

eBox

The eBox was Engineered and Converted by A. C. Propulsion of San Dimas, California. The vehicle was originally a Toyota Scion xB. It is now a research vehicle owned by the University of Delaware.

100% ELECTRIC (not a hybrid!)

The average American drives 250 miles per week (13,000 / year). At 22 miles per gallon, the gas car costs **\$34.66** per week vs. electric **\$6.69** per week, or only **\$2.81** per week overnight electric rate.

Gas Car Example:
\$1,802.32 Cost/year

Electric Car Example No 1:
(residential electric rates)

\$347.75 Cost / year

Electric Car Example No 2:
(overnight recharging)

\$146.25 Cost / year

Calculations shown on back.

ZERO EMISSIONS from the car

Even with 50% of the electricity used to charge the batteries produced by coal fired generation, the air is still cleaner than driving the car powered by gasoline. If renewable power, such as photovoltaics (PV) or wind generation is used to recharge the cars, true -0- emissions from the car can be achieved. Calculations shown on back.

Vehicle-to-Grid Connection

With the on-board 35 kilowatt hours of electric power storage, the car becomes a power source for the electric grid. The car here has been modified by the University of Delaware and partners so it can be remotely dispatched for adding power to the grid. This vehicle now provides ancillary services to the electric grid in response to PJM's real-time control signal. In groups of 300 cars, it could be paid for this service on the PJM market.

eBox Specifications:

Acceleration:	0 to 60 miles per hour in 7 seconds
Top Speed:	95 miles per hour
Range:	120 Highway, 150 City
Battery Life:	5 years or about 50,000 miles (estimated)
Recharge:	2 hours using 240 Volt plug; or overnight using 110 Volt plug (the vehicle is equipped with an on-board charger.)
Other:	Air conditioning, electric windows, heat and defrost, cruise control, power assisted steering and brakes, single gear electric motor.
Maintenance:	No oil changes, brakes last 3 times longer due to regenerative braking that puts power back into the batteries



Green House Gas Emissions

Standard Gasoline Vehicle

	Emissions
Gas Car	465 gms / mile

Electricity Sources for charging the EV	Emissions
Renewables	0 gms / mile
50% Coal Fired Power Plant	83 gms / mile
100% Coal Fired Power Plant	165 gms / mile

Source: EPRI. GHGs included are carbon dioxide, methane, and nitrous oxide (N2O)

Cost / Year Calculations

Gas Car Example

	250	miles
÷	22	MPG
	11.4	gallons per week
X	\$3.04	Cost per gallon *
	\$34.66	Cost / week
	\$1,802.32	Cost / year

* Source: Energy Information Administration

Electric Car Example No. 1: (residential electric rates)

	250	miles
÷	4	miles / kilowatt hour
	62.5	kilowatt hour
X	\$0.107	residential rate / kWh
	\$6.69	Cost / week
	\$347.75	Cost / year

Electric Car Example No. 2: (overnight recharging rates)

	250	miles
÷	4	miles / kilowatt hour
	62.5	kilowatt hours
X	\$0.045	overnight rate / kWh
	\$2.81	Cost / week
	\$146.25	Cost / year

Source: Edison Electric Institute. "Average Rates Report." Winter 2007