

Shifting Gears

The Prius Triplets: Saving Gas and Avoiding Lightning

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By Roger Witherspoon

A decade ago, when gas was reasonably cheap, and SUVs approaching the size of buses dominated the roadways, Toyota did something unusual.

Instead of following the prevailing wisdom and building bigger, they came out with a new class of small cars, the Toyota Prius hybrid, whose claim to fame was that it could get about 50 miles per gallon. The Prius was about the size of the popular Honda Civic, but had a bit less space in the back because there was this large battery pack under the rear seat and trunk. It was an innovative, dual motor system in which the car could drive at low speeds – under 30 miles per hour – on battery power and an electric motor and at higher speeds with a standard gasoline engine. At that time, however, consumers openly wondered if the batteries could explode, if drivers could be electrocuted, and if the dual system would last 50,000 miles or more.

And it was an open bet whether fuel economy would sell in a market where Detroit automakers scoffed at the technology and the five-mile-per-gallon Hummer and 12

MPG Cadillac Escalade were major status symbols.

A decade later, the Hummer is gone, Detroit is climbing out of bankruptcy, the Escalade comes in a hybrid version and the pioneering Prius closes out April with the sale of its one millionth American Prius. Toyota could have stopped with minor adjustments to the Prius, now a slightly larger, four-door model with a better lithium-ion battery.



But to mark the occasion, Toyota decided it was time for the Prius to develop siblings. So at the New York International Auto Show, the Prius is flanked by a larger, hybrid crossover model called the Prius V, and a tri-engine, plug-in electric Prius.

There is little new in the iconic standard Prius which has set the standard for fuel efficiency with a 50 MPG average. The Prius V is, literally, a stretch. It looks pretty much like the standard Prius – resembling a rolling trapezoid – only gown up. In size, it's a Prius and a half, and intended to more comfortably meet standard family needs. In that arena, it has a lot more room and electronic gadgets while delivering an estimated EPA rating of 42 MPG in city driving and 38 MPH on the highway.

The second row seats are versatile in that they can fold flat to enlarge the cargo area, or recline 45 degrees for more comfortable napping. For entertainment, the V has Toyota's new "Entune" multimedia system which provides distracting links to the internet in addition to a wide variety of music. The car offers XM satellite and HD radio in addition to a CD player and connections for iPods, MP3 players, smart phones, and USB drives. The system accesses the internet for Bluetooth streaming and, using Bing, will locate and read your email and allow limited voice responses.

The crossover field is a crowded one. The Prius V will have to try and elbow room between Asian competitors like the Honda Crosstour and Nissan Murano – which now has a convertible model – or slide upscale to the Cadillac SRX.



The company is seeking a different niche with the new Prius Hybrid Plug-in electric vehicle. Toyota is circulating 160 of them around the country at this time, gathering user feedback in anticipation of a formal launch next year. The initial Prius was revolutionary in that Toyota envisioned and developed a car which could fully operate on two different power plants. The new plug-in goes a step further, allowing you to drive with three power systems.

The hybrid power systems are standard. What is different is that the new battery pack powers the electric motor for about an hour, or 13 miles, at speeds up to 60 miles per hour. After that, the charge is depleted and the car reverts to the standard hybrid combination with the interplay between the gas engine and electric motor. The difference is incremental. What the 13 electric power only miles do is extend the miles per gallon average of the car.

Wade Hoyt, Toyota's east coast director, who commutes 42 miles each way into Manhattan from the northern Westchester County suburbs, said "my commute includes the hilly, twisting Depression-era Taconic and Saw Mill Parkways, Manhattan's Westside Highway and congested mid-town traffic. In a conventional 2011 Prius, I can average about 51 mpg into town (downhill on balance) and 48 mpg or so going home (uphill on balance).

"With a full charge in the Prius PHV, I got 73.2 mpg going into Manhattan! That's what those 13 gas-free miles did for me. Since I can't charge up at the parking garage near my office, I was reduced to 48 mpg on the return trip. That resulted in a round-trip average of 61 mpg – an 11.5 mpg or 23% improvement over the "normal" Prius on my 84-mile commute. A 20-mile trip could have given me about 145 mpg, and a 10-mile trip infinite mileage!"

There is no free electric lunch, however. The use of a plug-in electric car on a

regular basis can boost the cost of a household's electric bill by up to 50%. At times when gasoline prices are hovering around \$2 per gallon, the additional electric costs – particularly in high priced areas like the New York metropolitan region – it may be cheaper to drive a regular Prius or other hybrid. The gasoline vs. electricity cost equation can change, however, as gas prices float towards \$5 per gallon.

As with anything new, the plug-in takes getting used to. It has a lithium-ion battery which is “filled” in about three hours on a standard, 110 volt plug, and about half that time with a 220-volt outlet. I plugged the car into the garage outlet when I retired for the evening. The car sat quietly in the driveway, the long cord snaking under the garage door, quietly drinking. Then, as the nightly news was heading into sports, I realized it was pouring rain and there was this rolling electrical machine in the driveway. While I wouldn't give a second thought to leaving Christmas lights outside in the snow and rain, this felt odd. So I unplugged it.

As it stands, Toyota says the existing system is as safe as the typical outdoor plugs used for lighting displays, though they recommend the charging be done indoors. But, to reassure motorists, the car's plug is being redesigned for the 2012 model to make it even more waterproof.

