

Hybrid Cars

What are Hybrid cars, and how is one different from my car?

- Hybrid cars are like all electric cars, but with a generator on board.
- Most hybrid cars use the motors to slow the car down.
- Hybrids generally use their motors as generators to turn the car's speed into electricity when slowing down, as a result, the car doesn't usually use brakes.

Where does the electricity come from in a hybrid vehicle?

- House outlet(the kind you charge your phone with)
- Regenerative braking(this is obtained by going down hills)
- The engine(The engine in a hybrid vehicle generates electricity that later on is used by the electric motors, rather than moving the wheels of the car.)

How do hybrids operate?

- Hybrids operate by obtaining electricity from one of the 3 sources mentioned in the previous slide, and using that very electricity to power 2(sometimes 4) electric motors. Because hybrids use electric motors rather than engines and gears, hybrids do not need a transmission.
- Hybrids have a giant battery with 240volts or more. As a result of this. they require the use of a 12volt battery to power all the vehicle's systems. The 12volt battery gets charged by the engine, and generally powers ABS, Traction Control, headlights, Speedometer, and much more.

What Hybrids are being used in 2019?

- Toyota Prius(2012-2019+)
- Toyota Camry Hybrid(2006-2019+)
- Chevrolet Volt(2011-2019)
- Nissan Altima(2007-2011)
- Honda Insight Gen1(1999-2006)
- Honda Insight Gen2(2010-2014)
- Honda Insight Gen3(2019+)
- Ford Fusion(2006-2019+)
- Kia Optima Hybrid(2011-2019+)
- Lincoln MKZ Hybrid(2011-2019+)

Environmental impacts if everyone uses a Hybrid

- Less or no CO₂ emissions from people(most Hybrids have at least 40 miles of electricity, so a small trip may not require the use of gas)
- Noise reduction on highways, resulting in more quiet cities(except for the car horns)
- More hard to find metals such as copper or nickel are used in large quantities in hybrids.

Hybrid Sales

- A total of 4,058,258 hybrids have been sold from 1999 to 2019
- According to one article I read, it is estimated that about half a million hybrid vehicles are to be sold in the year 2020

Sources

- <https://electrek.co/2018/04/24/regenerative-braking-how-it-works/>
- <https://en.wikipedia.org>
- https://www.pwc.com/hu/hu/kiadvanyok/assets/pdf/automotive_trends_2019.pdf