

Maximizing Washington's Investments in Electric Transportation



A Summary of Accomplishments and Recommendations

The Washington Plug-In Electric Vehicle Task Force

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Background

The Washington Plug-In Electric Vehicle Task Force, comprised of members from state and local governments, utilities, vehicle OEMs, private sector companies, and consumer advocates, has been meeting for two years to accomplish groundbreaking work in the deployment of plug-in electric vehicles (PEVs). Working through the Western Washington Clean Cities Coalition, the PEV Task Force completed a PEV Readiness Plan that identifies actions to overcome barriers to maximum PEV deployment. This memo contains important background material about the work, conclusions, and recommendations of the task force. In brief, we urge Governor-elect Inslee and the new Washington Legislature to build on the important investments made in recent years in the electrification of transportation.

Ready, Set, Go

The State of Washington has a strong history of technological innovation. Our state has been the home for transformative industries, enterprises, and high-tech discoveries. Our communities are full of consumers eager to adopt new technologies and conscious about the footprint of economic and environmental choices. To support economic growth, we have built an extraordinarily clean and cost-competitive electricity generation system of hydropower and other forms of clean and renewable energy. Combined with high per capita adoption of hybrid-electric vehicles and an ideal (moderate) climate for batteries, this set of conditions positions Washington at a competitive advantage to grab huge economic and environmental benefits from transportation electrification. In fact, in 2010 Seattle

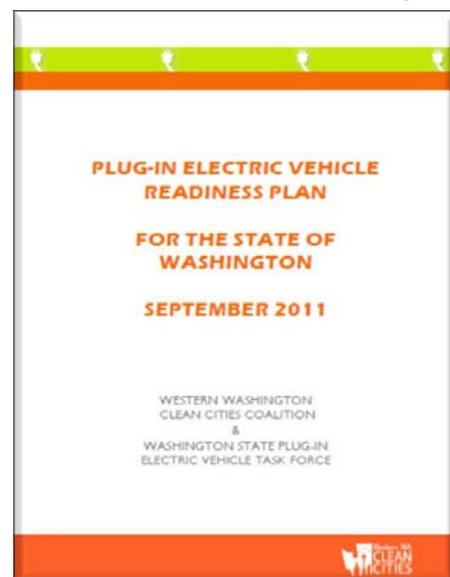
was ranked by one manufacturer as ninth in the nation for being ready and likely to benefit from the transition to electric vehicles.

For many years now, our state and local governments have stepped up to become “EV-ready.”

- As early as 2006, the Port of Chelan County led a process to establish the Plug-In Center with the objective of demonstrating and deploying PEVs in North-Central Washington.
- Since 2007, King County has undertaken a variety of projects, including the innovative PEV vanpool cars, to foster adoption of PEVs.
- In 2009, the City of Seattle created an interdepartmental team to prepare for the arrival of PEVs.
- That same year, the Legislature passed **HB 1481, An Act Relating to Electric Vehicles**, which provides a number of PEV incentives as well as directives to State agencies and local governments. As a result of HB 1481, the Department of Commerce and the Puget Sound Regional Council led a multi-stakeholder process to develop the first-of-its-kind, model development regulations and guidance for the installation of PEV support infrastructure.
- Since 2010, WSDOT has been a leader in the creation of the West Coast Electric Highway, with charging facilities along I-5 now reaching from California to Canada, and eastward via SR2 to Wenatchee, returning along I-90 with DC fast chargers in Cle Elum and Snoqualmie Pass.
- In 2010, the Western Washington Clean Cities Coalition, in cooperation with the Port of Seattle, the WSU Energy Program, Seattle, Bellevue, and other cities, won a \$15 million grant from the U.S. Department of Energy (DOE) to invest in alternative fuel vehicles, public PEV charging infrastructure, and education and outreach programs.
- Also in 2010, the EV Project, sponsored by DOE, chose the Puget Sound region as one of its few target markets for the widespread development of residential and public PEV charging infrastructure.

The total investment from these various efforts has been in the multi millions of dollars. According to Western Washington Clean Cities, “Electric vehicle charging infrastructure in Western Washington is now very well developed, and is second only to the San Francisco area in absolute numbers (nearly 1000 public access chargepoints in the state).”

Washington consumers responded very positively by quickly ordering a large share of the electric vehicles available to them. A November 2012 analysis by Edmunds.com found that car buyers in California, Florida, and Washington state lead the way as top consumers of hybrid and electric vehicles in the United States.” Washington grabbed a 5.7% share of all the EVs sold in the US (compared to 32% in California and 6.6% in Florida).



The PEV Task Force

In 2011 the departments of Commerce and Transportation convened a task force to begin the desired transition to a more electrified transportation system. The resulting Plug-In Electric Vehicle (PEV) Task Force helped to identify barriers, EV driver needs, and opportunities. The task force also provided an opportunity to share challenges, information and ideas among a broad-based group, and to coordinate electric-vehicle-related activities. The task force includes local, state, and federal government staff, EV user groups, utilities, private EV related companies (cars, charging infrastructure, engineering), fleet managers, and related organizations such as Western Washington Clean Cities. Needs and barriers are detailed in the *Plug-In Electric Vehicle Readiness Plan for Washington State*.

Initial group discussions of the task force identified some key messages:

- Creating this group sends the right signal to in-state and out-of-state stakeholders.
- Creating a road map (readiness plan) to guide the state's transition should be a key component of the group's work.
- Be smart about the integration of electric vehicles and charging infrastructure into buildings.
- We are already aware of some of the key issues (e.g. resale of electricity, gifting of funds, load factors, smart metering). In these areas we need to start looking at the detail level needed for permanent solutions.
- The members should try to bring to the table input from other stakeholders who are not directly represented. This group has great potential to promote economic development around PEVs. With concerted effort at various levels, the group could help get into the Tier 1 of states and encourage PEV industry sectors to settle in Washington.

ORIGINAL PEV TASK FORCE MEMBERS

State agencies/commissions

- Washington State Department of Commerce
- Washington State Department of Transportation
- Washington State Department of General Administration
- Washington State Department of Labor and Industries
- Washington State Department of Ecology
- Washington State Building Code Council
- Utilities and Transportation Commission
- Washington State Transportation Commission

Regional agencies

- Puget Sound Regional Council
- Puget Sound Clean Cities Coalition
- Puget Sound Clean Air Agency

Counties/Ports

- King County
- Snohomish County
- Port of Chelan County

Cities

- City of Seattle (including City Light)
- City of Tacoma (including City Light)
- City of Bellevue

Elected officials

- 1ST District Congressional Office
- Senator Cantwell's Office

Electric utilities

- Puget Sound Energy
- Avista

Research Institutions

- Pacific Northwest National Laboratory

Automobile manufacturers

- Nissan North America
- Ford Motor Company
- BMW

Non-profit organizations

- New Energy Solutions
- Climate Solutions
- Seattle Electric Vehicle Association

During its tenure, the task force completed several PEV readiness milestones:

- The task force included many members of the multi-stakeholder process that developed a model ordinance and guidance for the zoning, siting and installation of PEV charging stations under HB1481. Task force members contributed to the successful implementation of the HB1481 as well as the promulgation of our work and the guide *Electric Vehicle Infrastructure: A Guide for Local Governments in Washington State* to other parts of the country.
- In 2011, the task force under the leadership of Western Washington Clean Cities developed a PEV Readiness Plan entitled *Plug-in Electric Vehicle Readiness Plan for the State of Washington*.
- Task force members also contributed to the 2012 Washington State Energy Strategy, the first comprehensive analysis and update about our energy strategy since 1993. The strategy focuses on the intersection of transportation and energy and addresses solutions for economic growth, jobs, and climate change.

After two years of work the task force has arrived at some key conclusions:

- Washington State is seen as a model for successful EV deployment; we're at the forefront and we want to continue building momentum.
- Members and stakeholders are ready to evolve the Task Force. This is a good time to create entities that solidify our progress and institutionalize support for PEV market development.
- There is a need to increase participation of manufacturers and companies involved in all stages of PEV deployment—from research and design through manufacturing (including components of both vehicles and chargers to data tracking and management. Professional associations may have an interest in shaping specific issues related to PEVs such as incorporating charging units into multi-family housing or charging stations as a benefit for building leases.
- PEV deployment will be a long-term effort, and opportunities continue to emerge. For example, manufacturers plan to bring several new PEV models to market in the next 3 to 5 years. Similarly, higher petroleum prices long term and lower battery prices will continue to drive PEV demand in the future.

The task force pointed to some key audiences for future organizational attention:

- Public policy makers,
- Potential PEV consumers, and
- Fleet managers

The task force identified the following as key areas of activity for the next few years:

- Drive public policy,
- Identify and reduce barriers,
- Coordinate PEV activities,
- Provide consumer education, and
- Create incentives/opportunities.

The highest priorities for staff and financial support from the State of Washington include the following:

- Implement Washington's Readiness Plan; continue to convene PEV stakeholders to keep Washington in the strongest position to attract federal and private resources for PEV deployment.

- Support creation of a more formal PEV association with a strong voice from stakeholders outside of government; assist in the establishment of a sustaining funding model for such an association.
- With Commerce as lead, continue to tie together PEV-related activities within various agencies in state government, such as WSDOT, DES, Licensing and the WUTC.
- With WSDOT as lead, continue to build, maintain and expand the electric highway network of DC Fast Chargers to serve all major destinations across the State.
- DES should continue providing leadership with technical assistance and support to electrify the State motor pool and agency fleets.
- With Revenue as lead, continue the tax exemption incentive for purchasing **new** electric vehicles and extend it to include **any** plug-in vehicle.
- Continue PEV coordination with Oregon, California, and British Columbia, through the Pacific Coast Collaborative.
- Continue to monitor and support widespread adoption of PEV infrastructure through state building code activities.
- In consultation with private industry, vehicle and environmental advocates, local governments and state agencies, develop policies to maximize availability of low-carbon, alternative fuel vehicles for Washington consumers.
- Study and consider funding options and incentives found in other states to expedite public and private fleet adoption of electric vehicles.
- Develop economic and job analyses and projections for electrification of our transportation system; identify the most promising Washington businesses to participate in and benefit from this transition.

Several organizations were viewed as models for future organization developments in Washington, , as well as possible partners. These organizations included:

- California Plug-in Electric Vehicle Collaborative, www.evcollaborative.org
- Drive Oregon, <http://driveoregon.org>
- Plug In America, www.pluginamerica.org
- Washington Clean Tech Alliance, <http://wacleantech.org>
- Western Washington Clean Cities, www.wwcleancities.org
- Transportation Electrification Executive Council, <http://orsolutions.org/osproject/transportation-electrification-executive-council>
- CalSTART, <http://www.calstart.org>

In the following pages we provide additional details about the benefits of PEVs and the market for current vehicles. We also provide additional information about the policy landscape and possible incentives to support transportation electrification.

Why Plug-In Electric Vehicles?

Major car manufacturers are commercializing many types of plug-in electric vehicles (PEVs) with plans to increase production volumes over the coming years. New models of PEVs combine clean, innovative, battery-powered drivetrains with modern car designs. PEVs look and drive like other cars, and are quieter and smarter. PEVs provide important societal benefits that support many government policies.

Increased energy security: PEVs introduce a new alternative fuel to consumers. We can move from 100% petroleum imports to fuel that is produced in Washington, supports local jobs, and continues to become cleaner as renewable power sources are added to the grid. On a per-mile basis, electricity is less than one-quarter the cost of gasoline.

Improvements to public health: PEVs reduce ozone and particulate matter air pollution for every kWh of electricity they use. These impacts are often hidden, but research by the Lung Association and others clearly documents the benefits, which are measured in terms of:

- Premature mortality (including respiratory and cardiovascular mortality)
- Respiratory illness/infection, bronchitis (acute and chronic), lung damage, and heart attacks
- Respiratory and cardiovascular ER visits and hospitalizations
- Lost days at work and school
- Asthma exacerbation
- Respiratory symptoms (acute, lower, upper)

Reduced greenhouse gas pollution: Every gallon of gasoline burned emits 20 lbs of GHG pollution compared to 0.38 lbs for a kWh of Washington electricity. Even compared to the most fuel-efficient Toyota Prius, a Nissan Leaf will cut GHGs by 75 percent or more than 4,500 lbs annually.

Improvements to stormwater quality: All-battery PEVs avoid the pollutants from internal combustion engines that threaten streams, lakes and waterways, such as Puget Sound.

Reduced ozone-related environmental costs: Ozone pollution caused by internal combustion engines reduces visibility and results in damage to vegetation and trees at ground level. Using electricity as fuel offers a partial solution to staying in compliance with Clean Air regulations.

Cost Comparisons and Markets

- Total Cost Analyses demonstrate that for many consumers PEVs are a competitive choice through lower fuel and maintenance costs.
- The Department of Enterprise Services completed its own total cost analysis. Using fuel prices of \$4.10/gal (Summer 2012), they found the lifetime cost of an all-battery Nissan Leaf is competitive with a hybrid Prius even without the available federal tax incentives.
- With more than 17,000 vehicles sold in 2011, the first two production model PEVs (the Leaf and Volt) exceeded first-year sales of the first hybrid cars.
- Since hybrid-electric cars were introduced to the U.S. market, Washington has consistently ranked among the top 10 states for per capita hybrid vehicle sales. Now it is among the leaders in the adoption of newer plug-in vehicles.
- Several new PEVs are on their way—new models, with new options and technology, highlight the importance of educating consumers about PEVs. Crossing the chasm between motivated, tech-savvy early adopters and the more practical second wave of PEV consumers requires

concerted effort and investment to highlight the benefits of these new vehicles. This is a critical time in PEV development.

Additional Policy Implications

As a leader in alternative fuels and vehicles, Washington State is in a strong position to support PEV market development.

- The Legislature and Governor's Office have directed agencies to purchase alternative vehicles and fuels since 1989. Sixteen bills have been adopted, resulting in fifteen sections in the state code directly related to alternative fuel and vehicle procurement. Five Executive Orders and three Governor's Directives have reinforced these measures.
- State government is a historical leader in the spread of vehicle innovations. The motor pool and many agencies have made notable efforts to acquire hybrid vehicles (Executive Order 05-01) in the past decade.
- With a high driver-to-vehicle ratio, the State's fleets offer the capacity to introduce vehicles and train drivers to thousands of individuals, reaching a broad cross-section of the public.

Washington State's involvement in PEV deployment directly supports government policies at all levels:

- At the federal level, it supports the President's goal to deploy one million electric vehicles by 2015. It also supports goals for alternative fuel vehicle deployment under the federal Energy Policy Act.
- Regionally, the Jobs Action Plan, signed by leaders of the Pacific Coast Collaborative this year, calls for greater efforts toward clean vehicle procurement.
- In Washington, it supports the mandate on state agencies to purchase alternative fuel. It supports the State's statutory targets for greenhouse gas reduction, especially in transportation. It also supports policies that encourage statewide economic development, through its use of Washington power as fuel.
- At the local level, it will assist local governments that must meet State mandates for the purchase of alternative fuel.

Summary of Possible Incentives (From the Washington PEV Readiness Plan)

The most common electric vehicle and infrastructure incentives were evaluated for Washington State and are prioritized and summarized as viable/excellent (green light), possible, but the political appetite or size of the incentive is not sufficient to eliminate the barrier (yellow light), or not possible/not useful (red light). The following chart is copied from the state's EV Readiness Plan.

Priority	Type of Incentive	Feasibility	Explanation
1	Financial Rebates for Vehicles and Infrastructure		Rebates that point-of-sale rebates for vehicle and infrastructure costs are considered the most motivating incentive to consumers.
2	State Sales Tax Credit for Vehicles and Infrastructure		Currently in place to reduce up-front vehicle and EVSE costs. Vehicles are exempt from the 6.8% motor vehicle & use tax, and EVSE are exempt from the 6.5% sales tax).
3	Preferred Lanes (free HOV/HOT lane access) for Vehicles		Previously explored by the state; many barriers encountered but considered a strong consumer incentive due to high congestion in urban areas.
4	Lower Insurance Rates for Vehicles		Reduces operational costs of vehicle ownership. In other states, 10% insurance discounts are typical, and are considered a moderate incentive.
5	Preferred Parking for Vehicles		Already established in many jurisdictions, but only considered a 'benefit of convenience' and not a strong incentive.
6	Economic Development Incentives for Vehicles and Infrastructure		Considered a strong motivator for businesses, though not a strong consumer incentive. Difficult to implement without a state income tax to reduce.
7	Preferred Utility Rates for Vehicle Charging		Not considered a strong incentive for consumers as there is an insufficient price gap between peak and non-peak rates*
8	State Income Tax Credit for Vehicles and Infrastructure		While this would eliminate up-front vehicle and infrastructure costs, it is not feasible in Washington because there is no state income tax.