

GREENHOUSE GAS (GHG)

Much like the glass of a greenhouse, gases in our atmosphere sustain life on Earth by trapping the sun's heat. These gases allow the sun's rays to pass through and warm the earth, but prevent this warmth from escaping our atmosphere into space. Naturally-occurring, heat-trapping gases—mainly water vapor, carbon dioxide and methane – are needed to sustain life on Earth, however, the rapid increase of carbon dioxide and other GHGs that intensify this natural greenhouse effect is dangerous. Modern human activity—burning fossil fuels, deforestation, intensive agriculture—has added huge quantities of carbon dioxide and other GHGs and is contributing to dangerous climate change.

CARBON DIOXIDE (CO₂)

A minor but very important component of the atmosphere, CO₂ is released through natural processes such as respiration and volcano eruptions and through human activities such as deforestation, land use changes, and burning fossil fuels. Today's atmosphere contains 42% more CO₂ than it did at the start of the Industrial era. CO₂ is the main contributor to climate change, especially through the burning of fossil fuels.

EMISSIONS

In the climate change space, emissions refer to GHGs released into the air that are produced by numerous activities, including burning fossil fuels, industrial agriculture, and melting permafrost, to name a few. These gases cause heat to be trapped in the atmosphere, slowly contributing to rising temperatures and as a result, other impacts of climate change.

WEATHER VS CLIMATE

Weather refers to atmospheric conditions in the short term, including changes in temperature, humidity, precipitation, cloudiness, brightness, wind, and visibility.

While the weather is always changing, especially over the short term, climate is the average of weather patterns over a longer period of time (usually 30 or more years).

GLOBAL WARMING VS CLIMATE CHANGE

Many people use these two terms interchangeably, but it's important to acknowledge their differences. Global warming is an increase in the Earth's average surface temperature from human-made GHGs.

Climate change refers to the long-term changes in the Earth's climate, or a region on Earth, and includes more than just the average surface temperature. For example, variations in the amount of snow, sea levels, and sea ice can all be consequences of climate change.

CLIMATE IMPACTS

Consequences of climate change; examples of climate impacts in Canada include: more frequent extreme hot temperatures causing more heatwaves, increased drought, and wildfire risks; increased precipitation and more intense rainfalls causing increased flood risk; and loss of sea ice and rising local sea levels, increasing risk of flooding and damage to coastal infrastructure and ecosystems.

FOSSIL FUELS

Fossil fuels are sources of non-renewable energy, formed from the remains of living organisms that were buried millions of years ago. Burning fossil fuels like coal and oil to produce energy is where the majority of GHGs originate. The Provincial phase out of coal-fired electricity generation was completed in 2014, and electricity consumption and generation in Ontario from 2014 onwards is less carbon-intensive than pre-2014.

RENEWABLE ENERGY

Renewable energy is energy that comes from naturally replenished resources, such as sunlight, wind, waves, and geothermal heat. Because renewables don't produce GHGs, shifting away from fossil fuels to renewables to power our lives will put us on the path to a safe, sustainable planet for future generations.

MITIGATION

Combating the causes of climate change by reducing GHG emissions; examples of climate mitigation include reducing energy consumption or using more energy efficient technologies, fuel-switching to more renewable energy sources, or driving an electric vehicle (EV) as opposed to a gasoline powered car.

ADAPTATION

Preparing and managing for the impacts of climate change, thereby strengthening resiliency. Adaptation measures include building more resilient infrastructure, protecting and preserving natural assets and ecosystems, flood mitigation efforts like planting trees or green roofs, and low-impact development measures.

LOW-IMPACT DEVELOPMENT (LID)

An approach to land development that mimics the natural movement of water in order to manage stormwater (rainwater and urban runoff) close to where the rain falls. LID uses small, simple design techniques and landscape features that filter, infiltrate, store, evaporate, and detain rainwater and runoffs at the lot level. Examples of LID measures include: rain gardens, permeable pavements, green roofs, and bioswales.

ADAPTIVE CAPACITY

In order to minimize the damages of climate change impacts, the ability of a system to adjust or adapt to climate change.

RESILIENCE

A system's capability to anticipate, prepare for, respond to, and recover from the impacts of climate change with minimum damage to social well-being, the economy, and the environment.

VULNERABILITY

The degree to which a system is susceptible to, or unable to cope with, the effects of climate change. Vulnerability is a function of the type, magnitude, and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.