

Hybrid and Alternative Fuel Vehicles

- ▶ **INTRODUCTION**
 - ▶ **USAGE HISTORY & EXPERIENCE**
 - Flexible Fuel Vehicles
 - Hybrid Vehicles
 - Plug-in Hybrid-Electric Vehicles
 - Hybrid Trucks
 - Hybrid Buses
 - Compressed Natural Gas Vehicles
 - ▶ **BID AND CONTRACT SPECIFICATIONS**
 - State of Washington contracts:
 - King County
 - ▶ **FOR MORE INFORMATION**
 - ▶ **VENDOR INFORMATION**
-



INTRODUCTION

King County has been a leader in investing in new technologies, from alternative fuel vehicles in the 1990s, to hybrids in the last decade,

USAGE HISTORY & EXPERIENCE

King County has been a leader in investing in new technologies, from alternative fuel vehicles in the 1990's, to hybrids in the last decade, and starting in 2011 with all-electric passenger cars. County agencies purchased 334 alternative fuel vehicles, 26 hybrid-electric passenger cars, 25 electric cars and 9 propane trucks and in 2011.

Flexible Fuel Vehicles

In 2011, Fleet purchased 43 flexible-fuel vehicles (FFV), including 33 police cars and nine propane-powered vehicles. Metro Rideshare Operations purchased 291 alternate fuel passenger vans in 2011.

Most of these vehicles are equipped to use ethanol, gasoline, or "E85," the term for fuel blends of 85 percent ethanol and 15 percent gasoline. Using E85 reduces carbon dioxide (CO₂), hydrocarbon and benzene emissions when compared to vehicles running on gasoline.

Hybrid Vehicles

King County has purchased hybrid electric vehicles (HEVs) to replace older model vehicles as they are retired, since 2001. Hybrids are fuel-efficient and contribute less to greenhouse gas emissions. The County purchased 26 hybrid vehicles, including Ford and Toyota brands for various fleets in 2011.

Accessible Services purchased and put into operation 24 hybrid Access mini buses during 2011.



Electric Vehicles

The Department of Transportation purchased 25 electric cars in 2011 – 20 for Rideshare Operations and five for the MotorPool fleet.

Metro Rideshare Operation's purchase of 20 Nissan Leafs is to pilot electric vehicle (EV) technology in a commuter application called "Metropool" and coordinate the installation of charging stations at major employer

sites and multi-modal transportation hubs such as Park & Rides, train stations and ferry terminals.

A joint contract issued by the City of Seattle and King County was established to purchase charging station equipment for the electric vehicles. Twenty-seven stations were installed in 2011, with 54 more scheduled for 2012.

Hybrid Trucks

King County has purchased hybrid electric vehicles (HEVs) to replace older model vehicles as they are retired, since 2001. Hybrids are fuel-efficient and contribute less to greenhouse gas emissions. The County purchased 26 hybrid vehicles, including Ford and Toyota brands for various fleets in 2011.

Accessible Services purchased and put into operation 24 hybrid Access mini buses during 2011.

Hybrid Buses

Metro Transit bus fleet replacement project included the purchase of 169 40-foot hybrid buses and 86 60-foot articulated hybrid buses during 2011. Federal Transit Administration awarded Metro and Sound Transit \$6 million to purchase these hybrid diesel-electric buses that are 30 percent more efficient than the replaced conventional diesel buses that have reached the end of their useful lives.

Of this order, Metro placed 90 – 40 foot hybrid buses into services, saving approximately 59,500 gallons of diesel and 88 60-foot hybrids replacing older buses and adding new using 20,000 gallons less fuel per year than the diesel buses they replaced.



Propane-Powered Vehicles

Fleet placed 9 liquid petroleum gas (LPG or propane) pickup trucks in service in 2011. The incremental cost of \$104,460 for the factory-approved conversions was paid for with American Reinvestment and Recovery Act funding obtained through Clean Cities Coalition and the Department of Energy.



Bid and Contract Specifications

King County purchases most of its vehicles, including alternative and flexible fuel vehicles (FFV) through contracts maintained by the State of Washington. The State consults with political subdivisions to estimate how many vehicles will be purchased and plan their bids accordingly.

State of Washington contracts:

[Vehicles, 2013/2014 Electric, Plug-in, Hybrid, Alternative/Flex Fuel Vehicles #06412 - Nissan Leaf, Chevrolet Volt, Ford C-Max and Toyota Prius V.](#)

King County

King County established two contracts for specialty vehicles, including one for propane powered vehicles and the other for hybrid-electric vehicles, bid in 2011 and 2012:

[PROPANE POWERED VEHICLES – Ford Trucks](#)

[Vehicle, Sedan – Ford Fusion – optional hybrid technology \(CPA# 5430754\)](#)

FOR MORE INFORMATION

- [King County Department of Transportation](#)
 - [Plug-ins](#)
 - [Report on Electric Vehicles \(9/2008\)](#)
 - [Hybrid Buses](#)
- [King County Metro Transit Hybrid Articulated Buses: Final Evaluation Results - NREL Report \(2006\)](#)
- [National Renewable Energy Lab - Hybrid Electric & Fuel Cell Vehicles](#)
- [King County Climate Change Commute Solutions](#)
- [How Hybrid Cars Work](#)
- [US Department of Energy - Alternative Fuels & Vehicles](#)

VENDOR INFORMATION

- [Toyota Prius](#)
- [Ford Escape SUV hybrid](#)
- [Honda Civic CNG](#)
- [Nissan Leaf](#)
- [A123 Systems](#) – lithium ion batteries for PHEV
- Hybrid bus models
 - [New Flyer](#)
 - [Orion](#)
 - [Gillig](#)
 - [Allison Transmissions](#)