



## All-New Third Generation Toyota Prius Raises the Bar for Hybrid Vehicles – Again

- 50 MPG Rating with Increased Horsepower
- Innovative Technology and New Amenities
- Improved Aerodynamics and Interior Room

Introduced in spring 2009, the all-new 2010 Toyota Prius has once again set new standards for innovative hybrid design and technology, raising its level of convenience features and performance to new heights, including a combined EPA estimated fuel efficiency rating of 50 miles per gallon.

Credited with establishing hybrid technology as a foundation for future vehicles, the three generations of the Prius model have delivered superior fuel economy and ultra-low emissions for more than 1.3 million owners worldwide for more than 10 years.

The midsize third-generation 2010 Prius offers even better mileage ratings, enhanced performance, and innovative design features. The patented Hybrid Synergy Drive system in the 2010 Prius is 90-percent newly developed, with significant improvements over previous models. The third-generation Prius is quieter and roomier than previous models, as well. It is equipped with advanced standard and available features such as a moonroof with solar panels, four driving modes, Intelligent Parking Assist (IPA) and steering wheel touch controls that display on the instrument panel.

### **An Eco-Icon**

Prius entered the market in 1997 as the world's first mass-produced hybrid. The name Prius -- "to go before" in Latin -- became symbolic of hybrid car technology. At the same time, the Prius helped boost public awareness for the automobile's role in the environment, specifically putting a focus on improving fuel efficiency and reducing carbon emissions. From the beginning, Toyota's full-hybrid system was developed almost entirely in-house and has become a driving force behind advanced vehicle technology.

The company's exclusive Hybrid Synergy Drive System was introduced in 2004 on the second-generation Prius. Since then, nearly 700,000 Prius models have been sold in the U.S.

In designing the new, third-generation Prius, Toyota engineers combined a careful refinement of existing systems with a leap in new technology necessary for the future of automobiles. During the development of the Prius, more than 1,000 patent applications were filed worldwide.

### **Improved Fuel Economy, Power and Environmental Performance**

The new Prius is built using processes that reduce emissions in every stage of the vehicle lifecycle, from production and driving, through to eventual disposal and dismantling years down the road.

The 2010 Prius extends its record of continuous improvement in fuel economy. The first-generation Prius was rated 41 EPA combined mpg, and the second-generation model achieved EPA combined 46 mpg rating. Using a combination of technologies, Toyota increased fuel efficiency for the new Prius to an EPA estimated 51 mpg in city driving, 48 mpg highway and a combined 50 mpg.

A larger and more powerful 1.8-liter Atkinson-cycle, four-cylinder engine produces 98 horsepower at 5,200 rpm in the new Prius. Together with its electric motor, the hybrid system generates a combined 134 net horsepower, an improvement of 24 horsepower over the previous generation.

The new, larger engine helps improve performance and also helps improve highway mileage. The 2010 Prius can accelerate from zero to 60 mph in 9.8 seconds. By producing greater torque, the new engine can run at lower average rpm on the highway, thereby using less fuel. Mileage is especially improved in cold-start conditions and at higher speeds.

Use of an electric water pump and a new exhaust gas recirculation (EGR) system also contributes to the engine's efficiency. The 1.8-liter Prius engine is the first Toyota powerplant that requires no accessory drive belts, helping enhance powertrain efficiency and also potentially reducing maintenance costs.

Unlike many other hybrid vehicles available, Prius has been an uncompromised "full" hybrid since introduction. This allows it to run on engine alone, battery alone, or a combination of both. With the series-parallel Hybrid Synergy Drive system, Prius can operate on electric power only and charge its batteries while running. Additional hybrid performance improvements for the third-generation Prius include:

- The transaxle is lighter and reduces torque losses by as much as 20 percent compared to the previous model.
- The inverter, which converts direct current to alternating current, has a new direct cooling system to reduce size and weight.
- Taken together, the inverter, electric motor and transaxle are smaller and 20 percent lighter.
- A redeveloped electronically controlled regenerative braking system has been adopted, with control logic optimized to enhance regeneration.

The new Prius offers four driving modes ("Normal" plus three more). The available EV Mode allows driving on battery power alone at low speeds for about a mile, if conditions permit. There is also a Power Mode, which increases sensitivity to throttle input for a sportier feel, and an Eco Mode, which helps drivers achieve their best mileage. A multi-information display panel that monitors fuel and energy consumption is standard. It provides feedback on the Prius' efficiency using three different displays to help the driver acquire economical driving habits.

The new Prius is certified as a Super Ultra Low Emission Vehicle (SULEV) and an Advanced Technology Partial Zero Emissions Vehicle (AT-PZEV) in California, as well as those states adopting California emission standards. The AT-PZEV certification requires the SULEV exhaust standard linked with the ability to meet a zero-fuel-evaporative standard, a 150,000-mile durability demonstration, extended emissions system warranty, and technology deemed by the California Air Resources Board (CARB) to advance future fuel cell vehicles. In the rest of the country, Prius is certified as Tier 2, Bin 3. The new Prius produces over 70 percent fewer smog-forming emissions than the average new vehicle.

### **Striking New Yet Familiar Styling**

In designing the new Prius, aerodynamic performance was an important factor, as was preserving brand recognition. The goal was to create a striking yet still familiar silhouette, while not compromising function. Designers preserved the dynamic triangle form of the current model -- instantly recognizable as a Prius -- but made alterations to the overall profile, pillar position and angle.

The overall height of the Prius is the same as the previous model, but moving the peak 3.9 inches to the rear alters the roof profile. This change maintains the wedge shape, and also allows for enhanced rear headroom and improved aerodynamics.

The design of the new Prius' front and rear corners are sharp, sporty and aerodynamic. Strong side character lines, rising from front to rear, define the smooth, geometric shape. Viewed from the rear, wider rear treads provide a solid, firmly rooted stance. The 106.3-inch wheelbase is the same as the previous generation. Overall length is slightly increased by 0.6 inches, in part by moving the front cowl forward.

### **Super-Low Cd**

The new Prius received more wind tunnel hours of testing than any other Toyota in history, resulting in one of the cleanest aerodynamic profiles of any mass-produced vehicle in the world. By focusing on the shape of the body, underfloor, wheelhouse liner and wheel face design, the designers reduced the coefficient of drag (Cd) value to 0.25, compared to 0.26 for the previous model. The airflow under the car was studied extensively.

### **Advanced Equipment for a New Era**

An available sliding glass moonroof is packaged with solar panels, located over the rear seating area, that power a new

ventilation system. This solar powered ventilation system helps keep the interior air temperature near the outside ambient temperature, when parked directly in the sun. Cool-down time is shorter when the driver returns to the vehicle, thus reducing the use of air conditioning.

The new Prius also offers a remote air conditioning system. It is the first system in the world to function on battery-power alone, and allows remote operation so the driver can cool the interior temperature for comfort before getting into the car.

LEDs (light emitting diodes), optional in low beam headlamps and standard in tail and stop lamps, help reduce the vehicle's power consumption. Air conditioning, a major energy drain, has been re-engineered to increase efficiency and cool-down performance. In addition, an exhaust heat recirculation system reduces heat waste by warming engine coolant during cold startup, for improved performance. It also heats up the passenger cabin more efficiently.

### **Enhanced Vehicle Performance**

The third-generation Prius is built on a new platform that enables improved handling control and quieter operation. The suspension employs front struts and a rear intermediate beam design, as before, but smoother handling is increased by improving the stabilizer layout, higher caster angle and tuning the bushing characteristics. Four-wheel disc brakes are standard, replacing the front disc/rear drum system of the previous model.

Weight was saved through use of aluminum in the hood, rear hatch, front stabilizer bar and brake calipers and by using super high-tensile strength steel in the inner rocker panel, center pillar and roof reinforcement.

Better-performing sound insulation, working with improved vibration damping, has been installed in various locations to reduce road noise.

### **Functional Interior Is Bigger on the Inside**

The cargo area of the new Prius was made 0.4 inches longer and 2.2 inches wider by using a new and an improved layout for the battery cooling unit. Rear seat legroom is enhanced by a new space-saving contoured front-seat design.

Viewed from the cockpit, the center cluster smoothly flows from the instrument panel to the console. Handy storage space has been added under the shift lever by taking advantage of the shift-by-wire system. Simple, fin-type air vents are consistent with the cabin's efficient appearance. Judicious use of silver accents adds a finished, technical feel.

A new available Touch Tracer Display features touch sensors on the steering wheel switches that are designed to reduce driver eye movement for better concentration on the road. When the driver touches the audio or info switch located on the steering wheel, a duplicate image is displayed on the instrument panel, directly in front of the driver. Touch Tracer is the first display system in the world to allow steering wheel controls to display in the instrument panel. The ECO indicator on the Multi-Informational Display (MID) provides driver feedback to encourage more economical driving.

In pursuit of new technologies for sustainable mobility, Toyota uses plant-derived, carbon-neutral plastics in the 2010 Prius. Known as "ecological plastic," the new material is used in the seat cushion foam, cowl side trim, inner and outer scuff plates, and deck trim cover. Ecological plastic emits less CO2 during the production process than conventional plastic; it also helps reduce petroleum use.

### **Safety Enhancements**

The new Prius was designed to comply with class-top level collision safety performance in each global sales region, and to accommodate increasingly strict safety requirements in the future. In addition to a driver and front passenger Advanced Airbag System, front and rear side curtain airbags, driver and passenger seat-mounted side airbags and driver's knee airbag are standard equipment.

Active headrests are used in both front seats to help reduce the possibility of whiplash injury in a rear collision. Anti-lock Brake System (ABS), Electronic Brake Distribution (EBD), Brake Assist (BA), traction control (TRAC) and enhanced Vehicle Stability Control (VSC) are included with Toyota's standard Star Safety System™.

A Dynamic Radar Cruise Control system, using advanced millimeter wave radar, is an available option. The system also enables Lane Keep Assist, which helps the driver stay within the lane, and the Pre-Collision System, which retracts seatbelts and applies the brakes in certain conditions when a crash is unavoidable.

Third-generation Intelligent Parking Assist features simplified settings to help guide the car into parking spaces. A backup camera, which provides a view of rear obstacles when reverse is engaged, is available with an optional voice-

activated navigation system. Safety Connect, Toyota's first safety and security service, includes automatic collision notification, stolen vehicle locator, emergency assistance button (SOS) and roadside assistance (1-year trial subscription included).

### **New Model Strategy**

Prius will come in one grade with five different standard equipment packages designated I (launching at a later date), II, III, IV and V, each adding varying levels of exterior and interior features. Option packages include:

- A Navigation Package available on Prius models III, IV, and V, includes a voice-activated touch-screen DVD navigation system with a JBL AM/FM/MP3 4-disc CD changer, eight speakers, with integrated XM satellite radio capability, XM NavTraffic capability, hands-free phone capability and music streaming via Bluetooth® wireless technology, USB port with iPod® connectivity and an integrated backup camera. Prius IV and V also include Safety Connect.
- A Solar Roof Package, available in Prius models III and IV, includes all contents in the Navigation Package, a power tilt/slide moonroof with a solar powered ventilation system and a remote air conditioning system.
- An Advanced Technology Package, available in Prius model V, includes all contents in the Navigation Package; a Pre-Collision System; Dynamic Radar Cruise Control; Lane Keep Assist (LKA); and Intelligent Parking Assist.

### **Warranty**

Toyota's 36-month/36,000 mile basic new-vehicle warranty applies to all components other than normal wear and maintenance items. Additional 60-month warranties cover the powertrain for 60,000 miles and against corrosion with no mileage limitation. The hybrid-related components, including the HV battery, battery control module, hybrid control module and inverter with converter, are covered for eight years/100,000 miles. In applicable states (including Calif., Mass., N.Y, N.J., Vt., Conn., Maine, N.M., and R.I.) hybrid-related component coverage is 15 years/150,000 miles with the exception of the hybrid battery, which is warranted for 10 years/150,000 miles.

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