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Patty's 2002 Toyota RAV4 EV
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Yes, you can drive an earth-friendly, electric car to work if you live in the mountains, and you don't even need to be an electrician to do it. With a range of over 100 miles per charge, this car has no problem tackling my forty-mile round-trip Highway 17 commute, even with lunchtime errands or after work trips. The majority of our driving needs revolve around getting to work and back every day. Most commutes are less than forty miles round-trip, so the RAV4 EV (Electric Vehicle) can fit seamlessly into your daily life.

The clean, quiet power of this car is a joy. Practical, compact SUV styling makes it a functional choice for the environmentally conscious driver.

After about four years of use in the rental and government vehicle fleets, the electric Toyota RAV4 is available for sale to the public. This is part of the

company's program to comply with the California Air Resources Board (CARB) mandate. By 2003, ten percent of all new vehicles sold in California will be required to meet low emissions standards, with two percent qualified as zero emission vehicles.

On a historical note, while the appearance and capabilities of this particular car are revolutionary, electric vehicles themselves are not new. More than 8000 vehicles registered in America in 1900 were electric.¹ These were known as "city" vehicles, and were considered to be less complicated and cleaner than their young internal combustion engine cousins.

The RAV4 is a pure electric vehicle, not a hybrid. There are no emissions (not even a tailpipe), no maintenance, and you "fill up" at night by plugging it into a home charging station that comes with the car. Hybrids contain a gasoline engine and an electric motor. Though they are more efficient than pure gas-powered cars, hybrids still emit pollutants into the air. The RAV4 EV has an electric motor only.

On a full charge you can run about 117 miles, depending on the terrain. Some electric vehicle owners make longer trips by planning stops at public charging stations found in shopping centers and airport parking garages.

The the first thing I addressed in my test drive was how the car would perform on Highway 17. I planned to use the car for commuting to work. I took a colleague and the salesperson (a rather large guy). We were easily able to climb all the way to Summit Road, passing vehicles along the way. Furthermore, you can make power when going downhill, using the car's regenerative braking system. I'd like to see a gas-powered car do that.

The top advertised speed is 78 mph. It's plenty fast for commuting in this area. My husband actually calls it "peppy."

The dashboard is like a "regular car" and the onboard amenities are similar. You'll find controls for air conditioning and heat, CD/AM/FM, power mirrors, windows and door locks, heated seats, timed charge, pre-cool or pre-heat, anti-lock brakes and dual front airbags. The state of charge meter shows you how much charge is left in the battery pack. It replaces the gas gauge. An additional gauge shows the momentary draw on the battery.

Several tiers of warnings tell you when you're running low on battery power.

Unlike some electric vehicles, this car has room for five passengers, plus cargo space in the back. My dog especially likes the cargo area for trips to the beach.

The RAV4 EV has 24 factory sealed 12-volt rechargeable nickel metal hydride batteries (recyclable) used to propel the car and an additional 12 -volt lead acid battery for accessories (heating, air conditioning, CD player and radio, etc.). The batteries should last 100,000 miles.

Charging is relatively inexpensive. You charge it at night, at home, when the electric rates are at their cheapest, around 5 to 8 cents per kwh. It takes six to seven hours to charge it fully. You can drive up to 117 miles on one charge. The cost to drive it is 3 to 3.5 cents per mile, compared with some SUVs, which can cost as much as 8 or 9 cents per mile.

The RAV4 has a sale price of approximately \$42,000, but after rebates and tax credits, the actual cost is about \$30,000. This includes the home charging station, which you pay to have installed. Incentives are also available for employers who have EV charging installed at the workplace. In addition, Senate Bill 1782 mandates that the registration fees collected by the Department of Motor Vehicles will be based on a more affordable equivalent gas-powered car, not on the temporarily high cost of this new technology.

If you buy the vehicle (as opposed to leasing it) you can get an additional \$3000 tax credit. Here's another plus. You can drive a zero emissions vehicle alone in the carpool lane. Other benefits include free public charging at places like Costco and Fry's and free parking in many municipalities. There is a new charging station in the Santa Cruz Front Street parking garage where you can also charge up for free.

More information on this car and public charging infrastructure is available on the RAV4 EV Web site (<http://rav4ev.toyota.com>) or the Electric Auto Association at (<http://eaaev.org/>). To learn about the rebate program, visit www.arb.ca.gov/msprog/zevprog/zip/zip.htm.

1 McDowell, Donald and Kenneth. *When R.E. Olds Chased After Strange Electric Gods*. <http://www.ausbcomp.com/~bbott/cars/oldselec.htm>

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