

Zero-Emission Vehicles & Low-Carbon Driving

Glossary

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Atmosphere

The atmosphere is a layer of gases that surrounds the Earth's surface. You might know it better as air! It reaches nearly 100 km up into the sky and is mainly made up of Nitrogen and Oxygen.

Battery

A battery is a container that stores chemical energy and converts it into electrical energy. It is made up of two different metals (electrodes) that are in a liquid or a paste material (electrolyte). Batteries can be used to power clocks, flashlights, remote controls, and many other common household items.

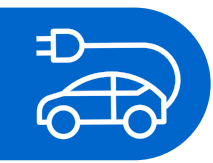
Carbon dioxide

Carbon dioxide (sometimes written as CO₂) is a greenhouse gas and a major contributor to climate change. In nature, carbon dioxide is released when we breathe and as dead animals and plants break down. We also release a lot of carbon dioxide through activities such as driving vehicles with internal combustion engines, and when we burn forests and fossil fuels like coal, oil, and natural gas.

Clean fuels

Clean fuels are fuels that produce much lower greenhouse gas emissions than traditional fuels on a life-cycle basis. There are several types of clean fuels including advanced biofuels, liquid synthetic fuels, clean hydrogen, and renewable natural gas.

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Eco-driving

Eco-driving is a term used to describe practices and behaviours that promote more energy-efficient, safe, and environmentally-friendly driving. Adopting eco-driving techniques can reduce fuel consumption, so less fuel is used to travel the same distance.

Electric current

An electric current is the flow of charged particles, such as electrons or ions, in a circuit. Electric current is not something that you can typically see, however, it can sometimes be heard (e.g., the hum of a refrigerator is electric current).

Electrification

Electrification is the replacement of fossil fuel burning technologies with technologies that use electricity as a source of energy. Depending on the sources used to generate electricity, electrification can help reduce carbon dioxide emissions from the transportation, building, and industrial sectors.

Electrode

An electrode is a piece of metal or other material that is used to transfer electric current to or from a source of power. Electrodes are often classified as either a cathode or an anode.

Emissions

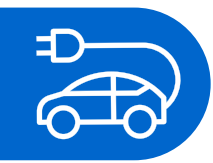
An emission is something that has been released into the world. For example, a gasoline powered car will release greenhouse gas emissions into the air.

Energy

Energy is the capacity of any person, thing, particle or system to do work - like cook, move, grow, or change in any way. Energy can transfer from one form to another, like how light can create heat. Things like oil, wood, water, and wind are not energy, but rather potential sources of energy. Technologies and infrastructure transform these energy sources into things that we want, such as warming our houses or powering an engine.

Energy diversification

Energy diversification means using several different sources of energy, suppliers, and transportation routes instead of relying on a single resource or provider. If a country has multiple sources of energy, this will allow them to continue without disruption if one source of energy fails or is no longer sustainable.



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Fossil fuels

Fossil fuels are sources of non-renewable energy that come from the breakdown of dead plants and animals that lived millions of years ago. They can be found in the Earth's crust and include oil, natural gas, or coal, which can be burned for energy. Fossil fuels are where most of the human-made greenhouse gases originate.

Fuel efficiency

Fuel efficiency is a measure of how much distance a vehicle can travel with a specific amount of fuel. Vehicles that have a better fuel efficiency will generally consume less fuel to carry out the same task. Fuel efficient vehicles can result in saving fuel costs and a lower carbon footprint.

Greenhouse effect

The greenhouse effect is a natural process that causes gases in the atmosphere to trap heat from the sun that would otherwise go into space. The greenhouse effect results in the warming of the Earth, making it a comfortable temperature for humans, animals, and plants to live. However, certain human activities like burning fossil fuels intensify the greenhouse effect and are causing the Earth's temperature to rise.

Greenhouse gases (GHGs)

Greenhouse gases are gases in the Earth's atmosphere that trap heat from the sun, making the Earth warmer than it would have been without them. The major greenhouse gases are carbon dioxide, methane, nitrous oxide, water vapor, and fluorinated gases. Greenhouse gases can occur naturally in the atmosphere and can also be human made.

Internal combustion engine vehicles (ICEVs)

Internal combustion engine vehicles use chemical energy, in the form of burning fuel, to run the motor. This process results in the release of greenhouse gases into the Earth's atmosphere.

Lifecycle approach

A lifecycle approach takes into account the emissions associated with all stages of production and use. For example, with fuel, it accounts for extraction through processing, distribution, and end-use.

Lithium-ion battery

A lithium-ion battery is a rechargeable battery type that is common in portable electronics (e.g., smart phones, laptops, etc.). They are energy dense and able to hold a lot of charge for their weight, which makes them the optimal choice for zero-emission vehicles, as it allows the vehicle to travel further on a single charge.

Low-carbon commuting

Low carbon commuting includes ways of travelling that produce less carbon dioxide (CO₂) emissions.



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Low-emission zone

A low emission zone is a defined area that regulates most polluting vehicles with the aim of improving air quality. This generally means that either vehicles with higher emissions cannot enter or they have to pay more to enter.

Net-zero emissions

Net-zero emissions means that either no greenhouse gases are released into the atmosphere or any released emissions are removed from the atmosphere through actions such as tree planting or carbon capture.

Renewable energy

Renewable energy refers to sources that create energy from natural processes that are restored at a rate that is equal to or faster than the rate at which energy is consumed. Renewable energy sources include: solar, wind, and hydro power.

Zero emission vehicles (ZEVs)

Zero-emission vehicles use electrical energy in battery form for power and therefore they can operate without producing any tailpipe emissions.

Sources

- [Underneath It All](#) (Clean Energy Canada)
- [Key Terms You Need to Know to Understand Climate Change](#) (The Climate Reality Project)
- [Net-Zero Emissions by 2050](#) (Government of Canada)
- [Clean Fuels - Fueling the Future](#) (Natural Resources Canada)
- [About Renewable Energy](#) (Natural Resources Canada)
- [Auto\\$mart Students Guide](#) (Natural Resources Canada)
- [Greenhouse Effect 101](#) (Natural Resources Defense Council)
- [Zero-Emission Vehicles](#) (Transport Canada)
- [What Is Climate Change?](#) (United Nations)