

Unit 4 Electric cars

Task 1

Complete the text with the following words.

crises, electric car, combustion, batteries, increasing, greenhouse gas, motor

An 1)..... is an automobile which is propelled by electric 2).....(s), using electrical energy stored in 3)..... or another energy storage device. Electric cars were popular in the late-19th century and early 20th century, until advances in internal 4)..... engine technology and mass production of cheaper gasoline vehicles led to a decline in the use of electric drive vehicle. The energy 5)..... of the 1970s and 80s brought a short lived interest in electric cars, but in the mid 2000s took place a renewed interest in the production of electric cars due mainly to concerns about rapidly 6)..... oil prices and the need to curb 7)..... emissions. As of January 2012 series production models available in some countries include the Tesla Roadster, REVAi, Renault Fluence Z.E., Buddy, Mitsubishi i MiEV, Tazzari Zero, Nissan Leaf, Smart ED, Wheego Whip LiFe, Mia electric, BYD e6, and Bolloré Blue Car.

Adapted from <http://en.wikipedia.org>

Task 2

Discuss in a group.

1. What alternatives to petrol-driven or electric cars do you know?
2. Would you decide to buy an electric car? What do you think are the advantages and disadvantages?

Task 3

Read the text. Then match the definitions with appropriate words.

President Obama has announced a goal of having one million electric cars on American roads by 2015. The administration has allocated \$2.4 billion in “stimulus” money to subsidize production of them, along with the batteries and other components that they use. Unfortunately, electric cars are about to do a barrier crash into economic reality, and all the airbags in the world won’t be able to save them.

The Nissan Leaf is the first mass-produced “battery electric vehicle” (BEV). It uses state-of-the-art lithium batteries. Despite this, the Leaf makes no sense at all. It costs more than twice as much (\$35,430 vs. \$17,250) as a comparable Nissan Versa, but it is much less capable. The Leaf accelerates more slowly than a Versa and has only about 25% of the range. At \$0.11/KWH for electricity and \$4.00/gallon for gasoline, you would have to drive the Leaf 164,000 miles to recover its additional purchase cost. Counting interest, the miles to payback is 197,000 miles. Because it is almost impossible to drive a Leaf more than 60 miles a day, the payback with interest would take more than nine years. However, cost is not the biggest problem with BEVs.

A major snowstorm hit Washington D.C. Ten-mile homeward commutes took four hours. If there had been a million electric cars on American roads at the time, every single one of them in the DC area would have ended up stranded on the side of the road, dead. And, before they ran out of power, their drivers would have been forced to turn off the heat and the headlights in a desperate effort to eek out a few more miles of range. This illustrates the biggest drawback of BEVs, which is not range, but refuelling time. A few minutes spent at a gas station will give a conventional car 300 to 400 miles of range. In contrast, it

takes 20 hours to completely recharge a Nissan Leaf from 110V house current. An extra-cost 240V charger shortens this time to 8 hours. There are expensive 480V chargers that can cut this time to 4 hours, but Nissan cautions that using them very often will shorten the life of the car's batteries.

There is an alternative for powering cars that makes far more sense than electricity. It is compressed natural gas (CNG). Thanks to new "fracking" technology, natural gas is cheap and abundant in the U.S. On an energy content basis, wholesale natural gas is almost 80% cheaper than wholesale gasoline right now. And, it is possible to build CNG vehicles that do not provoke "range anxiety."

Adapted from <http://www.forbes.com/>

1. a piece of equipment used to put electricity into a battery
2. distance you need to drive before you start to get profit from the investment in your car
3. an alternative fuel for combustion engines
4. equipment in a vehicle that automatically fills with air if the vehicle is involved in an accident
5. period necessary to supply a vehicle with fuel
6. device that produces electricity to provide power for radios, cars, etc.
7. an electric vehicle which uses energy stored in rechargeable battery packs

Task 4

Listen to the recording about Nissan Leaf and complete the sentences.

1. Leaf is a full-production car, not just a
2. It is a-passenger electric car which has all typical characteristics like safety, and
3. The car runs on laminated
4. When it is fully charged you can drive as far as
5. Leaf is not equipped with:
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 -
 -
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6. It is an affordable car, targeted at anybody and not just

Recording from <http://www.youtube.com/>