



Unit 3 How Is Electricity Generated and Distributed?

* Glossary

depletion: reduction in something

brake: a device for slowing or stopping a moving vehicle

Electric Motors and Generators

Electromobility

The topic of “electromobility” basically refers to all vehicles that are driven by means of electrical energy. This includes both battery-powered vehicles and hybrid vehicles or vehicles with a fuel cell.

Unlike vehicles with internal combustion engines, electric vehicles do not produce exhaust gases during operation.

Electromobility is becoming increasingly significant as people become aware of the **depletion** of oil reserves and the need for global environmental and climate protection.

We can look back on over 40 years of experience in electromobility. Back in 1970, the “T2 Electric” was the first generation of a purely electric vehicles.

The electric vehicle drive system includes:

- high-voltage battery with a control unit for battery regulation and charger;
- electric motor/generator with electronic control and cooling system;
- transmission including the differential;
- **brake** system;
- high-voltage air conditioning for vehicle interior climate control.

Advantages of Electric Vehicles

- Electric drive motors run quieter than internal-combustion engines;
- electric vehicles do not produce harmful emissions or greenhouse gases while being driven;
- the electric motor is very robust and requires little maintenance;
- the energy is only supplied when the user needs it.

Disadvantages of electric vehicles

- Electric vehicles have a limited range due to battery size and construction;
- charging a high voltage battery can take a long time;
- the network of electric charging stations is sparse.

(Adapted from Basics of Electric Vehicles, Design and Function, Volkswagen Group of America, 2013, <https://www.volkswagenag.com>)





Understanding the text

1. Find terms and expressions in the text which mean much the same as the following.

1. motore a combustione interna
2. gas di scarico
3. riserve di petrolio
4. batteria ad alta tensione
5. sistema di raffreddamento
6. sistema frenante
7. stazioni per la ricarica elettrica

2. Replace each of the adjectives in bold with the correct synonym among those given.

finite • important • sporadic • damaging • resistant

1. Electromobility is becoming increasingly **significant**.
.....
2. Electric vehicles do not produce **harmful** emissions or greenhouse gases while driving.
.....
3. The electric motor is very **robust** and requires little maintenance.
.....
4. Electric vehicles have a **limited** range due to battery size and construction.
.....
5. The network of electric charging stations is **sparse**.
.....

3. Complete the following sentences. Your answers must be related to the text.

1. Electromobility refers to road transport systems based on vehicles that are propelled by
.....
2. Electric motors are better for the environment because
.....
3. An electric motor is comprised of
.....
4. Electric vehicles have their pros and cons. These include:
.....