

# Powered by Electricity



## North Coast Plug-in Electric Vehicle Project

FEBRUARY- MARCH 2013 NEWS & UPDATES

### Funding and Incentives for PEVs and Chargers

Federal and State incentives for the purchase of a PEV and State funding of charging infrastructure are helping make PEVs a good option for Californians.

#### State PEV Rebates

The Clean Vehicle Rebate Project (CVRP) offers vehicle rebates ranging from \$1,500 to \$2,500, depending on the all-electric range of the PEV. Funding is expected to last through 2015, though rebate levels may drop with time. Nearly 17,000 rebates have been awarded over the last two years, totaling about \$39 million. For more information see

[energycenter.org/index.php/incentive-programs/clean-vehicle-rebate-project](http://energycenter.org/index.php/incentive-programs/clean-vehicle-rebate-project)

The Hybrid and Zero Emission Truck and Bus Voucher Incentive Project (HVIP) offers vouchers ranging from \$8,000 to \$45,000 per eligible vehicle geared towards fleet vehicle operators. Amounts vary depending on the type and gross weight of the vehicle. Recent funding levels have been \$18 to \$19 million annually, and funds are expected to continue through 2015 or 2016. For more information see

[www.californiahvip.org/default.aspx](http://www.californiahvip.org/default.aspx).

#### State Grants for Charging Stations

The California Energy Commission, under their Alternative and Renewable Fuel and Vehicle Technology Program, is offering grants to support installation of charging stations. Over the past three years approximately \$7 million per year has been allocated for this purpose. Funding for this program is expected to continue through 2016. For more information see

[www.energy.ca.gov/drive/index.html](http://www.energy.ca.gov/drive/index.html).

#### Federal Tax Credits for PEVs

Federal tax credits of up to \$7,500 per vehicle, depending upon battery capacity, are available for eligible PEVs (see IRS Form 8936). The credit must be used in the year it is claimed and cannot be carried over to subsequent tax years. The credits will be phased out as each manufacturer reaches 200,000 in eligible PEV sales. Thus far the largest cumulative sales of PEVs in the US have been Chevrolet Volts, which totaled about 31,000 through 2012.

For further information see

[www.fueleconomy.gov/feg/taxcenter.shtml](http://www.fueleconomy.gov/feg/taxcenter.shtml).

## What PEV Owners Are Saying

As of July 2012 there were more than 12,000 PEV owners in California, accounting for one out of every three in the nation. California's Clean Vehicle Rebate Project surveyed PEV owners in the state, and over 1,400 survey respondents provided the following responses:

- 95% of PEV owners also own a conventional vehicle
- 91% installed a home vehicle charger
- 79% drive between 15 to 45 miles per day
- 70% have access to a charger at work or in a public venue

It is interesting to note that 83% of respondents were dissatisfied with the existing public charging infrastructure. Accordingly, State and regional groups are developing plans to expand electric vehicle charging infrastructure. The North Coast Plug-in Electric Vehicle (NCPEV) Project team is currently in the process of creating a draft plan for electric vehicle charging station deployment on the North Coast. Stay tuned...we will want your input!

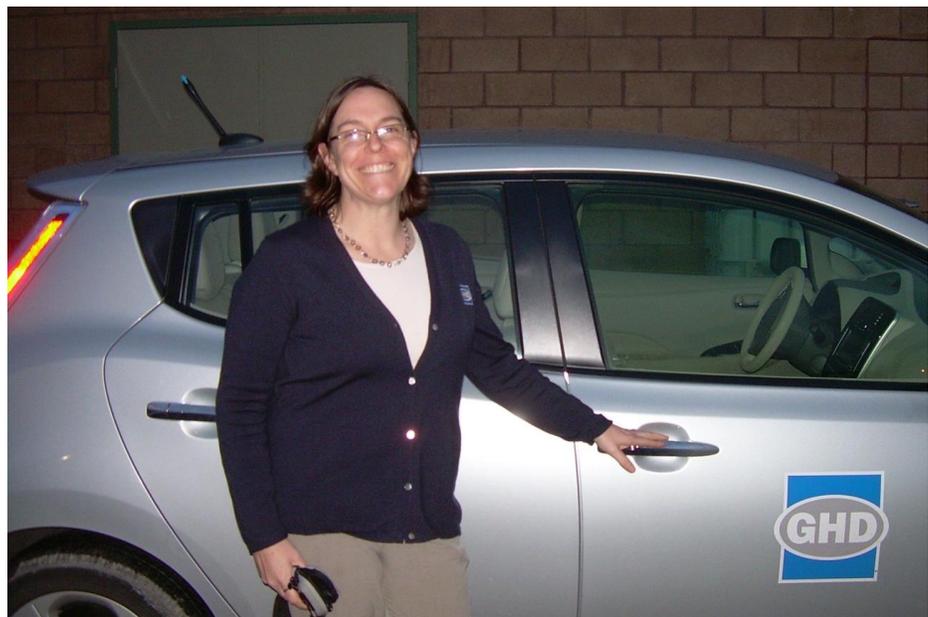
For additional survey results, see: [energycenter.org/index.php/incentive-programs/clean-vehicle-rebate-project/vehicle-owner-survey](http://energycenter.org/index.php/incentive-programs/clean-vehicle-rebate-project/vehicle-owner-survey).

## What's it Like Having a PEV in Your Fleet?

**GHD delivers a report on their experience driving a Nissan Leaf**

**In July 2011 the local office of GHD**, a global engineering and environmental science consulting firm, took delivery of a Nissan Leaf purchased for use as a fleet vehicle. According to David Carter, a project engineer at GHD, "the purchase fit with our sustainability policy and the car seemed like a

[\(continued on next page\)](#)



Project Manager Rebecca Crow at the new wastewater treatment plant in Rio Dell. During this recent trip energy economy was 3 miles per kilowatt hour with four passengers. Climate control, windshield wipers and lights were in use due to stormy weather.

## NORTH COAST PLUG-IN ELECTRIC VEHICLE PROJECT

good fit for local errands and business travel. It has worked out great so far. People love it.” The car is used for in town trips or errands as well as trips from the Eureka office to nearby cities including Willow Creek, Rio Dell, Trinidad, and the Arcata Airport. The car is available to all staff and is used on a daily basis. Administrative Assistant, Lynn Casillas, uses the Leaf the most and shared these thoughts about the car. “The Leaf is a good fleet vehicle because it doesn’t use gas and have the associated pollution. It’s so quiet you can barely hear it running. It is a good thing there are safety features like a humming noise that occurs at low speeds and a beeping sound when the car is reversing to warn pedestrians. The push button start and locks are convenient when you have your hands full, which is often the case when running company errands. The fact that the vehicle has a designated parking space eliminates the need to find on-street long term parking around the office. The economy drive feature works well for longer trips because it maintains the power needed to drive on the highway while conserving power so you can drive further.”



**The car is parked in a garage** and plugged in at the end of each day. A smart timer function in the car decides when to start charging the battery each night so that the battery is full at 5am. This allows for charging in the middle of the night when

electricity demands and pricing are low. In the morning the car is unplugged and ready to go. Another nice feature is that the car’s battery’s state of charge and climate controls can be accessed from a smart phone. The car has a telemetry system called Carwings<sup>®</sup> which streams data on vehicle performance, trip counts, and distance travelled to Nissan. This data is accessible by the vehicle owner through a website. According to this data, GHD’s Leaf has logged 603 trips since May 2012<sup>1</sup>. The average travel distance of these trips was approximately five miles. The average energy economy has been 3.6 miles per kilowatt hour. The longest distance traveled for a single trip was 93 miles.

GHD staff has gradually been expanding the range of trips as they get used to the car and its capabilities. On a trip to Willow Creek in September 2012 the car did fine with plenty of power traveling at 55 to 60 miles per hour. Climate control was off and the car was in Eco mode to maximize range. The ability of the car to re-charge the batteries when going downhill was impressive and the range meter read 39 miles upon arrival in Willow Creek. The car was plugged in at Whitson Electric near Willow Creek by special arrangement for about three hours before driving back to Eureka<sup>2</sup>. As electric vehicle charging stations become more common in the public space, GHD staff will have more options for using the Leaf on business trips between their Eureka office and outlying destinations.

One minor critique GHD staff have is that the range meter on the dashboard fluctuates in terms of its estimate of how many miles left on the current charge. “At the start of the trip the car says you have 100 miles of range and then after travelling

[\(continued on next page\)](#)

# NORTH COAST PLUG-IN ELECTRIC VEHICLE PROJECT

10 miles the car says you have 75 miles. It seems to be accurate during the last 50 miles of estimated range than during the first 50 miles of estimated range,” reports Mr. Carter. “You get used to the range meter over time after taking a couple of longer trips,” he said. GHD engineers have collected motor and battery performance data from the car’s on-board computer under local driving conditions for the NCEV project. From that experience they report that the low battery warning light comes on with approximately 12% of available charge remaining, at which point you can still travel approximately 8-12 miles (depending on driving style and conditions)



before the car will go into limp-home mode with approximately 2% of available charge remaining. Limp-home mode allows you to travel approximately 1.5 to 2 additional miles (depending on driving style and conditions) at reduced speed. For trip planning, GHD staff use a practical range limit of about 70 miles per full charge. This allows for use of climate control as needed and provides a range buffer for getting to the final destination.

GHD is currently working to quantify the cost savings associated with fuel and maintenance expense reductions from using the Leaf as a fleet vehicle. It only costs about \$3.60 in electricity to charge the battery from empty and you can tell by looking at the maintenance tracking pages in the owner’s manual that maintenance costs should be much lower than a comparable gas or hybrid car.

Funded by the California Energy Commission’s Alternative and Renewable Fuels and Vehicle Technology Program, the North Coast Plug-in Electrical Vehicle (PEV) Project is being led by the **Redwood Coast Energy Authority** along with implementation partners **GHD**, Humboldt State University’s **Schatz Energy Research Center**, and **Pacific Gas & Electric**. The purpose of this bulletin will be to provide regular updates on the progress of the project as well as relevant local, state, and national news related to the deployment of vehicles powered by electricity.

For further information about the project, visit [www.RedwoodEnergy.org](http://www.RedwoodEnergy.org), or contact Lori Biondini at 707-269-1700 or [lbiondini@redwoodenergy.org](mailto:lbiondini@redwoodenergy.org).



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