



Climate Change Action Plan Update

January 2016 – June 2018

Climate Change Secretariat
Government of Yukon
November 2018

Introduction

The Government of Yukon released the *Climate Change Action Plan* in 2009. Progress reports in 2012 and 2015 included new climate change action commitments.

This report provides a snapshot of progress on previous commitments and summarizes work underway. It also closes the 2009 *Climate Change Action Plan* series.

The government is developing a new strategy that combines climate change, energy and green economy to enhance Yukon's capacity to thrive in a rapidly changing climate. It is anticipated to be released in late 2019.

Climate change, energy and the economy are interconnected. By addressing all three together, Yukon can plan for its future more effectively. We are working in close collaboration with Yukon and transboundary First Nations, the Inuvialuit, and Yukon municipalities to ensure the new strategy reflects the needs and priorities of Yukoners.

The new strategy will also be responsive to developments across Canada. In 2016, Yukon signed onto the *Pan Canadian Framework on Clean Growth and Climate Change*. The framework outlines how provinces, territories and the federal government plan to meet national emissions targets, grow the economy, and build resilience to climate change.

The development of Yukon's new strategy combines collaboration, public engagement, recent federal policy developments and recommendations, new and emerging climate science and data, and knowledge gained from previous action plans.

In 2018, the Office of the Auditor General of Canada prepared a report on the Government of Yukon's response to climate change. We support the Auditor General's recommendations for improvement, including strengthened analysis, measurement and reporting.

The following pages report on climate change mitigation and adaptation highlights undertaken by the Government of Yukon through its *Climate Change Action Plan* series. Mitigation refers to reducing greenhouse gas (GHG) emissions to prevent



climate pollution. Adaptation means responding to or preparing for the impacts of a changing climate.

The [Renewable Energy and Energy Efficiency Update](#) contains further information on Yukon's energy projects.



Climate change in Yukon

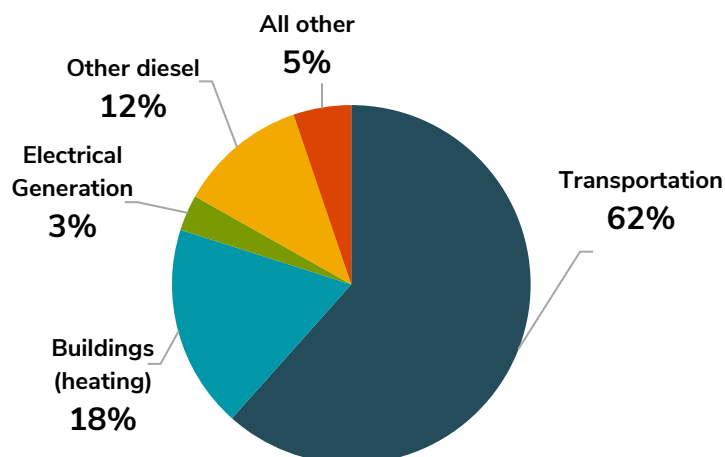
Impacts

- Yukon has warmed by 2°C over the past 50 years.
- Rain and snowfall have increased by 6% over the same period.
- Our permafrost is thawing, which damages our buildings and roads.
- New species are moving north, impacting our ecosystems and wildlife.
- Our glaciers are melting, changing river flow patterns.
- There are more frequent and severe forest fires, affecting air quality and safety.

Greenhouse gas emissions

- As of 2016, Yukon accounted for 0.08 per cent of Canada's overall GHG emissions (Yukon= 0.59 megatonnes, Canada= 704 megatonnes).
- Per capita emissions in Yukon in 2016 were 16.4 tonnes per person. Yukon has the eighth highest emissions per capita of Canadian jurisdictions.
- The most significant sources of GHG emissions across Yukon are transportation (62% including road and air) and heating of buildings (18%) according to 2016 data.

YUKON-WIDE GHG EMISSIONS, 2016



Climate Change Action Plan report

Mitigation: reducing our greenhouse gas emissions

1. The Government of Yukon developed a cross-sector, made-in-Yukon energy use and GHG emissions report. While accurate on a national scale, the federal government's National Inventory Report does not provide an accurate picture of emissions in Yukon. The Yukon Bureau of Statistics used reliable fuel tax data to produce emissions data for Yukon from 2009-2016. This data continues to help inform climate change policy and plans for reducing our GHG emissions. It is also supporting the Government of Canada's continued efforts to improve data quality for Yukon.
2. In 2016, the Government of Yukon and City of Whitehorse launched an online ridesharing program. Now in its third year, Yukon Rideshare offers Yukoners an opportunity to offset their commuting costs while also reducing transportation emissions in the territory. www.yukonrideshare.com
3. The Department of Highways and Public Works is developing a best practices manual to increase the energy efficiency of new buildings. The manual includes climate change considerations and energy efficiencies in design and construction. The final manual is anticipated to be completed in summer 2019.
4. The secondary sales program allows government buildings equipped with a second, electric boiler system to use hydro power to offset conventional fuel heating during low-demand periods. This lowers costs and reduces GHG emissions from building heating. Three installations have been completed since 2016. To date, the program has resulted in energy savings of \$72,000 and a 34% reduction of GHG emissions (866 tonnes of carbon dioxide equivalent - CO₂e).
5. Since 2015, boilers at Porter Creek Secondary, Christ the King Elementary, and Wood Street schools have been replaced with more efficient ones. Replacement of the Johnson Elementary School boiler is scheduled for the 2018/19 school year. Older boilers will continue to be replaced with more efficient models as they reach the end of their lifespan. Where appropriate and affordable, boilers operating on propane or oil will be replaced with heating systems utilizing renewable fuel sources.



6. Since 2015, all Whitehorse schools have had composting programs, and will implement recycling waste diversion programs as early as this year. All other Yukon schools with access to recycling services have implemented the waste diversion program. Waste diversion efforts are important because greenhouse gas emissions are released from landfills.
7. In 2012, the Government of Yukon set Yukon-wide emissions targets in the transportation, electricity, and building sectors. As detailed in the Office of the Auditor General of Canada's report, of the 12 targets set to reduce greenhouse gas emissions, 2 targets had been met ahead of their 2020 completion dates (by 2020 reduce the emissions intensity of existing residential, commercial and institutional buildings across Yukon by 5%; and by 2020, reduce the emission intensity of on-grid diesel power generation by 20%). The other targets were either not met, or are not measureable as a result of lack of available data.

There are significant lessons and improvements to be made in the setting and measuring of greenhouse gas emission targets. We have been actively working to improve the accuracy and availability of reliable greenhouse gas emissions data for the territory by working with the Yukon Bureau of Statistics. As outlined in our response to the Office of the Auditor General of Canada's report, we have committed to ensuring that future commitments in the new climate change, energy and green economy strategy are time-bound, costed, measureable, and are based on established metrics.

8. In 2009, the Government of Yukon set emission targets for Government of Yukon operations. In 2012, Government of Yukon operations accounted for 6% of total Yukon greenhouse gas emissions. We are currently working to improve the quality of emission data that comes from Government of Yukon operations. Currently, data for Government of Yukon emissions from 2010 and 2013 onwards is not available because the methodology to calculate emissions has changed, making comparisons not possible until the 2010 baseline data is recalculated.



Adaptation: responding to the impacts of climate change

1. In 2012, the Government of Yukon's Climate Change Secretariat secured \$2 million through Crown-Indigenous Relations and Northern Affairs Canada for Government of Yukon departments to pursue climate change adaptation projects over the period of 2012-2016. These projects looked at:
 - permafrost characteristics and adaptation designs on the Alaska Highway,
 - challenges and barriers to agriculture in areas with changing permafrost conditions;
 - vulnerability of Yukon forests to climate change;
 - modelling the spread of the Mountain Pine Beetle with different climate scenarios;
 - improving understanding of how ecosystems adapt to changing climate through classification of bioclimate ecosystems;
 - mapping Yukon flood plain risks;
 - sensitivity of hydrological response to climate warming and permafrost thawing in the Wolf Creek Research Basin;
 - communicating climate change adaptation through a speaker and film series; and
 - development of resources for a pan-territorial permafrost workshop.
2. The Department of Highways and Public Works is using road construction methods designed to preserve permafrost on Yukon highways.
 - Research on the Dempster Highway led to functional planning that incorporates construction techniques designed to preserve permafrost and adapt to permafrost thaw on the highway.
 - Several permafrost adaptation techniques have been studied on the Alaska Highway, including thermosyphons. These are passive refrigeration devices that reduce permafrost thaw through heat transfer against gravity without aid of a mechanical pump.
3. The Government of Yukon's Climate Change Secretariat and the Climate Change Information Mainstreaming Program at Yukon College are working to develop a standardized approach for researchers modelling climate changes to enable easier comparison of trends and projections.



What else are we are working on?

1. Work is underway to complete a government-wide climate change risk assessment. This will improve our understanding of the climate risk exposures and vulnerabilities of the Government of Yukon as a whole, while also working with high-risk departments to develop climate risk reduction plans. Anticipated completion date is March 31, 2020.
2. Initial scoping work has started on a Yukon-wide climate risk assessment. We are working with the Northern Climate ExChange at the Yukon Research Centre to analyse possible approaches, participants, and resources required. Climate change risk assessments can help prioritize actions that address the most significant and expected impacts of climate change faced by Yukoners.
3. The Government of Yukon's Climate Change Secretariat secured \$1.9 million over four years through Crown-Indigenous and Northern Affairs Canada to support 13 climate change adaptation projects being led across various Departments. The projects, to completed by 2021, include:
 - improving knowledge of permafrost impacts on roads and buildings across Yukon;
 - modeling future forest fire risks;
 - tracking changes in Yukon forests;
 - improving emergency and hazardous weather response;
 - assessing the connections between changing climate and traditional diet;
 - modeling the effects of climate change on winter ticks and their wildlife hosts;
 - hosting the Yukon Adaptation Forum;
 - mapping climate change related land-cover change;
 - increasing understanding of the ability of chum salmon to adapt to changes in spawning environment; and
 - improving planning processes for Climate Change Emergencies in Yukon.
4. The Department of Highways and Public Works is continuing to invest in road construction methods to preserve permafrost on Yukon highways.
 - The Dempster Highway is being mapped for permafrost vulnerability to locate and characterize massive ice bodies, and develop remediation methods for highway sections at high risk of permafrost thaw.
 - Thermosyphon effectiveness is being tested on a large scale through installation of approximately 50 devices in the Dry Creek area (km 1841) on the Alaska Highway, which was identified as a high-risk area for permafrost thaw in a recent vulnerability assessment.



- The Department of Highways and Public Works is participating in the Climate Change Impacts and Adaptations for Canadian Highways Built on Permafrost project, which will result in a better understanding of current and future climate change impacts on transportation infrastructure, maintenance and engineering costs, and will provide study results and training materials for adaptive highway maintenance and engineering technologies, designs and procedures.
5. The Government of Yukon participated in the development of the Pan-Canadian Framework on Climate Change and Clean Growth and continues to work on the implementation of its main pillars. The Pan-Canadian Framework identifies key actions in four key areas: adaptation and climate resilience; mitigation; carbon pricing mechanisms; and clean technology, innovation and jobs. The Framework includes many actions relevant to Yukon, including commitments to:
- reduce reliance on diesel through working with Indigenous Peoples and northern and remote communities;
 - support healthy indigenous communities through federal support for communities to undertake projects that protect public health;
 - build climate resilience in the North through development of a Northern Adaptation Strategy;
 - analyse the implications of carbon pricing in Yukon on its economy, communities and people including energy costs, and cost of living in the North;
 - advance renewable energy;
 - advance energy efficiency;
 - build resilient Yukon communities; and
 - support green innovation and technology.

The Government of Yukon is making progress on Yukon elements of the Pan-Canadian Framework.

- The Government of Yukon is participating in the development of the Northern Adaptation Strategy with northern stakeholders across the three territories and northern Quebec and Newfoundland and Labrador.
- The Government of Yukon is pursuing partnership opportunities with the federal government under the Low Carbon Economy Fund, Green Infrastructure Fund, Small Community Fund, etc. for energy related initiatives.
- The federal government completed a study of what potential impacts carbon pricing may have in Yukon.
- The Government of Yukon supports a nation-wide price on carbon emissions as a proven, cost-effective way to reduce emissions, foster innovation for low-carbon alternatives, and provide certainty for businesses. We are working with the federal government to identify how a federal pricing system can work in Yukon in ways that address our unique northern context. We will return all revenues back to Yukoners, businesses, municipalities and First Nations.



Looking Forward

Since the *Climate Change Action Plan* was released in 2009, and through its 2012 and 2015 reports, the Government of Yukon has learned many valuable lessons and moved the territory forward in its climate change work.

As we develop a new climate change, energy and green economy strategy for Yukon, we will work to bring past lessons learned into our new approach.

- We will endeavor to work in concert with Yukon and transboundary First Nations, the Inuvialuit, and Yukon municipalities leading to an integrated, respectful and strengthened approach.
- We will utilize a risk assessment approach to help prioritize commitments to manage the impacts of climate change as well as a human-centred approach to support development of human capacity and resilience.
- We will develop climate change commitments that indicate anticipated completion time, cost, greenhouse gas emissions reduced, jobs created, and energy saved.
- We will dedicate appropriate resources to be able to measure and monitor progress so that we can adjust our actions based on evidence.
- We will regularly and publicly report on progress made.

Please join us in developing the new climate change, energy and green economy strategy by attending one of the engagement sessions and participating in the online public engagement survey. A full list of community visits and dates can be found at EngageYukon.ca.

