

PRIUS: more POWER more FEATURES and no less VIRTUE

By Joe Sage

- 50 MPG
- ADDITIONAL HORSEPOWER
- NEW AND INNOVATIVE TECHNOLOGIES
- IMPROVED AERODYNAMICS
- MORE HEAD AND LEGROOM

Seen by many as a benchmark for cars of the future, the Toyota Prius has delivered high fuel economy and ultra-low emissions to more than 1.2 million owners worldwide for over 10 years. The all-new 2010 Prius will raise its level of convenience features and performance, while achieving estimated EPA fuel economy of 51 mpg city, 48 mpg highway and 50 mpg combined. And it achieves these mileage figures with a *larger* engine (offering more torque at lower RPM, highway speeds and uphill).

The original 2000 Prius immediately appealed to environmentalists, as well as generally trendy and techie types, and it had a long wait list. When the second generation arrived in 2003, demand consistently exceeded supply. The second generation had broader appeal, to more families and "full package" buyers. The third generation was revealed in Detroit in January, with the intent of keeping the Prius the best-selling hybrid in the market. Challenges to its supremacy are basically twofold: the economy and the new Honda Insight. In comparison with the Insight, Toyota points out that the Prius is larger (midsize), has better EPA fuel mileage ratings, has many features not available on the Insight, and is a full hybrid, meaning it can drive completely on either gas or electric power. It does cost a little more, though.

Development of the new Prius took 2000 engineers and 100 team leaders four years. Their missions included fuel economy and other green goals, an update to the vehicle's styling, advanced equipment and overall performance, recognizing that hybrid sales are too mainstream now to get by on niche characteristics alone.

ALL NEW INSIDE AND OUT

New style cues include a smaller grille and a larger, lower body (1/2" longer, 3/4" wider, but with the same wheelbase and same height). The car has a strong beltline, but overall retains its aerodynamic basis. Restyled headlights are reminiscent of those on the performance-oriented new Nissan Z. The centerpoint of the roof was moved back about 4" to increase rear headroom. The tail was extended, making the rear flatter with a longer spoiler, for a lower coefficient of drag (Cd). The undercarriage is covered by flat trays with aero splitters. And LED taillights use 88% less energy, one of many energy-saving features.

Inside, they have added five cubic feet, for more knee and headroom in the rear, and more shoulder and hip room (plus more adjustment range) in the front. There is increased cargo space under the floor (and a tonneau cover stores when not in use). The shifter is in what Toyota calls a "more shifterlike position," and there are new colors outside and in, including a nice two-tone grey interior. The seats offer more adjustment and support (plus leather, heat and lumbar features). Along with the tilt/telescoping steering wheel, the car now "fits" more individuals. Prius interior air quality has few peers, with pollen/dust control and an ion generator available.

The Prius is equipped with Toyota's Hybrid Synergy

Drive and certified as an Advanced Technology Partial Zero Emissions Vehicle (ATPZEV), emitting over 70 percent fewer smog-forming emissions than the average new vehicle. A larger and more powerful, yet more efficient, 1.8-liter Atkinson-cycle four-cylinder engine produces 98 horsepower at 5,200 rpm. Together with its electric motor, the hybrid system in the new Prius generates a combined net horsepower of 134, an increase of 24 horsepower over the previous generation.

The battery is not new. Toyota engineers have of course studied this component very carefully, and after almost 10 years in the US, they report few problems and are now watching toward the 15-year mark.

There are three driving modes: EV, ECO and PWR. EV is electric-only, for travel at about 25 mph for less than a mile (if the display shows 3-4 bars of charge). ECO is for general fuel economy in start/stop/go traffic, smoothing out the application of power and regulating air conditioning and heat. PWR is for mountain and freeway driving and adds sportiness to the Prius overall.

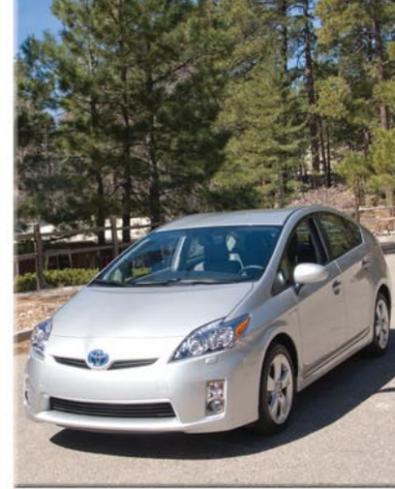
TEST DRIVE

We attended a 2010 Prius launch event in Tucson, where we were presented with four test drive routes, some geared toward general performance and some geared toward a fuel economy challenge. The two general drives were both challenging climbs up Mt Lemmon (a good chance to test the Power mode): a long route of about an hour and a half to an elevation of some 8000 feet, and a shorter 5-mile drive up the same road. The fuel economy routes included a 20-to-30-minute river route with twisty roads and traffic, or a 40-mile route through much of Tucson, including I-10 and a pass through the airplane graveyard south of the city. In both cases, we went with the longer route, Mt. Lemmon first.

We were monitoring the readouts for fuel efficiency and other good behavior, but generally the mountain road was a steady climb, with plenty of curves and tight switchbacks, and almost all two lanes, so it was a good opportunity to test the Prius as a daily driver, or even a distance or road trip car. This might be an ideal road for a 911 or Audi quattro, so we did notice the lesser ride inherent in a car of this size, height and price range, but it was a very normal ride overall. So normal, in fact, that its hybrid nature wasn't even of particular note, and that's a very good thing, in this case. It's a vehicle with a lot of high-tech tricks up its sleeve, but ultimately it's just a very sound, normal vehicle.

For the fuel economy challenge, we were benchmarked against 68.2 mpg achieved by our event hosts, a challenge, indeed. Our co-driver had to fly out midday, so we had the route book jammed under a camera case, to keep it open, and as fate would have it, it wasn't until late in the trip that we saw the note at the top, indicating it would be very wise to click into the EV mode at stops, for an all-electric cruise when the light turned green. We wish we had seen that. Nonetheless, by about halfway through the route, we had brought our mileage up as high as 83 mpg, not bad at all. Mostly, we were staying in the 70s, but there was still hope. In fact,

KEEP RIGHT >>



TOYOTA AND LEXUS HYBRIDS TOP ONE MILLION SALES IN THE US

Combined Toyota and Lexus hybrid vehicle sales in the US have topped the one million mark. The milestone was achieved with six Toyota and Lexus hybrids including the Toyota Prius, the world's first mass-produced gas-electric hybrid and the all-time worldwide leader in hybrid sales. Toyota has had nearly 75 percent of all hybrid vehicle sales in the US over the past 10 years. Worldwide sales of Toyota and Lexus hybrids had exceeded 1.7 million vehicles through January 2009.

Toyota pioneered modern gas-electric hybrid technology with the Prius in late 1997 in Japan. Its popularity the launch of the Prius in the US in July 2000. The first-generation US Prius was a low-volume vehicle (12,000 produced annually) that gained an immediate following, particularly among environmentally conscious consumers. The second-generation Prius launched in fall 2003 as a 2004 model. Larger, restyled and with Toyota's new Hybrid Synergy Drive technology, Prius was an instant hit. By 2005, Toyota was producing over 100,000 vehicles annually for the US. Prius became the third-best selling Toyota passenger car in the US after the Camry and Corolla. By February 2009 more than 700,000 Prius had been sold in the US, more than half of the 1.2 million sold worldwide.

Hybrid technology then expanded to existing Toyota and Lexus models. In 2005, Lexus introduced the crossover RX 400h, the world's first hybrid-powered luxury vehicle. Two months later Toyota launched the Highlander Hybrid SUV. In 2006, the Lexus GS 450h debuted as the world's first front-engine/rear-wheel-drive full-hybrid performance sedan. 2006 also marked the debut of the Camry Hybrid, the first Toyota hybrid to be built in the US.

2007 brought the LS 600h L luxury hybrid sedan, the world's first full-hybrid V8, and the second-generation Highlander Hybrid, a complete redesign. 2009 includes the summer arrival of the second-generation 2010 Lexus RX 450h, with fuel economy up by about 20 percent but with 27 more horsepower. This spring marked the launch of the all-new third-generation 2010 Prius, with a combined EPA fuel efficiency rating of 50 mpg.

Late summer of 2009 will see the launch of the 2010 Lexus HS 250h, the world's first dedicated luxury hybrid vehicle. The HS 250h will be Lexus' fourth hybrid and the most fuel-efficient vehicle in its lineup. ■



STAR SAFETY AND SAFETY CONNECT™

All Prius models offer Toyota's Star Safety System™ as standard equipment, which includes enhanced Vehicle Stability Control (VSC) and Traction Control (TRAC) Systems, Anti-lock Brake System (ABS) with Electronic Brake Force Distribution (EBD) and Brake Assist (BA). Other standard features include electric power steering (with a rigid mount for better road-to-driver feedback) and four-wheel disc brakes.

Starting this fall, select Prius models will include Toyota's all-new telematics service, Safety Connect™, which will offer four safety and security features: Automatic Collision Notification, Stolen Vehicle Location, Emergency Assistance Button (SOS), and Roadside Assistance. Safety Connect will be available by subscription, with an included one-year trial subscription.

ECO-FRIENDLY TOYOTA DEALERSHIPS

Three Toyota dealers (two in Texas, one in Utah) have become the first in the country to receive certification from the US Green Building Council (USGBC) through its Leadership in Energy and Environment Design (LEED) program. Three other dealerships are now in the certification review process, and others still in the planning process could be certified in 2009. The USGBC is a non-profit organization committed to expanding sustainable building practices. It provides various levels of LEED certification based on evaluations in such areas as sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. The USGBC reports that 48 percent of the nation's energy is used by buildings, including 70 percent of the nation's electric use. Toyota also is assisting dealers with different power sources such as solar, wind and geothermal.



with the EV trick now in hand, things could only get better. Couldn't they? Not so. It's definitely a special kind of fun to play yourself against the computer, driving with economy foremost in mind. But sooner or later, the response this elicits in other drivers will likely motivate you to drive a bit more like your neighbors. We started to do so more often, and we started dropping into the 60s. Toward the end of the route, we flipped the proverbial coin on an ambiguous route note, heading up over a very steep rise in the foothills, during which the fuel mileage really started to slip. Now with a line of traffic behind us, and with no shoulder to pull onto, we had to give it the gas. By the time we got back to camp, we were in the mid-60s and disappointed, though that's still well over the car's 50 mpg EPA rating. The winner? A Denver talk radio host, who had been right next to us earlier in the route, but dropped back in the name of science, pulled in to the finish line some time later than we did, having achieved a solid mid-to-upper 70s. Nice job.

PRIUS PACKAGES AND PRICING

The Toyota Prius comes in one grade with four different standard equipment packages named II, III, IV and V, each with varying levels of exterior and interior features (see a list of standard features and options at right). Toyota sees the most popular model being the Prius II, with an MSRP of \$22,000, equipped with a high level of standard features. They say this model has more than \$2,000 of added value, including features buyers want most, at the same price as the previous base model. (There will be a \$21,000 Prius I base model, later, designed to appeal to the most cost-conscious.)

Prius also brings many new firsts to the Toyota lineup. To help increase fuel efficiency, the 1.8-liter engine is beltless, uses an electric water pump, a new exhaust gas recirculation (EGR) system, and an exhaust heat collection system. A new Touch Tracer Display features touch sensors on the steering wheel switches designed to reduce driver eye movement for better concentration on the road. An available sliding glass moonroof has solar panels to power ventilation system (but not a/c) while parked; a remote air conditioning system functions on battery-power alone, allowing remote operation to cool the interior before getting in the car. Also new is an available Dynamic Radar Cruise Control system that uses advanced millimeter wave radar. The system also enables Lane Keep Assist, which helps the driver stay safely within the lane, and the Pre-Collision System, which retracts seatbelts and applies the brakes in certain conditions when a crash is unavoidable.

90% of current Prius owners say they would buy another. (Note: it's also finally possible to buy a Toyota Certified Used hybrid.) Word-of-mouth has been very important, now expanded to Facebook, YouTube et al. Production of the 2010 Prius started in late April, with sales beginning in late May.

Toyota projects 100,000 units sold in the balance of 2009, and 180,000 during the first full 12 months.

A plug-in Prius in an edition of 150 will enter feasibility evaluations later this year. By the 2020s, Toyota will have a hybrid option on all vehicles. There will be 10 new hybrids by 2012, and Toyota's goal is to sell a million hybrids per year globally. ■

2010 Prius models, features and pricing

Base MSRPs do not include a delivery, processing, and handling (DPH) fee of \$750. The DPH fee for Southeast and Gulf States may vary. Standard Equipment MSRP.

Prius I : \$21,000

To be released at a later date.

Prius II : \$22,000

- 1.8-liter Atkinson cycle engine
- P195/65 R15 all-season tires with alloy wheels & covers
- Smart Key (driver's door) and Push Button start
- EV, Eco, and Power modes
- Multi-Informational Display with energy monitor and fuel consumption history
- AM/FM/MP3 CD player with six speakers and satellite radio capability and auxiliary audio jack
- Cruise control
- STAR Safety System and active front headrest
- Seven airbags including driver knee airbag
- Four-wheel disc brakes
- Tilt/telescopic steering wheel with audio and HVAC Controls with Touch Tracer Display
- Six-way adjustable driver seat
- Auto up/down on all windows
- Color-keyed foldable power heated side mirrors

Prius III : \$23,000

In addition to Prius II features:

- JBL AM/FM/MP3 six-disc CD changer with eight speakers
- Integrated satellite radio capability
- Hands-free phone capability via Bluetooth® wireless technology

Prius IV : \$25,800

In addition to Prius III features:

- Three-door Smart Key system
- Leather-trimmed interior
- Heated front seats with driver lumbar support
- Driver and front passenger water repellant windows
- Plasmacluster™ ionizer
- Auto dimming mirror with HomeLink®

Prius V : \$27,270

In addition to Prius IV:

- 17-inch alloy wheels and P215/45 R17 tires
- LED headlamps with auto leveling and washers
- Integrated foglamps

OPTIONAL EQUIPMENT

Navigation Package: Voice-activated touch-screen DVD navigation system with JBL AM/FM/MP3 four-disc CD changer, eight speakers, integrated satellite radio capability, XM NavTraffic capability, hands-free phone capability and music streaming via Bluetooth wireless technology and integrated backup camera

MSRPPrius IIPrius IIIPrius IV.....Prius V
\$1,800.....NA.....AvailableAvailable.....Available

Solar Roof Package: Includes Navigation Package equipment plus power tilt/slide moonroof with Solar Powered Ventilation System and Remote Air Conditioning System

MSRPPrius IIPrius IIIPrius IV.....Prius V
\$3,600.....NA.....AvailableAvailable.....NA

Advanced Technology Package: Includes Navigation Package equipment plus Dynamic Radar Cruise Control (DRCC), Pre-Collision System (PCS), Lane Keep Assist (LKA), Intelligent Parking Assist (IPA)

MSRPPrius IIPrius IIIPrius IV.....Prius V
\$4,500.....NA.....NANAAvailable

