

Toyota Celebrates 10 Years of Prius

TORRANCE, Calif., July 27, 2010 - - Ten years ago Toyota launched a new kind of car in North America. It was the Prius, an affordable car with a hybrid gas/electric powertrain. In the decade that followed, the Prius made an indelible mark on the automotive industry. The car with the signature wedge shape proved to be an agent of change, and a catalyst for innovative ideas. Over 1.8 million units have been sold in the world to date, with nearly 900,000 in the U.S. alone.

“Toyota recognized in the 1990s that sustainable transportation would become a huge challenge in the coming decades,” said Jim Lentz, president and COO of Toyota Motor Sales, USA, Inc. “Those realizations proved accurate, and if anything, even more profound considering what we know today.”

It’s hard to say what would have happened, had there been no Prius in the U.S., but in the 10 years since the car has been available, significant benefits have accrued. Nearly 900,000 people who chose to drive a Toyota Prius versus the average car have prevented an estimated nine million tons of CO₂ from entering the atmosphere,* conserved approximately 650 million gallons of gas,** and saved an estimated 1.5 billion of their hard-earned dollars.***

The first Prius came to North America in July of 2000. That year, the hit of the North American International Auto Show in Detroit was the Hummer H2, and national gasoline prices averaged about \$1.50 per gallon. Modest Prius sales goals of 12,000 units a year were set.

Not all early reviews were flattering. One car magazine said, “With a real-world 35 mpg, this is a car that neither enthusiasts nor greenies can fully embrace.” Competing manufacturers announced that hybrids were “not an economical or practical solution” to America’s future needs. Many insisted that Toyota had provided the solution to a problem that did not exist.

Prius owners, however, felt otherwise. Widely characterized as extreme environmentalists, early Prius adopters were actually more likely to be tech-savvy professionals. Those first owners, well aware of public events and global developments, were conscious of the impact of their own choices. They became articulate advocates for the technology. Soon, demand outstripped supply, and production had to be stepped up as waiting lists became months long.

In fact, Prius sales were driven by a number of factors. As fuel costs spiked, a clear economic rationale for purchase emerged. But more significantly, the Prius realigned customer expectations as to what a car should be.

Driving a Prius delivered a new kind of satisfaction, based on a new set of values. It was a car enriched with advanced features, in tune with global issues that assumed greater importance every year. It provided an affordable transportation solution that earlier all-electric cars did not, as it was able to use existing infrastructure without concerns for recharging or range limitations.

Today, the Prius has become a mainstream vehicle. It is the third-best selling car in the Toyota line, and an icon for the company. Owner loyalty figures are among the highest in the automotive industry.

Refining The System

Each generation of the Prius has moved the bar higher. When the first-generation compact Prius was launched in 2000, buyers got 97 combined horsepower and were told to expect 41 mpg. Ten years later, the midsize Prius has 134 horsepower and delivers an EPA rating of 50 mpg overall.

Improvements have been continuous. Compared to the original car in 2000, the 2010 Prius is bigger, faster and even cleaner. While the first generation was classified as a Super Ultra Low Emissions Vehicle (SULEV), the current Prius is a SULEV/AT-PZEV, meaning that it meets super-ultra-low-emissions-vehicle requirements, and emits zero emissions at rest. Further innovations, like the solar powered ventilation system on the 2010 model, contribute to the car's reputation as a harbinger of future trends and technologies.

As time went on, the media gained a better understanding of Prius. The editors of Motor Trend magazine, in naming the Prius "2004 Car of the Year," were "thoroughly impressed with the Prius as not only a technological marvel, but as a truly liveable sedan." The Car Connection described it as "Nothing less than the world's most sophisticated powertrain ever delivered to ordinary customers." Highly visible celebrities became owners, helping make Prius an aspirational eco-car.

In The Beginning...

The development of the original Prius, like sending a man to the moon, was a daring project with many breakthroughs and discouraging setbacks. What started as a conceptual exercise between a few planners and engineers ultimately became an intently focused, determined corporate priority. Creating the vehicle that became the Prius was accomplished in a relatively short amount of time through use of computer models to design and prove ideas. By minimizing the use of prototypes, Toyota engineers changed the way cars are designed and built.

Many of the components had to be invented from scratch. Those that had already been invented, such as regenerative brakes and electronic power steering, needed to be improved and adapted for mass production. Global standards for electronic components had to be set, and new software written.

A total of nine on-board processors were needed to manage the power delivery between engine, battery, brakes and motor/generator. Many motors and batteries were developed, tested, and discarded before they could be proven. Engines had to be converted to run on the more efficient Atkinson Cycle to power a new, unique transaxle.

A completely new type of instrumentation had to be developed. With the Prius, there was a need to monitor the interplay between the engine and the battery, leading to a display that kept the driver informed of his status on both counts. The new instrumentation empowered the drivers to improve mileage by altering their technique, turning driving into an interactive game. Today, mileage feedback displays are in use on almost every new vehicle on the market.

Unprecedented quality-control standards had to be instituted as motors and batteries that had been reliable enough for stationary use proved vulnerable to heat, cold and vibration. Multi-

million-dollar joint ventures were established in order to assure the G21 Project, as it was called, could one day lead to a mass-produced vehicle.

These investments were made in an automotive environment that was dominated by sales of trucks and SUVs; in a world that The Economist magazine described as “drowning in oil.” Through it all, Toyota management remained convinced that their goal of combining fuel efficiency with environmental performance would one day be appreciated.

Today there are nearly 30 hybrid models on the road from 12 brands, with more on the drawing boards. Many of the patents filed during the development of the original Prius are now licensed to manufacturers who also take advantage of Toyota’s initial R&D investment. Nevertheless, one out of every two hybrids on American roads is a Prius, which remains the benchmark to which all hybrid cars are compared.

The Prius of the Future

There may be many futures for the Prius and Hybrid Synergy Drive, but one significant advancement, the Prius Plug-In Hybrid (PHV) is already here. A fleet of Prius Plug-In cars is now in a global-demonstration program aimed at proving the capabilities of the cars and fine-tuning the design to meet customer expectations. The car is designed with small Lithium-Ion battery packs that will help the PHV produce even less greenhouse gas emissions than conventional hybrid vehicles. A commercial PHV is scheduled to go on sale in 2012.

Longer term, Hybrid Synergy Drive components and software provide a direct bridge to clean, efficient drivetrains of the future. And while breakthrough technologies are on the horizon, continuing gains in battery technology and internal combustion engines keep the Prius competitive. Even in a world of alternative fuels, electric cars and hydrogen fuel cells, it’s a good bet that Prius cars based on Hybrid Synergy Drive will be around for a long time to come.

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**Based on average of EPA-estimated CO2 emissions rating of all MY01-MY10 cars and 10,000 miles/year. Fueleconomy.gov.*

***Based on average EPA-estimated combined mpg rating of all MY01–MY10 cars and 10,000 miles/year. Fueleconomy.gov. Actual mileage will vary.*

****Based on average EPA-estimated combined mpg rating of all MY01–MY10 cars and 10,000 miles/year. Fueleconomy.gov. Actual mileage will vary. Gas prices based on average U.S. all grades/all formulations retail gasoline prices, including taxes. U.S. Energy Information Administration.*

Prius Timeline: Significant Dates and Milestones

1990: Meetings begin concept work on Project G21, “a car for the 21st Century”, in Toyota City and Higashifugi Technical Center. Fuel economy target was 20 kilometers per liter, about 50% better than other passenger cars of the time.

1994 (January): Project team addresses drivetrain, chassis and packaging decisions. The team was granted the right to develop new parts from scratch “if necessary.”

1994 (July): G21 Project, Phase III begins, accelerating development for production of the Prius parallel to development of Toyota’s experimental hybrid system.

1995 (June): Toyota Hybrid System approved and code-named 890T.

1995 (October): Hybrid concept Prius displayed at Tokyo Motor Show with propulsion system described as Toyota-EMS (“Energy Management System”).

1996 (December): Anticipating the future EV and hybrid vehicle market, Panasonic EV Energy was established as a joint venture between Matsushita and Toyota.

1997 (December): Gen 1 Prius launched in Japan after a final design period of 17 months. Wins Japan Car of the Year award and Global Climate Protection Award from the U.S. EPA, among other accolades.

1998: Announced in July that Toyota would export 20,000 units annually to North America and Europe.

2000: Post-Prius era of automotive history begins. From this time on, the concept of environmental performance begins to take root, and all economy cars would be compared to the Prius.

2003: Prius sales hit 24,000 units, double the number originally planned.

2004: Second generation Prius launched, called “Car of the Year” by Motor Trend Magazine.

2007: Total U.S. Prius sales reach 500,000 units since it first launched in July 2000.

2008: National average gas prices hit \$4.09 per gallon on July 7.

2009: Third generation Prius launched as 2010 model with larger 1.8-liter engine, 0.25 coefficient of drag and 51 mpg City.