yes, there are multiple apps, with the PlugShare website and mobile app especially handy for locating charging opportunities. To better understand battery management, Leaf Energy may interest you.

Q: How can we tell when the car is charging?

Three blue lights on top of the dash, each representing one third of charge capacity, will be lit while charging. The lights turn off when charging is complete, and you can then unplug the car.

Q: Should we account for charging time when returning the vehicle?

This should only be necessary if you plan to return the vehicle with less than half a charge. In this case, add a couple hours to your projected return time to accommodate charging for the next user. If there is insufficient time before the next reserved use, you should plan to visit a DC Fast Charger before returning the vehicle. In reviewing the calendars for general vehicle use, cars reserved for a long trip (such as Seattle) are rarely used elsewhere on the same day.

Q: Will it hurt to leave the vehicle plugged in after the charge is complete?

No, charging automatically shuts off when complete. Leaving the car plugged in may give the impression it is still charging and unavailable for use, though, so unless it's near the end of the work day please plan to unplug the charger as part of your driver responsibilities.

Q: Do the batteries degrade if provided with less than a full charge?

No, the vehicle's lithium batteries don't experience the same "memory" problems as earlier battery technologies. While there will be some degradation in storage capacity over time, Nissan guarantees the batteries will not drop below 70% capacity for 10 years or 100,000 miles, whichever comes first.

Q: Can one drive off with the cord attached or to receive a shock from the charging coupler?

No, the car will not drive while attached. The charging coupler could be dropped in a bucket of water with no effect as the electricity will not be "switched" on until the car is properly connected.

Q: Is it acceptable to unplug someone else's EV if their car has completed charging?

In general, EV owners are very understanding about each other's charging needs. You should be able to determine whether a car has completed charging based on dash indicators such as those on the Leaf. One word of caution, if you unplug a Volt, do so gently and don't close the charge port cover or you risk setting off their car alarm.

Q: What is required for maintenance?

Very little, especially when compared to an internal combustion engine (no oil changes!). Routine service includes maintaining proper tire pressure and an annual check of fluid levels. Due to regenerative braking, the brakes will also need less servicing.

Q: Any tips on travel to and from Olympia, Seattle and Tacoma?

Unless you're driving under challenging conditions, a full charge should be more than adequate to travel between Olympia and Seattle, or back and forth from either to Tacoma.

- The best locations for a fast charge in Seattle are the parking garage at Whole Foods (2100 9th Ave) and South Lake Union Discovery Center (101 Westlake Ave N). Parking at Whole Foods is free if you get your parking receipt validated with a food or beverage purchase.
- If you're visiting Commerce in Seattle, the Westin Building garage (2010 5th Ave) chargers are to the right after you enter. The first four hours are free, which should be enough time to complete recharging. If you're going to be in Seattle for the whole day, plan to relocate the car during lunch.
- If you need a fast charge in Olympia, you can use the charger in WSDOT's parking garage (310 Maple Park Ave SE). The charger is located to the right immediately after you enter the garage. Otherwise, you'll need to visit the Shell station in Tumwater (6131 Capitol Blvd SE).
- If you're worried about range while traveling the I-5 corridor, the easiest place to get a fast charge is the Blink station at Tahoma Market next to Emerald Queen Casino in Fife (6006 Pacific Hwy E).



Department of Commerce

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TITLE:	CHARGING OF ELECTRIC VEHICLES	
NUMBER:	POL 03.06.01	
CONTACT INFORMATION:	ASD Operations Manager, (360) 725-2702	
AUTHORIZING SOURCES:	RCW 43.01.250, State purchase of power at state locations. RCW 43.19.648, Publicly owned vehicles...Fuel usage RCW 46.08, Requirements for EV Charging spaces and penalties for misuse.	
EFFECTIVE DATE:	June 24, 2014	
REVISED DATE:		
SUNSET REVIEW DATE:	November, 2015	
APPROVAL:	 Connie Robins, Assistant Director, ASD	<u>June 24, 2014</u> Date

SCOPE

This policy applies to Commerce employees, officers, visitors and volunteers, including board/commission members and employees that work at Commerce through an interagency agreement.

POLICY

- A. Electronic vehicle (EV) charging is available**
- B. Vehicles must be charging to use the designated electric vehicle parking spots**

Only electric vehicles may use the EV parking spots. Non-electric vehicles or electric vehicles not being charged will be towed at owners expense.

During normal business hours, electric vehicles must be moved from the spots once charging is complete or after four hours, whichever comes first.

Overnight charging of vehicles will be limited to agency vehicles.

C. Charging stations are available on a first-come first-serve basis

- **Priority is given to the following:**
 - Commerce or state motor pool Plug-in Electric Vehicles (PEVs) or Plug-in Hybrid Electric Vehicles (PHEVs)
 - Employees registered in the commute trip reduction (CTR) program using PEV or PHEV for CTR purposes
 - PEVs or PHEVs which must travel to the Commerce facility from 25 or more miles away or travel 25 or more miles during the course of the business day
- **All other electric vehicles may utilize stations as available. If high priority vehicles are unable to charge due to occupancy by one of these other vehicles, the owner may be asked to interrupt their charge and relocate to one of several nearby chargers.**

D. Charging will be free through December 31, 2015

Charging will be available at no cost to employees and business visitors during normal working hours unless chargers are installed or modified to allow advance reservation.

Prior to December 31, 2015, this policy will be re-evaluated to determine if there have been significant costs to the agency and if the free charging policy needs to be modified.

E. Employees must charge agency vehicles after use

Employees must maintain an adequate charge in agency vehicles for the next user. Agency vehicles are subject to the same parking rules outlined in this policy.

F. Violations are to be reported to the receptionist or agency transportation officer.

DEFINITIONS

Commerce or the Department means the Washington State Department of Commerce.

Electric Vehicles means vehicles offering external electrical charging capability, including plug-in electric vehicles (PEVs) and plug-in hybrid electric vehicles (PHEVs).

RESOURCES

CTR/Parking Committee – provides information, feedback, and policy recommendations.

Procedure 03.06.01 – Charging of Electric Vehicles

Other resources:

University of Tennessee:

[Univ. of Tennessee EV Parking Policies and Regulations](#)

University of California:

[Univ. of California Electric Vehicle Charging Stations](#)

WSDOT:

[WSDOT EV Policies, Fleet, and Infrastructure](#)



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PROCEDURE TO REGISTER ELECTRONIC VEHICLES

<u>Action by:</u>	<u>Action:</u>
Agency Transportation Officer (ATO)	1. Maintain master list of Commerce employee's electric vehicles (EVs) including license plate

	numbers, driver's name, and contact information
Commerce Employees	2. Self-register electric vehicles with ATO
Commerce Host Visitors with EVs	3. Notify guest of charging policy
Receptionist	4. Ensure guests complete sign-in sheet for EV registration
EV Drivers	5. Self-report non-availability or misuse to the receptionist or ATO
Commerce Host	6. Notify EV driver when vehicle needs to be moved

REFERENCES

[Policy 03.06.01 - Charging of Employee Electric Vehicles](#)

University of Tennessee:

[Univ. of Tennessee EV Parking Policies and Regulations](#)

University of California:

[Univ. of California Electric Vehicle Charging Stations](#)

WSDOT:

[WSDOT EV Policies, Fleet, and Infrastructure](#)



Department of Commerce
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Electric Vehicle - Registration Form

Submit the completed form to: CTR Coordinator, ASD-Office Service, MS: 42525

Name: _____

Division: _____

Supervisor's Name: _____

Unit: _____

Work Phone Number: _____ **Work E-mail:** _____

Agency Cell Phone: _____ **Personal Cell Phone:** _____

Worksite Address: _____ **Agency Mail Stop:** _____

Miles Traveled from Home to Work: _____

Electric Vehicle (model, color, license number) _____

I (the employee) certify that the above information is accurate and complete. This form does not take the place of CTR Registration and if the electric vehicle will be used for carpooling, I will need to complete and submit a separate CTR registration form in order to meet all CTR eligibility requirements. I certify that I have read and will comply with the Dept. of Commerce CTR Policy.

Employee's Signature: _____ **Date:** _____

New and Used Passenger Vehicle Purchase Approval Request

About this form

State agencies, colleges and universities use this form to request approval from the director of the Department of Enterprise Services to purchase new and/or used passenger motor vehicles (sedan, station wagon, SUV, van/bus or light-duty truck). In addition, DES Fleet Operations utilizes this form for any request for placement of non passenger motor vehicles (cargo van, $\frac{3}{4}$ ton or higher trucks). Multiple vehicle requests can be made using this form. After selecting a vehicle type, please indicate the quantity requested.

About requesting a new passenger vehicle

Agencies are required to have the approval of the director of the Department of Enterprise Services in order to purchase passenger vehicles. In addition, a vehicle being replaced with a new purchase must meet minimum retirement mileage:

- 100,000 miles for gas-powered sedans and station wagons;
- 115,000 miles for hybrid sedans and minivans;
- 115,000 miles for small to mid-size SUVs and trucks,
- 130,000 miles for full-size trucks, SUVs and vans.

Vehicle purchases should be included in the agency's biennial purchasing plan.

Part A – Agency Request			
Requesting agency to complete this part			
Requested by:	Agency name	Division or unit	Date of request
			Date vehicle needed
Phone number		Email	
Vehicle description			
The information in this section is used to match your request to the most appropriate vehicle to meet your needs.			
Describe, in detail, the number of vehicles being requested and the primary function of each vehicle requested. Please note if the vehicle is used to transport inmates, patients or clients and, if so, how often:			
RCW 43.19.648 requires all state agencies to the extent practicable purchase vehicles that use electricity or biofuel. WAC 194-28-070 defines what is practicable. Could this vehicle be an electric or biofuel vehicle? <input type="checkbox"/> Yes <input type="checkbox"/> No If no, please explain in detail.			
What is the frequency of use? (day/week)	How many miles is this vehicle estimated to travel each month? each day?	Will this vehicle travel "off road"? If so, what percentage of time?	What counties will this vehicle service?
What type of cargo will this vehicle carry? What is the approximate weight?		How many passengers will this vehicle typically carry? How often will it carry multiple passengers? (Days/month)	
Is ground clearance an issue? If yes, please explain in detail.			
Purchase justification			
The information in this section is used to show that only a new vehicle will meet your agency's needs.			

Is this vehicle exempted by RCW 43.19.600 ? If not, explain why this vehicle will not be managed by Fleet Operations.	
Is this purchase included in the agency's biennial purchasing plan? If no, please explain in detail.	
If this is a replacement purchase; what is the year, make, model, plate # and odometer reading of the vehicle being replaced?	
Explain if an underutilized vehicle or vehicle available through State Surplus can fulfill this request.	
Explain the impact if the request is not approved.	
Preferred type of passenger vehicle (as defined in RCW 43.19.560)	
New Vehicle/s <input type="checkbox"/> Quantity <input type="checkbox"/> Biofuel (if available)	Used Vehicle/s <input type="checkbox"/> Quantity <input type="checkbox"/> Biofuel (if available)
Sedan/Station Wagon: <input type="checkbox"/> Standard gasoline - Quantity <input type="checkbox"/> Gas/Electric hybrid - Quantity <input type="checkbox"/> Premium Gas/Electric hybrid - Quantity <input type="checkbox"/> Plug-In hybrid Electric Sedan- Quantity <input type="checkbox"/> Full Electric Sedan- Quantity	
SUV: Compact Size (i.e. Ford Escape) <input type="checkbox"/> Compact 4x2 - Quantity <input type="checkbox"/> Compact 4x4 - Quantity Intermediate Size (i.e. Ford Explorer) <input type="checkbox"/> Intermediate 4x2 - Quantity <input type="checkbox"/> Intermediate 4x4 - Quantity Large Size (i.e. Chevy Tahoe) <input type="checkbox"/> Large 4x2 - Quantity <input type="checkbox"/> Large 4x4 - Quantity Full Size (i.e. Chevy Suburban) <input type="checkbox"/> Carryall 4x2 - Quantity <input type="checkbox"/> Carryall 4x4 - Quantity	
Van: <input type="checkbox"/> 7-passenger mini - Quantity <input type="checkbox"/> 8-passenger full-size - Quantity <input type="checkbox"/> Cargo – Quantity	
Pickup: <input type="checkbox"/> Compact – Quantity <input type="checkbox"/> 4x2 - Quantity <input type="checkbox"/> 4x4 - Quantity <input type="checkbox"/> ½ Ton – Quantity <input type="checkbox"/> 4x2 - Quantity <input type="checkbox"/> 4x4 - Quantity <input type="checkbox"/> ¾ Ton – Quantity <input type="checkbox"/> 4x2 - Quantity <input type="checkbox"/> 4x4 - Quantity <input type="checkbox"/> 1 Ton + – Quantity	
Vehicle options/configuration (i.e. wagon, crew cab, long bed, etc.) if needed:	
Alternative vehicle option:	
If requesting a vehicle that does not meet the requirements of Executive order 05-01 , please explain why.	
Comments	
Purchasing Agency Director to complete this section	
Agency Director's Signature (required):	Date:

Submit signed form by email to:
Vehicleapproval@des.wa.gov

Part B – DES Approval DES Director to complete this section	
Approved, request meets purchase criteria <input type="checkbox"/>	Denied, request does not meet purchase criteria <input type="checkbox"/>
DES Director's Signature:	Date:
Comments/Conditions:	



City of Seattle

Edward B. Murray, Mayor

Finance and Administrative Services

Fred Podesta, Director

Date: April 2, 2014

To: Assistant Chief A.D. Vickery, Fire
Capitan Erick Hotchkiss, Fire
Valarie Anderson, Police
Levi Clark, Seattle Public Utilities
John Holmes, Seattle Public Utilities
Rick Haggard, City Light
William Foster, City Attorney's Office
Michael South, Labor Relations
Sandra Pinto de Bader, Office of Sustainability and Environment
Therese Ortega, Seattle Center,
Chris Wiley, Finance and Administrative Services
Mike Ashbrook, Finance and Administrative Services
Sarah Calvillo Hoffman, Finance and Administrative Services
Jason Phillips, Finance and Administrative Services
Tanya Reeves, Finance and Administrative Services

From: Chris Potter, Director 
Finance and Administrative Services Facility Operations Division

Subject: Electric Vehicle Charging Station Guidelines

I am writing to thank each of you for your work in developing guidelines for installing electric vehicle charging stations in City facilities and how these charging stations could be made available to employees for personal vehicles. Electric vehicles are an exciting transportation technology with great promise for improving sustainability and reducing greenhouse gas emissions. Your help in developing the guidelines means that the infrastructure, legal and management issues surrounding charging stations have been considered from a wide variety of perspectives. The guidelines now represent a firm foundation on which our departments can move forward with implementing electric vehicle charging.

Finance and Administrative Services had been approached by many departments with ideas on implementing charging stations. We formed a committee to consider vehicle charging in order to reach a common understanding of best practices to handle requests for both City operational purposes and to accommodate employee's personal vehicles. As we all know, such requests are becoming more frequent and impact many areas of City policy and practice, including sustainability, commute trip reduction, employee working conditions, labor relations and employment benefits, ethics "gift of public funds" and City infrastructure capacity.

I have attached the final guidelines developed by the committee. These guidelines are organized in two sections:

- The building infrastructure section identifies best practices in connecting charging stations to electrical infrastructure, prioritizing use of electrical capacity, and metering electricity used to charge vehicles.

- The employee charging section reviews simple rules for charging employee's personal vehicles; suggests a simple pay system, such as an automatic payroll deduction, be established to recover costs; and, recommends employees sign a formal charging agreement.

It is our hope these guidelines help assist you and personnel throughout the City in developing a charging strategy that works for your department and employees. If you have questions or concerns, please contact Mike Ashbrook at 615-0985.

Cc: Jorge Carrasco, City Light Superintendent
Fred Podesta, Finance and Administrative Services Director
Ray Hoffman, Seattle Public Utilities Director
Susan Coskey, Personnel Director
Jill Simmons, Office of Sustainability and Environment Director
Gregory Dean, Fire Chief
Harry Bailey, Interim Chief of Police
Robert Nellams, Seattle Center Director
Christopher Williams, Acting Parks Superintendent
Goran Sparman, Interim Director Seattle Department of Transportation
Marcellus Turner, Seattle City Librarian

Guidelines for Charging Electric Vehicles on City Premises Including Building Infrastructure and Employee Personal Electric Vehicles

Background

Electric vehicles are an exciting approach to increasing energy efficiency and decreasing the carbon footprint of transportation. How use of such vehicles will change over time is unknown. City departments have received requests from employees to charge their personal vehicles while at work. Such requests impact many areas of City policy and practice, including:

- Sustainability
- Commute Trip Reduction
- Employee working conditions
- Labor Relations and Employment Benefits
- Ethics (“gifts of public funds”)
- City infrastructure capacity

The purpose of this document is to provide guidelines to departments as they consider requests from their employees.

Building Infrastructure Guidelines

1. Vehicle chargers should aim to handle more than one car, if parking space allows, setup for the fastest charge possible, and be programmable with charge rate, hours used, power usage, timers, and have remote viewing access. At a minimum, chargers either need to be a level two unit with the ability to show power use or be installed on a separate metered line. If a department’s charging needs do not require fast charging then lower speed charging options can be investigated.
2. If a vehicle charger has a public use option, then under S.M.C 3.39.020, the City’s policy on per-session fees and rate charges must be followed.
3. In order to provide consistent facility energy use data, the dedicated charger or 110 wall outlet charging setup should be on a dedicated electricity meter separate from the building electricity capable of shutting down while the building is on backup generator power. At a minimum, a metered subpanel or metered charging station is required, and charging stations have lowest priority if additional panel capacity is required for building needs. The City’s highest priority is to provide for building energy needs. Provision for employee personal vehicle charging is at City discretion.
4. Adding new charging infrastructure to an existing City facility will require the department building owner’s approval of the scope and will be paid for by the requesting department.
5. Any new wire pulls for electric charging should always be at minimum of 66A capable, or higher, to ensure the use of Level-two charging stations with a minimum capacity to charge two vehicles at the same time. The thought when considering the installation of charging infrastructure should be to plan ahead for future demand. This includes increases in amp load and data transmission capability (such as Cat5 needs to be added if not Wi-Fi capable).

6. Include the department's Resource Conservation Advisor and Fleet Coordinator/Manager for input on general City standards and resource management goals. Their input will include how these guidelines and standards should fit with the current City goals and objectives of resource conservation and future fleet plans with regard to electric vehicles.

Employee Electric Vehicle Charging Guidelines

1. Departments' needs and facilities differ in their ability to support employee charging. Decisions on whether to allow charging of personal vehicles and how the charging infrastructure is setup will be made on a departmental and facility-by-facility basis. Employee electric vehicle charging is at the sole discretion of the City, and each department should develop their own guidelines based on this outline and have them reviewed by their Human Resources Division and City Labor Relations.
2. Decisions about allowing employee charging are a matter of employee relations and will be made by each employing department for each of their single-tenant facilities. In multi-tenant facilities the managing department will coordinate a common facility charging strategy which shall be uniform for employees of all departments at each multi-tenant facility.
3. Allowing employee charging should be permitted only for the current convenience of the City and the employee and requires a "charging agreement." Similar to an alternative work schedule agreement, a charging agreement should specify minimum conditions such as employee charging can be terminated and terms such as rates, can be changed at any time with notice, and that the employee accepts all risk of charging their vehicle at work. Employee's should also be discouraged from using City premises as their primary charging strategy (i.e: only charging their car at their place of work), because this use is not a City convenience. See #6 below, and the attached Charging Agreement template for additional items.
4. Electricity and electrical infrastructure are expensive. Costs for infrastructure will vary from facility to facility depending on infrastructure and the charging strategy used. When setting rates, the department should take into account the cost of electricity, cost of infrastructure, and infrastructure depreciation when setting charge rates. Departments should consider this when communicating charge rates to employees, and should consult their department Human Resources staff and City Labor Relations before deviating from their guideline.
5. The cost to charge a personal vehicle is set by the City and can change from time to time at the City's sole discretion. A simple cost recovery system should be used such as: installation of pay for use chargers (as in SMT/SeaPark parking garages), or a base monthly fee, example \$36 or 16 days at \$2.25 per day, collected through a payroll deduction. At a minimum the cost of electricity needs to be captured at a dedicated charger or 110 wall outlet.
6. Since charging stations are a limited resource, simple charging rules should be used for employee vehicle charging that work for each department such as:
 - A system to allocate charging times like first come first served or a reservation system similar to outlook conference room scheduling;
 - Charging only parking adjacent to charging stations;
 - Requiring employees to move their vehicles when charging is complete;
 - Any cost for parking is in addition to EV charging fees;

- Requiring, employees to be present at the worksite with the ability to move their vehicles when charging is complete;
- Requiring employees to charge only in department designated sites unless using a public charging station;
- City electric vehicles have priority.

When an employee's work schedule prevents them from being able to move their car after charging, the department should look at using 120v outlets and employee charging "bricks" as an option.

7. City service delivery and City fleet charging needs always have precedence. In other words, if there is electrical systems capacity constraints, employee or secondary charging uses may be dropped to make room for service delivery or City fleet charging needs.



**XX DEPARTMENT
VEHICLE CHARGING AGREEMENT**

This document constitutes an agreement between the department and the employee allowing the employee to use department resources to charge their personal electric vehicle under the following terms and conditions:

1. Allowing employees to use department resources to charge their personal vehicle is intended for the current convenience of the department and the employee and is not intended to serve as the employee's primary charging strategy or resource.
2. Employees are solely responsible for all fees, charges, fines or late fees, and accept responsibility for any and all risk associated with using department resources to charge their personal vehicle.
3. Employees may only charge their personal vehicle at a charging station or outlet provided for employee use, and are not permitted to charge their personal vehicle by other methods such as using an extension cord from a random outlet.
4. City vehicles have priority at charging stations intended primarily for City vehicle use, and the employee may be required to move their vehicle for such purpose.
5. Employee use of charging stations intended primarily for City vehicles may be limited to normal business hours of 8:00 a.m. – 5:00 p.m. Monday through Friday.
6. Charging stations provided for employee use are available on a first-come first served basis only. This agreement does not constitute a guarantee that a charging station will be available or require that one be made available for the employee's use.
7. Employees may be required to move their vehicle if they will be absent from the area of the charging station for an extended period, or if their vehicle is fully charged.
8. Where required, the employee must pay any parking fees in addition to any charging fees.
9. Employees may pay per use charging fees via the method accepted at the location. Where a charging fee is established based on available calendar days of use rather than per use, such fee must be paid by payroll deduction, and this agreement shall serve as authorization of such deduction.
10. The department has the discretion to set charging rates, and/or to terminate this agreement at any time.

By my signature below, I affirm that I understand and agree with the above. I further understand and agree that continuation of this agreement is subject to the above requirements and any that may be added by attachment to, or modification of the agreement. Where required, my signature below shall authorize payment of any fees by payroll deduction.

Employee Name (please print)

Signature

Date

Supervisor's Approval

Date

Division Director's Approval

Date

Forward a copy of approved or terminated agreements to the department's Human Resources Office.

February 28, 2014



Signature on file

October 1, 2014

Linea Laird, Chief Engineer
Assistant Secretary
Engineering and Regional Operations

Date

Electric Vehicle Charging Station Policy

I. Introduction

A. Purpose

This Policy Statement informs employees regarding the use of electric vehicle charging stations, or electric vehicle supply equipment (EVSE), at Washington State Department of Transportation (WSDOT) facilities, and outlines installation criteria and authority. This Policy Statement does not cover installations at public parking locations such as Safety Rest Areas, Park and Rides, or Terminal parking.

B. Background

In 2009, the Washington State Legislature recognized electric vehicles and electric vehicle infrastructure as an economic and environmental priority by enacting several laws to encourage the transition to electric vehicle use and to expedite the establishment of electric vehicle infrastructure.

The Revised Code of Washington (RCW) [43.19.648](#) requires state agencies to install equipment capable of charging electric vehicles at state agency parking and maintenance facilities, to the extent practicable as funding conditions allow. [RCW 43.01.250](#) allows, but does not require, state agencies to purchase power at state expense to charge privately and publicly owned electric vehicles at state office locations.

WSDOT's passenger sedan replacement policy is to replace existing sedans with either hybrid or electric vehicles. The addition of electric vehicles to the agency's fleet requires specific infrastructure, not unlike fuel stations, to be strategically and appropriately installed to accommodate the specialized needs of these vehicles.

Currently, EVSE are either installed or planned at the HQ Transportation Building, the HQ Edna Louise Goodrich Building, Olympic Region HQ (Tumwater), Northwest Region HQ (Dayton), and the Southwest Region HQ. Future installations may be considered in the Olympia area, Seattle area, and Spokane area.

II. Policy Statement

It is the policy of the department to install EVSE infrastructure to support agency vehicles. While employees and visitors may use EVSE installed at agency facilities, WSDOT is not installing EVSE solely for employee and visitor use unless funding specifically identified for such efforts is allocated to the agency.

III. Information to Carry Out This Policy Statement

The following responsibilities and rules are established.

A. EVSE Installation

The Fleet Administration (TEF) Office and Capital Facilities Office will identify locations for EVSE installations. Both offices will focus on agency sites where fleet electric vehicles will be placed, and where it is anticipated that agency electric vehicles are likely to travel for business.

B. EVSE Access

Agency vehicles will have priority access to EVSE installed at WSDOT facilities. Employee owned vehicles may use EVSE when not in use by agency vehicles. Visitor vehicles may use EVSE when not in use by agency vehicles, and when they are located in accessible, non-secured locations. For non-agency vehicles, the coordination and sharing of charging stations will be the responsibility of user groups located at the facility.

C. Other Rules

Additional policies and guidelines may be developed to preserve primary access by agency vehicles and to accommodate non-agency vehicle use.

IV. Contact for More Information

For questions or concerns about this Policy Statement, contact the Fleet Administration Office at 360-705-7881.

V. References

- [RCW 43.01.250](#) *Electric vehicles – State purchase of power at state office locations – Report.*
- [RCW 43.19.648](#) *Publicly owned vehicles, vessels, and construction equipment – Fuel usage – Advisory committee – Tires.*
- [RCW 46.08.185](#) *Electric vehicle charging stations – Signage – Penalty.*
- Secretary's Executive Order [E 1082](#) *Business Practices for Moving Washington*
- Secretary's Executive Order [E 1086](#) *Commute Trip Reduction Program*
- WSDOT [Sustainable Transportation](#) web page
- [West Coast Green Highway](#) website
- *Facilities Manual M 3108*

VI. Review and Update Requirements

When changes are necessary to update this document, inform the Assistant Secretary of Engineering and Regional Operations. The Assistant Secretary periodically reviews this document and may approve updates or other changes.

Americans with Disabilities Act (ADA) Information

This material can be made available in an alternate format by emailing the WSDOT Diversity/ADA Compliance Team at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4ADA (4232). Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.