



# What pipeline companies are doing about climate change.

## DID YOU KNOW?

Since 1990, CEPA members have reduced greenhouse gas emissions through:



**1** **NEW EQUIPMENT**  
Replacing old equipment with new, more energy-efficient units.



**2** **INNOVATIVE TECHNOLOGY**  
Using new technology to find and repair small pipeline leaks.



**3** **ADVANCED PROCEDURES**  
Changing operations to reduce methane releases during maintenance.

According to a 2014 poll, Canadians' favourite topic of conversation is the weather. After all, there's a lot to talk about these days – our weather patterns create some unusual and extreme conditions.

When we experience long-term changes in weather, it's considered climate change. These changes are caused by both natural and human factors, including:

- Burning fossil fuels.
- Volcanic activity.
- Carbon dioxide and nitrous oxide emissions from transportation, industrial and agricultural activities.
- Methane releases from the digestive processes of livestock.

The earth's atmosphere is composed of gases, water vapour and microscopic liquids and solids. Some of the gases, like carbon dioxide, nitrous oxide and methane, are called greenhouse gases. They trap the heat in our atmosphere so life on earth is possible.

### **Making change**

Greenhouse gases occur naturally and they can also be created through human activity,

including industrial processes. These are called man-made or anthropogenic greenhouse gases. The industrial revolution created and accelerated the growth of energy, transportation and manufacturing sectors. Since then, these sectors have contributed to an increase of greenhouse gases in our atmosphere. This is affecting our planet in many ways – from increasing the temperature of the oceans to altering the amount of rainfall and snow we get.

Canada contributes less than two per cent of the world's greenhouse gas emissions; CEPA members, who operate Canada's transmission pipelines, are responsible for one per cent of the country's total emissions.

Pipelines transport natural gas and liquid hydrocarbons, such as oil, from supply basins to various areas where they are used to heat homes and businesses, provide fuel for our cars and manufacture items for our daily lives.





## About Pipelines CLIMATE CHANGE

### Reducing natural gas pipeline emissions

There are three ways natural gas pipelines emit greenhouse gases: from burning fossil fuels at compressor stations, methane from small leaks or operating and maintenance activities.

To transport natural gas over long distances, pipeline operators use compressor stations with natural gas-fired turbines or engines to push the products through the pipeline – this process emits carbon dioxide and nitrous oxide.

Companies use a variety of techniques to limit the amount of greenhouse gases released, including:

#### More efficient engines

Replacing older engines at compressor stations with newer, more efficient ones that burn natural gas to more effectively reduce emissions.

#### Reduce methane emissions during maintenance

Operators capture and divert the natural gas in the section of the pipeline undergoing maintenance, rather than releasing the gas into the atmosphere.

#### Sophisticated leak detection

CEPA members are using technologies that detect small leaks, including portable gas detectors and ultrasonic detectors, so the leaks can be repaired.

### Ongoing maintenance

Pipeline operators have thorough maintenance plans to regularly check equipment and make repairs to prevent any residual gas from escaping during operation.

### Reducing liquid pipeline emissions

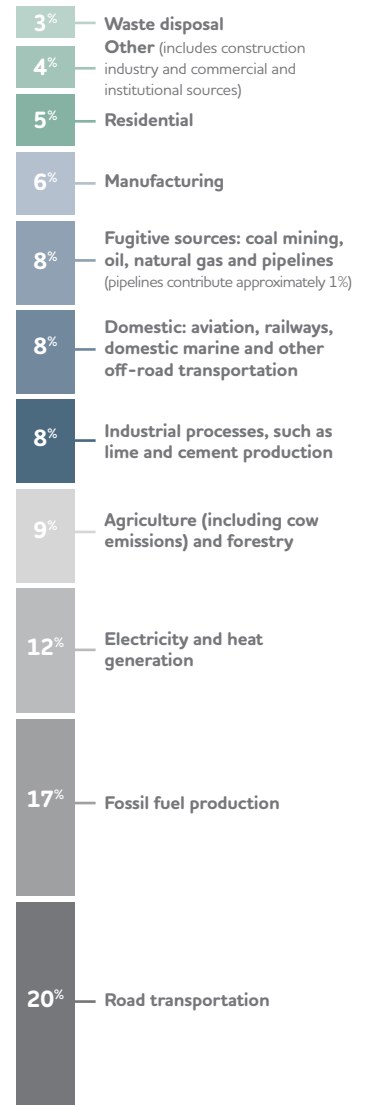
Greenhouse gas emissions from liquids pipelines are very small in comparison to natural gas pipelines. Storage tanks are the primary source of emissions from liquids pipelines, and operators are reducing these emissions in a number of ways:

- The colour, roofs and seals of storage tanks are designed to minimize emissions.
- In specific locations, vapour control or recovery systems collect over 95 per cent of vapour emissions.
- Pipeline operators inspect their storage tanks regularly for leaks and external corrosion, and check vents, drains, valves and seals.

Beyond operations, many CEPA members have climate change and environmental sustainability programs to track, address and manage their greenhouse gas emissions. CEPA members will continue to adopt innovative practices, programs and new technologies to limit and reduce their greenhouse gas emissions.

## Who is contributing to Canada's greenhouse gas emissions?

Source: Environment Canada, National Inventory Report 1990–2016: Greenhouse Gas Sources And Sinks In Canada [bit.ly/2Khrm18](http://bit.ly/2Khrm18)



**Cows and other ruminant animals emit three times as many greenhouse gases as the pipeline industry.**

Why? These animals create methane during the digestive process; with 1.4 million cows and heifers in Canada – it adds up to 18,000 KILOTONNES of greenhouse gas emissions!

Source: Environment Canada, National Inventory Report 1990 –2016: Greenhouse Gas Sources And Sinks In Canada [bit.ly/2Khrm18](http://bit.ly/2Khrm18)



### The power of trees

As they grow, trees remove carbon dioxide from the environment. Tree Canada estimates the average Canadian tree will store about 220 kg of carbon during its 80 year life, which is the equivalent to about 800 kg of carbon dioxide. That's why some CEPA members participate in tree-planting programs as part of their climate change programs.

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