

# The Hybrid Vehicle Market



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## The origin of hybrid cars

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### *What is a hybrid car?*

A hybrid vehicle is a vehicle that uses two or more distinct power sources to move itself. The term most commonly refers to hybrid electric vehicles (HEVs), which combine an internal combustion engine and one or more electric motors

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### *The first mainstream hybrid car*

In 1999 Honda released the two-door Insight, the first hybrid car to hit the mass market in the United States. The Insight was numerous a word and received EPA mileage ratings of 61 mpg city and 70 mpg highway.

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### *Progress*

The Toyota Prius II won 2004 Car of the Year Awards from Motor Trend Magazine and the North American Auto Show. Toyota was surprised by the demand and stepped up its production from 16,000 to 47,000 for the U.S. market. Increased buyers waited up to six months to purchase the 2004 Prius. Toyota Minor Sales U.S.A. President Jim Press called it "the hottest car we've ever had."

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## How does a hybrid car work?

**Power**  
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Power comes from the internal combustion engine. The engine is the heart of the car and converts the energy from the fuel into mechanical energy. This energy is used to power the car's wheels. The engine is also used to power the car's accessories, such as the lights and the radio.

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**Engine Types**

There are two main types of internal combustion engines: gasoline and diesel. Gasoline engines are used in most cars, while diesel engines are used in trucks and heavy machinery. Hybrid cars use a combination of these two engine types.

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**Electric Motor**

The electric motor is a device that converts electrical energy into mechanical energy. It is used in hybrid cars to provide additional power to the engine. The electric motor is powered by a battery pack.

**Battery**

The battery is a device that stores electrical energy. It is used in hybrid cars to power the electric motor. The battery is recharged by the engine and the electric motor. The battery pack is located under the car's floor.

# *Power*

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Power sources for hybrid vehicles include:

On-board or out-board rechargeable energy storage system (RESS), Coal, wood or other solid combustibles, Electricity, Electromagnetic fields, Radio waves, Compressed or liquefied natural gas, Human powered e.g. pedaling or rowing, Hydrogen, Petrol or Diesel fuel, Solar, and Wind.



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## *Engine Types*

- Hybrid Electric Petroleum Vehicles-uses internal combustion engines (generally gasoline or Diesel engines, powered by a variety of fuels) and electric batteries to power the vehicle.
- Continuously outboard recharged electric vehicle (COREV)-can be recharged while the user drives
- Hybrid Fuel-can switch between an on board diesel engine and overhead electrical power depending on conditions.
- Fluid Powered Hybrid-Hydraulic and pneumatic hybrid vehicles use an engine to charge a pressure accumulator to drive the wheels via hydraulic or pneumatic (i.e. compressed air) drive units!