



Fleets throughout Washington will test-drive plug-in hybrid electric vehicles and send data to INL for analysis.



Washington plug-in hybrid demos

INL will help test more than 30 plug-in hybrids

As plug-in hybrid electric vehicles ride the cusp of commercialization, community leaders across the nation are revving up for field tests. Now numerous Washington fleets are teaming with private companies and the U.S. Department of Energy's Idaho National Laboratory to test 31 Toyota Priuses converted to plug-in hybrid electric vehicles (PHEVs) by third-party conversion companies.

More than a dozen public and private entities will drive PHEVs in various fleet missions. Several private businesses will supply conversion and data-tracking

technology, and INL is providing technical support and data analysis.

Washington's 31 test vehicles represent a large fraction of the 140 PHEVs that will feed data to INL by the end of 2008 as part of DOE's Advanced Vehicle Testing Activity. And the Washington tests will offer a wealth of information because the projects span urban and rural communities.

What are plug-in hybrid electric vehicles (PHEVs)?

Like conventional hybrids, PHEVs run on electricity part of the time. But they use larger batteries than conventional hybrids and are recharged from a

standard electrical socket. Once fully commercialized, plug-in hybrids will be able to run for 30 miles or more on electric power alone before reverting to conventional hybrid operation.

Preliminary demonstration tests reveal PHEVs use about as much electricity in a year of standard driving as a three-person household's water heater consumes in five months.

These PHEVs will use electricity with the smallest possible carbon footprint because more than 80 percent of Washington electricity comes from carbon-neutral hydropower, nuclear and renewables.

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The Energy of Innovation

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What will the demonstration accomplish?

The demonstration will test technology used to convert standard hybrids, monitor how the cars interact with the electrical grid, evaluate performance in real-world fleet applications and advance commercialization of plug-in vehicles. By using PHEVs in day-to-day business, the participating agencies will provide real-time, real-life information vital to making plug-ins widely acceptable.

INL data analysts will evaluate gasoline and electricity use, average and top speeds, miles driven and trips per charge, and charge timing and duration. Onboard data-loggers will collect and transmit the data for analysis, which will help local fleets, DOE and INL gauge PHEV potential for reducing petroleum use.

Who is participating?

The plug-in hybrid demonstration projects



The Department of Energy's Advanced Vehicle Testing Activity, conducted by Idaho National Lab, has joined with several fleets throughout Washington state to test plug-in hybrid electric vehicles in day-to-day use.

represent a collaboration between public and private entities at the local and national level. INL is coordinating the demos with private companies and more than a dozen agencies representing city and county governments, port authorities, public utilities, economic and environmental agencies and others.

Most cars are being converted to PHEVs using high-power lithium ion batteries and con-

version kits from Hymotion, with support from the Green Car Company based in Kirkland, Wash. Data will be collected from the PHEVs using data-loggers, cellular modems and GPS units from Seattle-based V2Green, Inc., and analyzed by INL researchers.

The Washington demonstration projects typify several across the nation led by INL, the lead lab for field performance and life testing of advanced technology vehicles.

For more information

Management Contact:

Mike Hagood
208-526-5315
michael.hagood@inl.gov

Media Contact:

Nicole Stricker
208-526-5955
nicole.stricker@inl.gov

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Participating Organizations

The fleets that will drive converted cars include:

- City of Seattle, with Seattle City Light
- Port of Seattle
- King County
- Puget Sound Clean Air Agency
- Tacoma Power
- Port of Chelan County
- City of Wenatchee
- Green IT Alliance
- Benton County Public Utility District
- Douglas County Public Utility District
- Chelan County Public Works
- University of Washington
- Walla Walla Community College
- Wenatchee Valley College
- Energy Northwest