

## Why 100,000 Miles for Prius?

It has come to our attention that an *Oregonian* article about the Dust-to-Dust report was light on facts, slim on details and void of any explanations. This, in turn, turned into a bloggers' frenzy with a key question being the life expectancy of the Prius.

To clarify:

The Prius was amortized over 100,000-plus miles for a number of reasons.

The 100,000 mile life expectancy for Prius is time as well as distance sensitive. The historical data shows early Prius models were driven an average of only 6,700 miles per year (rounded). At that rate, the vehicle would require 15 years to reach 100,000 miles. It was our determination that is highly unlikely the '05 or '06 Prius models would still be in active service let alone serviceable 15 years from today.

The reason for this is twofold: First, the first and second generation Prius hybrid technologies are rapidly being replaced by lighter, more efficient systems for the new and upcoming Prius versions.

Historically, vehicles that become obsolete have a shorter life span (in time) than existing or serviceable technology.

Second, competitive vehicles to Prius are being planned by virtually all automakers using either Prius-like dual-mode or plug-in hybrid technology (e.g. Chevrolet Volt). This competition, looking at the historic context which is all we can do, is likely to drive the value of older technology Prius models lower. We've already seen the early stages of this happening with decreasing used values for all of the original batch of hybrids.

At some point, economic considerations make it far more practical for owners (or dealers who receive them in trade) to "retire" the vehicles because a limited used-vehicle market would exist for it. Again, in Prius's case this is time, not necessarily only mileage, sensitive.

Can the Prius be driven more than 100,000 miles? Of course. The vehicle is superbly engineered. But this assumes the average Prius driver begins using the car more often. If the Prius were driven the American average of 13,000 miles per year, it would hit the 100,000 mile mark in 7.6 years, well within its attractive (financially and technologically) useful life span. In 10 years, again about the maximum for ground-breaking technology, it would have registered 130,000 miles. Mechanically, there is no logical reason for the Prius not to last 130,000 miles or more.

The latest data shows Prius owners are driving more than early Prius owners and the use of the vehicle is becoming a primary means of transportation in a household rather than a novelty. But the average annual mileage, outside of certain southern-tier states, remains barely above 7,000 per year.

Other components on the Prius, such as tires, are less distance-mileage friendly than non-hybrids of the same size and weight. For example, surveys of Prius owners by us and other research companies show barely 16,000 miles average life for original-equipment tires compared to 43,000 for Toyota Corolla. This high-tech tire uses a compound and design that reduces rolling resistance and thus improves fuel economy. But the typical replacement tire for a Prius will not likely be the OEM specialty variety, cutting both fuel economy and distance-per-battery charge of the Prius.

As for Hummer, much of the design, development and manufacturing energy costs are spread across more than just this single model. (One of the original and recent Prius disadvantages, quickly being turned around.)

In addition, the platform, power train and other mechanical components are shared with a variety of other GM products and have a significantly longer post-disposal life in the replacement market. Higher volume of components speeds manufacturing and reduces energy per-unit costs. Add the simplicity of disposing of the Hummer and the entire per-mile cost becomes lower even though the fuel economy is staggeringly worse than Prius.

And as I pointed out in the past, the energy cost per mile is unequivocally going to decline for Prius over time as the technology continues to spread across other models and the disposal/scrap industry learns how to deal with its high-tech materials and components.

"Sir, I have just been honored with a Letter from you, dated 26th past, in which you express yourself as astonished, and appear to be angry that you have no Answer to a Letter you wrote me on the 11th of December, which you are sure was delivered to me... Whoever writes a Stranger should observe three points; 1. That what he proposes be practicable. 2. His Propositions should be made in explicit Terms so as to be easily understood. 3. What he desires should be in itself reasonable. Hereby he will give a favorable Impression of his Understanding, and create a Desire for further Acquaintance... Now it happened that you were negligent in all of these points."

-- Benjamin Franklin

April 6, 1777