Greenhouse Gases and Climate Change

OVERVIEW[i]

Greenhouse Gases (GHGs) exist in the atmosphere both naturally and due to human activities. Climate Change is caused as a result of an accelerated global warming effect, which is naturally occurring[ii]. Since the Industrial Age, GHGs have been released into the atmosphere at a rate faster than natural systems can absorb, causing what we now refer to as Climate Change.

Six of the GHGs incorporated into the Kyoto Protocol[iii] include:

1. Carbon Dioxide (CO2)
2. Methane (CH4)
3. Nitrous Oxide (N2O)
4. Hydrofluorocarbons (HFCs)
5. Perfluorocarbons (PFCs)
6. Sulphur Hexafluoride (SF6)

Of these six gases, three are the most prevalent and are linked with human activities:

1. Carbon dioxide is the main contributor to climate change, especially through the burning of fossil fuels such as coal, oil and gas. It is also released through air, land and sea transportation emissions; as well as deforestation

2. Methane is produced naturally when vegetation is burned, digested or rotted without the presence of oxygen. Large amounts of methane are released by cattle farming, landfills, and the production of oil and gas. Methane has a global warming potential 200 times that of carbon dioxide

3. Nitrous oxide is released by chemical fertilizers and burning fossil fuels. N2O has a global warming potential 310 times that of carbon dioxide

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WHY DO WE NEED TO REDUCE OUR GHGS?

The International Panel on Climate Change (IPCC) reports that "Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems."[iv] Increase in global temperatures will be felt in a variety of ways in Canada and around the world. The consequences of climate change will be felt mostly through water: in some locations like the Prairies, drought is anticipated, while in others like Southern Ontario and Quebec, flooding.

Image 1*: Impacts of a Changing Climate across Canada* illustrates current examples of the effects of climate change throughout the country. The more we understand where our emissions come from, the better chance each organization and individuals have to reduce their footprint and help stabilize future global climate.

IMAGE 1: IMPACTS OF A CHANGING CLIMATE ACROSS CANADA[v]

Did you know?

Commerce Court tracks and publically reports its GHG emissions annually, beginning in 2012.

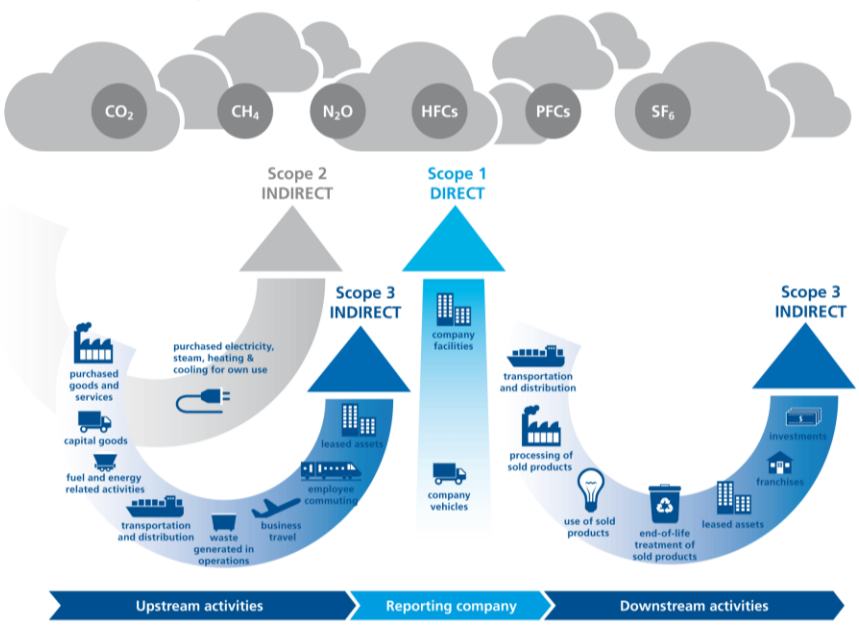
To learn more visit Commerce Court's Sustainability Scorecard, found in the Resources section.
To visit the page, click here.

HOW ARE GHGS TRACKED AND REPORTED?

To understand our collective footprint, businesses, government and non-government organizations have been tracking and reporting their GHG emissions. Commerce Court is no exception.

The Greenhouse Gas Protocol has developed a widely used system by which to account for direct and indirect emissions expressed as Scopes 1, 2 and 3 (see Image 2 and accompanying text box)[vi]. GHGs are tracked and reported by city, region, nationally and internationally in order to better manage emissions, with the ultimate goal of reducing a large enough amount to stabilize future global temperatures.

IMAGE 2: OVERVIEW OF GHG PROTOCOL SCOPES AND EMISSIONS[vii]



Scope 1 emissions *are direct emissions from owned or controlled sources.*

Scope 2 emissions *are indirect emissions from the generation of purchased energy.*

Scope 3 emissions *are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.*

Source: GHG Protocol

MORE INFORMATION

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END NOTES

[i] David Suzuki Foundation: Climate Change, http://www.davidsuzuki.org/issues/climate-change/science/climate-change-basics/greenhouse-gases/

[ii] Natural global warming effect is used to create a warmer growing environment for plants that would otherwise not survive in the colder conditions outdoors. In creating warmer conditions, the Earth's atmosphere acts similarly to a glass in a greenhouse trapping heat, which otherwise would make the planet's temperatures about 33°C colder.

Source: Environment and Climate Change Canada. Understanding Climate Change: The Natural Greenhouse Gas Effect, http://www.ec.gc.ca/sc-cs/default.asp?lang=En&n=863DE3DE-1#greehouse_effect Text slightly modified from original

[iii] The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emission reduction targets. The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005.

Source: United Nations Framework Convention on Climate Change (UNFCC). Kyoto Protocol, http://unfccc.int/kyoto_protocol/items/2830.php.

[iv] International Panel on Climate Change (IPCC). 2014. Climate Change 2014 Synthesis Report, pg. 40, https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_All_Topics.pdf

[v] Environment and Climate Change Canada: The Science of Climate Change, http://www.ec.gc.ca/sc-cs/Default.asp?lang=En&n=A5F83C26-1

[vi] WRI and WBCSD: Greenhouse Gas Protocol. Overview of GHG Protocol scopes and emissions across the value chain. http://www.ghgprotocol.org/standards/scope-3-standard

[vii] Image: WRI and WBCSD: Greenhouse Gas Protocol. http://www.ghgprotocol.org/

Text box from Greenhouse Gas Protocol FAQ file:///C:/Users/evenhm/Downloads/FAQ.pdf