

# ELECTRIC VEHICLE & CHARGE STATION INFORMATION – CITY OF BELLEVUE



## *The Vehicles*

### **What is an EV?**

The term “EV” is used to denote all vehicles that connect to, and derive energy from, the electricity grid. These include plug-in hybrid (PHEV), range-extended (REEV) and battery electric vehicles (BEV).

### **Where would I charge my electric vehicle?**

It is anticipated that most charging will take place at home, overnight. Since the BEVs are expected to have a range of between 80-100 miles on a full battery, an overnight (Level 2) charge will be enough to cover the daily commute needs of the majority of people in King County. Businesses and local governments are also providing charging locations for people who want to recharge while at work or at other locations.

### **What is Level 1 charging?**

Level 1 charging refers to the use of standard 110 volt power that is the lowest common voltage found in both residential and commercial buildings. Due to the length of charge time required (15-20 hours), it is anticipated that most users will be installing Level 2 systems.

### **What is Level 2 charging?**

Level 2 charging systems recharge EVs in 4-8 hours utilizing 220 volt power. Level 2 charging systems are typically used for overnight charging at home or at businesses that operate fleets of EVs. Level 2 chargers will be available for homes, fleets, commercial locations and public use sites.

### **What is Level 3 charging?**

Level 3 charging, often referred to as “fast charging,” allows vehicles to be recharged in less than 30 minutes. These units are not yet commercially available, but installation of roughly 40 fast charge units is expected throughout King County and along Washington’s I-5 corridor. These units will be ideal for applications such as highway rest stops to enable fast and significant range extension for longer trips.

### **Will all cars have the same plug-in adapters?**

Yes. The J-1772 plug is the universally adopted Level 2 model for all new electric automobiles to be sold in the United States.

## *Purchasing, Prices and Costs*

### **Which automakers are going to make electric vehicles?**

Many automakers have announced plans to release BEV or PHEV model vehicles between now and 2012. These include Nissan, Audi, Ford, General Motors, Toyota, Volvo, BMW, Chrysler, Daimler, Ford, Hyundai, Mitsubishi, Nissan, Rolls Royce, and Tesla. Thousands of electric vehicles (cars and bicycles) are already in use in China.

### **How much will the EVs cost?**

The Nissan Leaf, which is expected to be the first all-electric family sedan to be mass produced for the U.S. market, will have a manufacturer’s suggested retail price (MSRP) of \$33,720. The Chevy Volt, a combined PHEV, has an MSRP of \$40,280.

### **What are the incentives for buying an EV?**

A federal tax rebate of \$7,500 is currently being offered with your purchase of an electric vehicle that has greater than 4 kW of battery storage capacity. Both Nissan Leaf and Chevy Volt models currently qualify.

### **What are the maintenance requirements and associated costs of EV ownership?**

Due to the lack of product history, long-term maintenance requirements are not yet known. The fact that electric vehicles have fewer components is anticipated to lead to lower long-term maintenance and replacement costs. Your auto dealer would be the best resource for more details.

## *Charging Stations – General*

### **Will the charger be built into the vehicle?**

Yes. To charge, you will simply need to plug in to an appropriate charging dock which supplies power safely to the charger.

## **Am I able to determine what time the charging of my vehicle starts and stops?**

Yes. You will be able to set a charging timer in the car. Some models will allow you to control the car's functions and charging from any computer or internet-enabled phone.

### *Charging Stations- Residential*

For more detailed **home charger installation** info please see our Public Information Handout "*Installing an electric vehicle Charge Station for Single-Family Residences.*"

## **How much does it cost to charge a plug-in vehicle?**

Much less than it costs to buy gasoline. Exactly how much will vary depending on the vehicle and electricity rates. On average, it will be less than \$1 to charge a plug-in hybrid and \$2-\$3 for an all-electric car.

## **I live in an apartment. How would I go about charging the car?**

You should start by talking to your apartment complex owner about getting charging stations. You can also use public and commercial infrastructure as it becomes available.

### *Charging Stations – Public Use*

## **Where will public-use charging stations be located?**

The state, county, cities, and the private sector will all have a role in the gradual development of a public charging station network. Between your car's navigation system, computer, or smartphone, you will be able to access information about station locations and availability, and even make reservations. However, it is anticipated that your home charging dock will likely be your primary charging station.

## **How long will it be before you can charge a car anywhere? Like at a gas station?**

In the Puget Sound region, look for dozens if not hundreds of publicly available Level 2 charging stations to be installed at government and commercial facilities throughout 2011. There are plans for roughly 40 Level 3 "fast chargers" to be installed throughout King County and on the I-5 corridor, but not likely before 2012.

### *Other Considerations and Questions*

## **What if I run out of power and get stranded?**

The vehicles come equipped with multiple systems to prevent this from happening, as well as with technologies to locate nearby charging systems should

you be running low. Vehicle manufacturers are also developing roadside assistance programs for emergencies.

## **Does the battery still drain when you are not moving?**

Only if you are using lights, stereo, and other accessories. No power is being used to "idle."

## **Isn't generating electricity for electric cars just as bad for the environment as the gasoline burned by traditional engines?**

No. Electric engines are far more energy efficient than gasoline engines. On average, approximately 30% of the fuel burned by a gasoline engine is used for propulsion, whereas nearly all the electricity in an EV is used for that purpose. Additionally, the clean fuel mixes in the Pacific Northwest, with its hydro and wind components, make it even cleaner. As we transition to more renewal sources of electricity, driving EVs will get cleaner and cleaner.

## **How long will the battery last?**

According to an Electric Power Research Institute report, battery durability tests demonstrate that current lithium-ion batteries are likely to retain sufficient capacity for more than 3,000 dynamic deep-discharge cycles (about 10-12 years of typical driving.) To offer additional comfort, major automakers are offering extended warranties.

## **Why would I want to invest in an electric vehicle?**

Three words: Cheaper. Cleaner. Domestic.

Cheaper: Electricity is about a third of the current cost of gas, and electric cars require next to no maintenance. (No oil changes, no muffler, no catalytic converter, etc.)

Cleaner: Even on a coal-fired electrical grid, driving on electricity is cleaner than driving on gasoline. Our abundant use of clean hydro and wind to generate power in our region makes it even cleaner.

Domestic: Both the electricity and many of the new EVs are domestically manufactured.

Bonus: Plug-in cars are quiet, convenient, and really fun to drive!

*This information is provided to the best of our knowledge at the time of publication.* For more information and resources contact Sheida Sahandy at [ssahandy@bellevuewa.gov](mailto:ssahandy@bellevuewa.gov). Regarding permitting and installation of charge equipment, please contact Development Services at 425-452-4898 or email [permitprocessing@bellevuewa.gov](mailto:permitprocessing@bellevuewa.gov).