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

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Idaho National Laboratory

Plug-in hybrid vehicle demonstration
INL will help Seattle-area fleets test 14 cars

As plug-in hybrid electric vehicles ride the cusp of commercialization, urban leaders across the nation are revving up for field tests. Now Seattle-area fleets are teaming with private companies and the U.S. Department of Energy's Idaho National Laboratory to test 14 Toyota Priuses converted to plug-in hybrid electric vehicles (PHEVs) by third-party conversion companies.

City, county, port and regional authorities will drive the PHEVs in various fleet missions. Two private businesses will supply conversion and data-tracking technology, and INL is providing technical support and data analysis. Combined with 17 plug-ins in other parts of the state, 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.

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 should 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. Current PHEVs get more than

100 miles per gallon in urban driving for the first 40 miles after being fully charged.

And Seattle-area plug-ins will use electricity with the smallest possible carbon footprint because 98 percent of Seattle City Light electricity comes from carbon-neutral hydropower, nuclear and wind.

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 PHEVs. By using the cars 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 represent a collaboration between public and private entities at the local and national level. INL is coordinating the demos with private companies and area city, county, port and environmental agencies.

Most cars are being converted to PHEVs using high-power lithium ion batteries and conversion kits from Hymotion, in cooperation with the Green Car Company based in Kirkland, Wash. Data will be collected from the PHEVs using dataloggers, cellular modems and GPS units from Seattle-based V2Green, Inc., and analyzed by INL researchers.

The Seattle-area demonstration project is just one of several across the nation led by INL, the lead lab for field performance and life testing of advanced technology vehicles.

For more information

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Participating Organizations

The fleets that will drive the converted cars are:

- City of Seattle, with Seattle City Light (four cars)
- Port of Seattle (two cars)
- King County (five cars)
- Puget Sound Clean Air Agency (three cars)

King County

Port of Seattle

pscleanair.org
Puget Sound Clean Air Agency

Seattle City Light