

AEA Question of the Month

What are greenhouse gases (GHG) and why should we aim to reduce emissions?

Question: The AEA encourages NWT residents to reduce their greenhouse gas emissions but one E-News reader asks for a definition of GHGs – and why should we reduce our emissions?

Answer: Many greenhouse gases occur naturally, such as water vapor, carbon dioxide, methane, nitrous oxide, and ozone.

Human activities have caused a dramatic increase in the amount of carbon dioxide in the earth's atmosphere. CO₂ traps the sun's heat, warms the atmosphere and changes our climate.

Since about 1750, the concentration of CO₂ has risen from about 280 parts per million by volume (ppmv) to reach 383 ppmv in 2007 — a value that has likely not been exceeded during the past 20 million years.

Examples of impacts likely to occur during this century if GHG emissions are allowed to continue rising unchecked include:

- Sea levels rise sufficiently to flood Arctic coastal areas and communities such as Tuktoyaktuk,



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- Unpredictable ice conditions are make hunting dangerous for hunters,
- Climate change will have negative impacts on polar bears, ringed seals, Arctic foxes, caribou, musk oxen, narwhals, bowhead and beluga whales and many other Arctic species,
- Thawing permafrost in the Arctic has damaged houses, roads, airports and pipelines, and caused landscape erosion, slope instability, and landslides,
- A decline in the extent of sea-ice around the North Pole in summer by more than 50 per cent will threaten the cultural survival of some Arctic communities, and
- Reduced water quantities from the Great Lakes to the Rockies.

