ELECTRIC VEHICLES: THE PORTLAND WAY

THE PORTLAND STRATEGY AT A GLANCE

1. Adopt and update policies to facilitate the transition to the use of electric vehicles (EVs) in Portland:
    a. *Streamline electrical permitting.*
    b. *Provide limited use of the right-of-way for EV charging.*
    c. *Adopt consistent signage and parking enforcement standards.*
    d. *Reduce vehicle miles traveled by continued education about using transit, walking or biking for trips of 3 miles or less.*
    e. *Continue to research best practices regarding EV-friendly development regulations and policies.*
2. Promote State and Federal EV tax incentives for Portland residents and businesses
3. Create a new program to serve EVs in garage-free homes
4. Develop strategic relationships and economic development initiatives to support regional job growth within the clean-tech cluster
5. Create the most sustainable municipal fleet in the country
6. Partner with the freight community to facilitate adoption of EVs and plug-in-hybrid technology in the trucking industry
7. Work with carshare companies and transit agencies to ensure affordable access to EV technology
8. Foster existing public and private relationships and look for new partnerships that support EV infrastructure deployment, promote EV adoption and explore progressive technologies

INTRODUCTION

The purpose of this document is to identify and outline the policies, programs and strategies being adopted by the City of Portland (City), as part of a regionally coordinated effort to promote and integrate electric vehicles (EVs) into our transportation system and to capitalize on local economic development opportunities from this emerging industry.

This strategy has been developed by an inter-bureau team that meets regularly, with representatives from Mayor Sam Adams' Office, the Portland Development Commission, the Portland Bureau of Transportation, the Bureau of Planning and Sustainability, the Bureau of Development Services and CityFleet.

A SUSTAINABLE APPROACH TO ELECTRIC VEHICLES

The City embraces new approaches and innovations in transportation electrification because these technologies have the potential to significantly reduce transportation related carbon emissions in Portland. The thoughtful use and promotion of EVs is one of several key strategies that will help the City achieve its climate action targets while also achieving our complementary goals of reducing local air pollution and vehicle miles traveled, and increasing the share of trips done by walking, biking, and transit.

In 2009, the City adopted a Climate Action Plan committing itself to delivering a transportation system that supports the goal of reducing local greenhouse gas emissions. Specifically relevant to EVs, the Climate Action Plan establishes several goals and proposes actions to achieve those goals (see below) aimed at reducing the carbon emissions from fossil fuels used to power our vehicles.

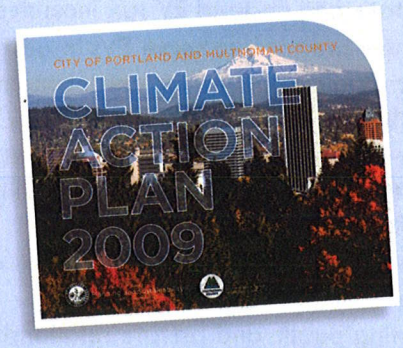
In order to achieve these goals, it is estimated that 13 percent of all non-commercial vehicle miles traveled on Portland's roads in 2030 will need to be in EVs. This translates into as many as 50,000 EVs in the metro area, based on average per capita vehicle miles traveled.

CLIMATE ACTION PLAN GOALS

Reduce carbon emissions:
- 40 percent from 1990 levels by 2030
- 80 percent from 1990 levels by 2050

Reduce transportation-related carbon emissions:
- 10 percent from 1990 levels by 2015
- 25 percent from 1990 levels by 2020
- 30 percent from 1990 levels by 2030

Reduce vehicle miles traveled:
- 30 percent from 2008 levels by 2030



Increase the average fuel efficiency of passenger vehicles to 40 miles per gallon by 2030.

Reduce the lifecycle green-house gas emissions of transportation fuels by 20 percent by 2030.

2012 Action: Accelerate the transition to plug-in hybrids and electric vehicles by supporting the installation of a network of electric car charging stations.

The Climate Action Plan can be found at: www.portlandclimateaction.org

EVs emit no tailpipe pollutants, providing significant local air quality benefits (see below). However, pollutants emitted from coal and natural gas electrical power plants and other upstream operations must be accounted for.

According to the Argonne National Laboratory, EVs substantially reduce all of the emissions that cause adverse health conditions in urban settings, where those emissions are often concentrated and do the most harm to human health. Compared to a gasoline powered vehicle, an EV reduces lifecycle greenhouse gas emissions by 19 percent. EVs nearly eliminate petroleum use and can reduce fossil fuel use by 28 percent, even though the electricity used in the Portland area is largely generated by fossil fuels[1]. The City seeks to further reduce upstream greenhouse gas emissions associated with EVs by strongly encouraging the deployment of both public and private charging stations powered by renewable electricity.

EV BENEFITS

Switching from traditional combustion engines to electric vehicles in urban areas will:

- Reduce volatile organic compounds (VOC) and carbon monoxide (CO) by 100 percent
- Reduce sulfur oxide (SOx) by 75 percent
- Reduce nitrous oxide (NOx) by 69 percent
- Reduce particulate matter (PM10) by 31percent, and
- Saving millions of gallons of gas and keeping money in the local economy.

Source: Argonne National Laboratory

1 Portland's average electricity mix is 44% coal and 27% hydro-electric, 25% natural gas, 4% wind and 1% other.
Source: Oregon Department of Energy for overall resource mix of each utility; Bureau of Planning and Sustainability for weighted average mix based on electricity supplied by Portland General Electric and Pacific Power to customers in Multnomah County.

THE PORTLAND ELECTRIC VEHICLE STRATEGY

1. Adopt and update policies to facilitate the transition to the use of EVs in Portland

a. Streamline electrical permitting.

The City has streamlined the electrical permitting process for charging station installations by following the State's minor label program. Inclusion of EV charging stations in the minor label program will allow faster, more cost effective deployment of home charging stations by electrical contractors. The program will require inspections in only one out of ten installations within designated guidelines.

For locations requiring full permitting and inspections, the City is establishing a website to walk customers through the permitting process, which will allow for an inspection as quickly as 48 hours after installation. This website is expected to launch in September 2010.

MINOR LABELS

Minor labels are inexpensive permits for minor electrical and plumbing residential and commercial installations.

Only licensed electrical and plumbing contractors can buy and use minor labels.

b. Provide limited use of the right-of-way for EV charging.

In July 2010, the Bureau of Transportation will adopt an Electric Vehicle Charging Stations Within the Public Right-of-Way policy. A first in the nation policy geared at streamlining the process for deployment of publicly available charging stations. Through a pilot program, the policy will initially allow private entities and utilities to place up to fifty charging stations in City right-of-way. The policy's intent is to provide a venue for manufacturers to demonstrate innovation and to leverage public-private partnerships wherein a provider could allow other complementary activities to occur at the same site such as renewable power generation, wireless internet, lighting or public art.

c. Adopt consistent signage and parking enforcement standards.

Clearly identifying charging stations and enforcing parking rules will help smooth the transition to EVs and help educate the public about how EVs work. The City has adopted signage standards for identifying EV charging stations, both in the right-of-way and on private property, that are consistent with State and regional practices. Similarly, enforcing posted parking hours for spaces in the right-of-way, rather than allowing all day parking, will ensure EV charging stations experience turnover and are available to potential users throughout the day while supporting the adjacent businesses.

d. Reduce vehicle miles traveled by continued education about using transit, walking or biking for trips of 3 miles or less.

To help achieve our vehicle miles traveled reduction goals of 30 percent by 2030 and to ensure EVs do not further create congestion on our streets, the City has adopted a "net zero" policy for the use of EVs in the City: For every EV that is purchased in Portland, the City will work to remove another vehicle from the transportation system through targeted programs like SmartTrips Portland and other demand management programs. The City will continue to work with residents to reduce vehicle miles traveled on our streets by promoting walking, biking and transit, as well as trip chaining and carpooling. By educating citizens about walking, biking and using transit for trips of three miles and less, Portland hopes to promote the thoughtful use of EVs.

e. Continue to research best practices regarding EV-friendly development regulations and policies.

SMART GRID

A smart grid delivers electricity from suppliers to consumers using two-way digital technology to control electricity delivery times to appliances (and eventually EVs) at consumers' homes to save energy, reduce cost and increase reliability and transparency. It overlays the electricity distribution grid with an information and net metering system.

The City is exploring a variety of EV related regulations and policies, including examining the costs and benefits of requiring new single-family, townhomes, apartments and mixed use construction to be "EV-ready" (minimum Level-2 circuit installation).

Some best practices being explored include establishing a "Clean Taxi" priority at airports and rail stations, charging for parking based on climate impact, or working with the State of Oregon to allow EVs to use carpool lanes or developing queue jumps on highway ramps.

The City will also actively seek opportunities to partner with utilities on Smart Grid EV pilot projects and encourages that the charging infrastructure that is installed has the capacity to enable Smart Grid technologies.

2. Promote State and Federal EV tax incentives for Portland residents and businesses

Through its outreach and education efforts to neighborhoods and businesses, the City will seek to ensure every potential EV buyer is aware, and takes advantage of, federal and state tax credits aimed at reducing the cost of purchasing EVs and installing charging stations. Oregon's Business Energy Tax Credit makes buying an EV for businesses in Oregon more affordable than almost every other state. Arming Portland consumers with accurate information about tax credits and life-cycle costs will encourage the use of EVs in the region.

The tax credits available to Portlanders are:

a. Residential Tax Credits

- EV Purchase: Up to $7,500 in Federal tax credits, and up to $750 in Oregon Residential Energy Tax Credits (RETC).

- Charging Station: Up to $2,000 in Federal tax credits, and up to $750 in Oregon Residential Energy Tax Credits (RETC).

b. Business Tax Credits

- EV Purchase: Up to $7,500 in Federal tax credits, and up to 35% of the incremental cost between an internal combustion vehicle and an EV in Oregon Business Energy Tax Credits (BETC).

- Charging Station: Up to 50% of the installation costs (maximum of $50,000) in Federal tax credits, and up to 35% of the eligible costs in Oregon Business Energy Tax Credits (BETC).

In support of educating the public, in August the City will launch the www.chargeportland.com website with information on city policies, links to other EV resources and ultimately online permitting for charging stations.

Through the Climate Action Now! campaign and other outreach efforts, the City will educate residents about the important role that charging EVs with renewable electricity has in reducing carbon emissions and pollutants emitted from the electrical power plants and other upstream operations. The City will also help the public understand the impact that charging times (time of day charging) can have on the environment and public health due to the sources of our electricity during peak usage times.

Purchasers of EVs represent an excellent audience for educational material for related energy efficiency initiatives such as Clean Energy Works and Solarize Portland. The City will seek to provide information on these other sustainability programs to potential purchasers of EVs.

3. Create a new program to serve EVs in garage-free homes

Most EV users will charge their cars at home each night. However a significant number of homes, apartments and condominiums in Portland do not have the off-street parking that is generally required to install a home charging unit. The City believes every resident of Portland should have access to the benefits of EVs if they choose.

This is why the City is exploring a first of its kind partnership with Zipcar, the largest carshare organization in the country, to provide fast and reliable charging to all residents in Portland. Under this potential program, EV owners that are Zipcar members could use Zipcar's reservation technology to secure time at a fast charger in one of several central locations, potentially in City-owned garages. This unique partnership will allow EV owners to charge their cars at a time that is convenient for them, and do it in less than half an hour.

Additionally, the City is exploring partnerships to retro-fit and market underutilized parking spaces throughout the city to serve those residents who do not live within reasonable distance to a City-owned garage. Allowing residents that lack access to off-street home charging to use these lots to charge presents a unique opportunity to use the parking spaces that would otherwise sit empty at night. The initial project will focus on marketing those parking lots that are within walking distance of mixed use projects, allowing residents to easily walk or bike from home to the charging stations.

4. Develop strategic relationships and pursue economic development inititatives to support regional job growth within the clean-tech cluster

While EVs provide great benefits to residents in terms of improved air quality and reduced operating costs, there are also significant opportunities for job creation in the EV sector for skilled workers, electricians, manufacturers, and other clean-tech professionals.

To foster job growth consistent with the City's Economic Development Strategy, the Portland Development Commission (PDC) identified an emerging cluster of EV related businesses in Portland and Oregon. PDC is working with Business Oregon to help support these businesses, grow the cluster and in turn create jobs. As of early summer 2010, Oregon already has well over 40 companies actively working on transportation electrification and vehicle efficiency technologies.

The PDC is also in the process of developing a program in the City's urban renewal areas after State and Federal tax credits to cover the "last mile" costs of installing EV charging stations in urban renewal districts in Portland. In conjunction with lending partners the program will seek to provide bridge loans to businesses wishing to install EV charging stations. The program is geared primarily toward businesses looking for workplace and customer charging but can be used for fleet charging as well. The program seeks to complement the EV Project that is deploying a greater number of charging units in the region.

5. Create the most sustainable municipal fleet in the country

In total, about 2,800 vehicles make up the City's fleet. CityFleet staff purchase, maintain, and repair a diverse fleet ranging from patrol cars and dump trucks, to hybrid vehicles and construction equipment. EVs play an important role in helping to achieve the City's sustainability goals to improve local air quality, reduce dependence on fossil fuels, reduce environmental impacts and control costs.

The City will implement a a comprehensive Green Fleet vehicle plan that includes:

a. Partnering with neighboring cities and counties to purchase at least ten Nissan LEAFs and charging stations in 2010.

b. Where appropriate, CityFleet staff will recommend the purchase of EVs and associated technologies by performing an analysis of every vehicle and piece of equipment to determine the optimal balance between functionality, fuel type, fuel consumption, emissions and economics.

c. Adopting a fleet management goal of having 20% of the City's fleet be EVs by 2030.

6. Partner with the freight community to facilitate adoption of EVs and plug-in-hybrid technology in the trucking industry

Beyond its own fleet, the City is working with regional freight partners on formulating a Sustainable Freight Strategy aimed at reducing carbon emissions from the movement of goods in this region. Adopting EV technology will be a cornerstone of this ambitious plan. The City will seek to work with its partners to implement the recommendations of the plan in support of EV adoption.

7. Work with carshare companies and transit agencies to ensure affordable access to EV technology

One of the biggest challenges in achieving the carbon reduction goals outlined in the City's Climate Action Plan is accelerating the turn-over of our region's fleet of vehicles to cleaner technology like EVs and hybrids. One of the quickest and most cost effective ways to get the benefits of EV technology to the residents of Portland is through policies that support carsharing companies like Zipcar and U-Carshare. Both companies provide their members access to a highly fuel efficient fleet of vehicles available by the hour.

The City will continue to provide parking spaces in the right-of-way for carshare companies (Portland was the first in the nation to do this), and will work with carshare companies to identify spaces that have potential for charging stations.

Similarly, the City and TriMet are jointly pursuing opportunities to leverage major capital projects in ways that support the transition to EVs while reducing greenhouse gas emissions. To this end, in planning for the next major light rail project to Milwaukie, both the City and TriMet are exploring the cost and benefits of providing EV infrastructure (conduit, electricity, charging stations and parking spaces) in yet to be built park-and-ride lots within Portland city limits that support the transit system. In addition, both parties are actively engaged in conversations about providing "mobility centers" at major transit stations where users could access EV charging, carsharing vehicles, bike-sharing bikes or other tools.

8. Foster existing public and private relationships and look for new partnerships that support EV infrastructure deployment, promote EV adoption and explore progressive technologies

The City will continue to collaborate with Ecotality North America and actively seek to partner with other private entities, utilities and universities in support of EV adoption and infrastructure deployment. The City will also coordinate with other local jurisdictions to ensure a seamless EV experience within the Portland metro area. The City is also working with partners like the Oregon Transportation Research and Education Consortium (OTREC), Portland State University, and local utilities in exploring best practices for prioritizing EVs in the transportation system. The City will explore partnering with education, institutional, utility and private industry partners on an EV and energy efficiency education center in a central city location. In addition, the city will work with educational institutions such as Portland State University to explore innovative infrastructure deployment within the central city.