Our Clean Future

2021 annual report

August 2022

Yukon

Contents

Acknowledgements

Climate change is the biggest challenge of our generation. *Our Clean Future: a Yukon strategy for climate change, energy and a green economy* is one of the many initiatives in the Yukon that contributes to our collective response to the climate emergency. A special thank you to all individuals, organizations, governments and others who strive to build thriving, resilient and low carbon communities. Addressing climate change is a collaborative effort.

Thank you for the ongoing work of:

- Yukon First Nations;
- transboundary Indigenous groups;
- non-government organizations;
- youth researchers and academic institutions;
- consultants and industry;
- other governments; including First Nations governments, the Government of Nunavut, and the Government of Canada;
- the Government of Northwest Territories, the Government of British Columbia; and
- individuals.

2021 highlights

Goal 1: Reducing our greenhouse gas emissions

The Yukon's greenhouse gas emissions are calculated on a two year delay. In 2020, the Yukon's greenhouse gas emissions, excluding emissions from mining, were:

642 kilotonnes of CO_2e

Compared to 2010 levels: **3% increase**

Compared to 2019 levels: **12% decrease**

Goal 2: Ensuring reliable, affordable and renewable energy

95.7%

of the electricity on the Yukon's main grid was generated from renewable sources in 2021

Goal 3: Adapting to climate change

Throughout 2021, various agencies, First Nations and municipal governments, academia, and the private and public sector collaborated to assess climate risks. The Yukon Climate Risk Assessment was published in 2022

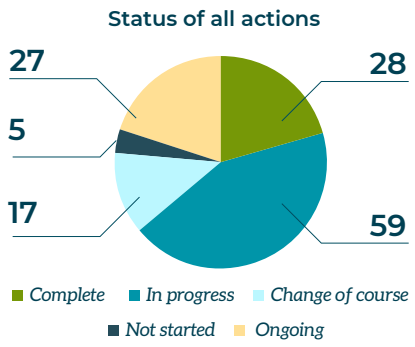
Goal 4: Building a green economy

In 2020, the Yukon's per capita greenhouse gas emissions were:

17.5 tonnes of CO_2e per person

This is a decrease from the 20.0 tonnes per person in 2010. Over the next 10 years, we anticipate a continued decrease in this number.

- 19 actions were due for 2021; 13 are complete, 3 are in progress and 3 have changed course.
- On-road zero emissions vehicles more than doubled in 2021 compared to 2020, from 57 to 129 (**actions T1 to T8**).
- 27 recommendations were provided by the Yukon Youth Panel on Climate Change (**action L6**).
- A framework to measure the sustainability of the tourism industry was launched in 2021 (**action I10**).
- Single-use plastic bags were banned (**action I13**).



Introduction

In response to the global and local climate emergency, *Our Clean Future* was released in September 2020 after three years of collaboration with Yukon First Nations, transboundary Indigenous groups and the Yukon's municipalities. It sets out shared objectives with Indigenous and municipal partners across the territory, along with the steps the Government of Yukon is taking to build a brighter future for Yukoners, now and for generations to come.

Our vision is to come together as leaders to address climate change by building thriving, resilient communities powered by renewable energy and supported by a sustainable green economy that protects and restores our natural environment.

Each year, the Government of Yukon will report on the implementation of *Our Clean Future* as part of our commitment to transparency and accountability to Yukoners. This report is the second of these annual reports covering the 2021 calendar year.

Climate change in the Yukon

Canada's North is experiencing climate change faster than the global average. In the Yukon, we are witness to the ways in which climate change has and continues to significantly impact our communities, the natural environment, and the wellbeing of Yukoners.

The purpose of this annual report is to clearly communicate what we have achieved and where we may need to adjust our approach to successfully reach our 2030 goals. In addition to reporting on existing actions, five new and 13 revised actions have been introduced, bringing the Government of Yukon's total actions under *Our Clean Future* from 131 to 136. We expect to continue adding new actions and modifying some as we learn from our past efforts and work towards our long term goals.

The new and revised actions outlined in the 2021 annual report build off existing completed actions. They add specificity or further direction to existing actions or represent a change in course after further analysis and research. These new and amended actions will be tracked and reported starting in 2022. We will continue to introduce new actions and build on *Our Clean Future* as we learn more about climate change. As new actions are introduced, they will be reflected in future annual reports.

By the end of 2022, comprehensive information on the implementation of *Our Clean Future* will be available through an *Our Clean Future* website.

Continuing our work with partners

The Government of Yukon developed *Our Clean Future* in partnership with Yukon First Nations, transboundary Indigenous groups and the Yukon's municipalities. During development, the partner group gathered four times to establish a vision and values for *Our Clean Future* and to prioritize the areas we should focus on over the next ten years to respond to the climate emergency. As a result of this collaborative process, the strategy reflects multiple perspectives, worldviews and ideas.

In order to address the climate crisis, all Yukoners, including individuals, municipalities, communities, First Nation and Inuvialuit governments, territorial and federal governments, academics, non-governmental organizations and the private sector, can take part in reducing emissions and building communities that are resilient to change. Throughout this report, our work with partners is highlighted. A summary of all partner actions is detailed in Appendix B.

Part A: Progress on goals and targets

This part of the report describes overall progress toward the key goals and targets in *Our Clean Future*. The data presented here is from 2020 or 2021, depending on the indicator, as some data sources take longer to compile and analyze than others.

Our Clean Future outlines four goals that will help us achieve our vision for a clean future:

- Reduce the Yukon's greenhouse gas emissions.
- Ensure Yukoners have access to reliable, affordable and renewable energy.
- Adapt to the impacts of climate change.
- Build a green economy.

Reduce the Yukon's greenhouse gas emissions

Overview

Our Clean Future set three targets to reduce the Yukon's greenhouse gas emissions.

- By 2030, we will reduce the Yukon's greenhouse gas emissions by 45 per cent lower than they were in 2010. This target does not include mining.
- We will work with industry to set a target for greenhouse gas emissions from placer and quartz mining by the end of 2022 that will see mines in the Yukon produce fewer emissions of greenhouse gases across their lifecycle for every kilogram or kilotonne of material produced.
- Reaching these targets by 2030 will put the Yukon on the path to net-zero greenhouse gas emissions by 2050 for our entire economy.

The sections below summarize our progress toward each target. For more information on how the Yukon's greenhouse gas emissions are calculated and the various factors that influence our emissions, such as population and economic growth, refer to the detailed backgrounder: *Greenhouse Gas Emissions in the Yukon: 2020 report.*

The Government of Yukon reports the Yukon's emissions in terms of carbon dioxide equivalent (CO_2e). This metric includes the six greenhouse gasses and how they compare to CO_2 in terms of potency.

45 per cent emissions reduction by 2030

In 2010, the Yukon's greenhouse gas emissions, excluding emissions from mining, were 625 kilotonnes. By 2030, these emissions need to be 343 kilotonnes or less to reach our 45 per cent emissions reduction target.

The Yukon's non-mining greenhouse gas emissions in 2020, which is the most recent year we have data for, were 642 kilotonnes. This means that 2020 emissions were three per cent higher than 2010 levels and 12 per cent below 2019 levels. This is due in large part to the impact of the COVID-19 pandemic on Yukoners' transportation choices. The information presented in Figure 1 is consistent with the original model forecast for *Our Clean Future*, which anticipated that the Yukon's greenhouse gas emissions would rise until 2020 before starting to fall in 2021 as a result of following through on the actions in the strategy.

Because it takes a long time to collect data on greenhouse gas emissions, we also track our progress in other ways. This includes progress related to building retrofits, zero emission vehicles and other areas that we know are key to reducing greenhouse gas emissions. That information can be found in Part B of this report.

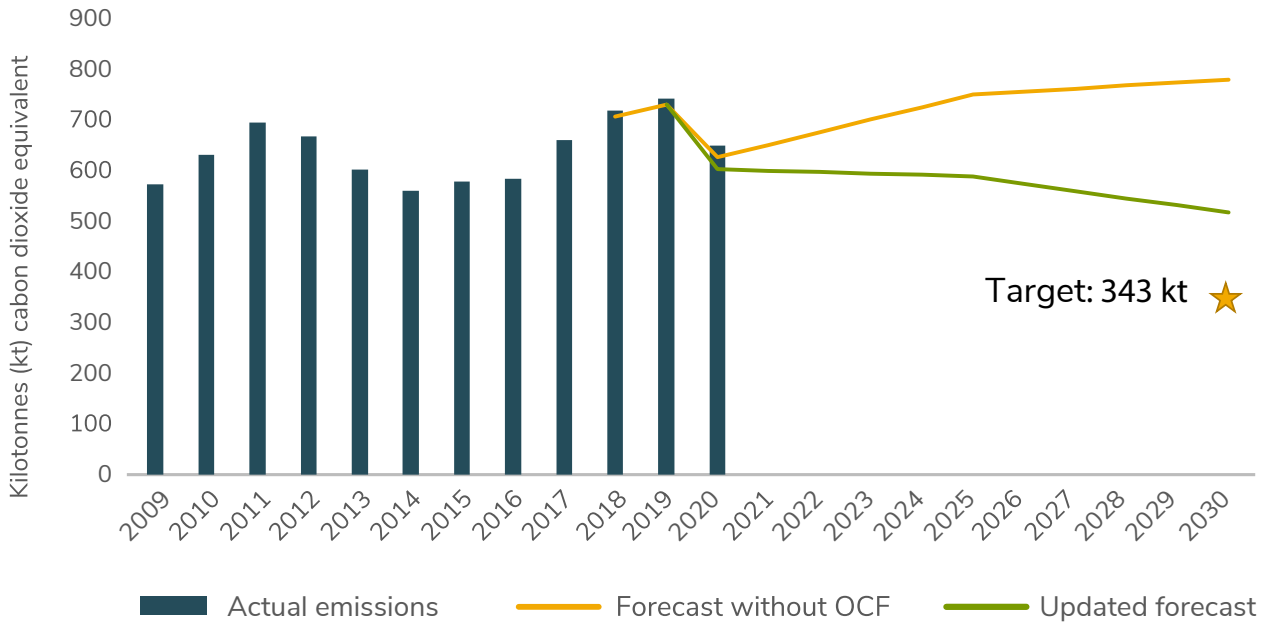


Figure 1. Actual and forecasted greenhouse gas emissions, excluding emissions from mining.

Looking out to 2030, and considering our emissions reduction target, we need to reduce our emissions to 343 kilotonnes.

The latest modeling work completed in January 2022 suggests the actions in *Our Clean Future*, along with the federal carbon price, are expected to reduce our greenhouse gas emissions by 114 kilotonnes by 2030. This reduction represents a just over 15 per cent decrease below 2010 emissions, and is only one third of the way to our ambitious goal. This means that significant collaboration, research and action is required to meet our target of a 45 per cent reduction in emissions by 2030. This number is an estimate and may change as part of future model updates.

Collaboration in action

In August 2022, the Yukon Climate Leadership Council will deliver recommendations on actions the Government of Yukon could take to reach the target of reducing greenhouse gas emissions by 45 per cent. Council members represented a variety of diverse backgrounds, knowledge and expertise. We appreciate the considerable effort the council put in to developing these recommendations. The Government of Yukon is working to review the recommendations provided.

Emissions intensity of mining

We continue to work toward the modeling of greenhouse gas emissions from mining. This model will help support actions that can be implemented to reduce the emissions intensity of the Yukon's mining industry and to set one or more intensity-based targets for the industry by the end of 2022.

Net-zero by 2050

Achieving our 2030 targets for mining and non-mining emissions will put the Yukon on the path to reaching net-zero emissions for our entire economy by 2050. The Yukon's total greenhouse gas emissions across the entire economy for 2020 are shown in Figure 2. The Government of Yukon will work with experts and stakeholders over the next several years to more clearly define the level of greenhouse gas reductions, combined with steps to remove carbon dioxide from the atmosphere, that are needed to reach the territory's 2050 net-zero target.

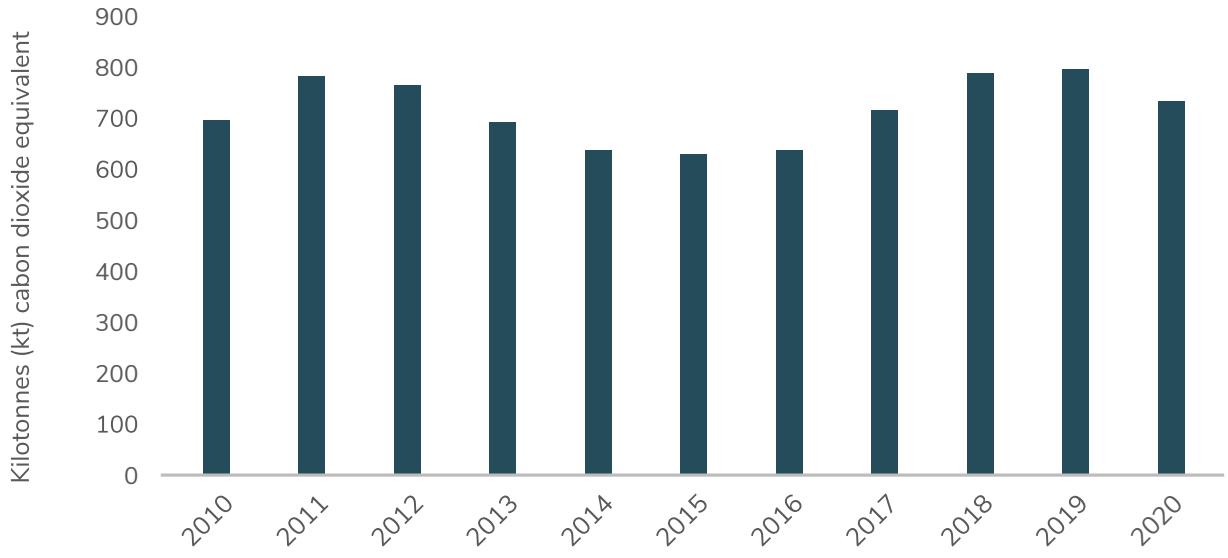


Figure 2: The Yukon's total greenhouse gas emissions from 2010 to 2020

Ensure Yukoners have access to reliable, affordable and renewable energy

Overview

Key to reducing the Yukon's greenhouse gas emissions is continuing to ensure most of the Yukon's electricity is generated from renewable sources and that we are increasing the proportion of renewable heating. These efforts also support access to reliable and affordable energy for Yukoners. *Our Clean Future* set three targets related to renewable energy:

- For the Yukon's main electricity grid, we will aspire to see 97 per cent of the electricity we use come from renewable sources by 2030.
- For the communities that are not connected to the main electricity grid, we will reduce diesel use for electricity generation by 30 per cent by 2030, compared to 2010.
- By 2030, we will meet 50 per cent of our heating needs with renewable energy sources.

97 per cent renewable electricity by 2030

Historically, we have met over 90 per cent of our electricity needs each year with clean, renewable power thanks to our large supply of hydroelectricity. To reach our target of 97 per cent renewable electricity on the Yukon's main grid by 2030, we expect a minimum of 93 per cent of on-grid electricity to be generated from renewables each year on average, gradually increasing to 2030.

In 2021, 95.7 per cent of the electricity on the Yukon's main grid was generated from renewable sources, calculated as an average over the previous 25 years. This is shown by the dark blue line in Figure 3 below and is a slight increase over the rolling average from 2017 to 2021. In future annual reports, we will look to see this number increasing on the path toward 97 per cent renewable by 2030.

Figure 3 also shows the percentage of renewable electricity generation in each year from 2010 to 2020 (dotted yellow line). In 2021, 92.4 per cent of electricity on the Yukon's main grid was generated from renewable sources. There is a lot of variability in each year's renewable electricity generation because of changes in the amount of water in the reservoirs that we use to generate hydroelectricity. The water available depends on the amount of snow, rain and glacial melt each year. This is why we are using a 25-year rolling average to track progress increasing renewable electricity generation on the Yukon's main grid. The rolling average looks at renewable electricity generation over a longer period of time, smoothing out year-to-year variations and giving a better indication of our overall progress.

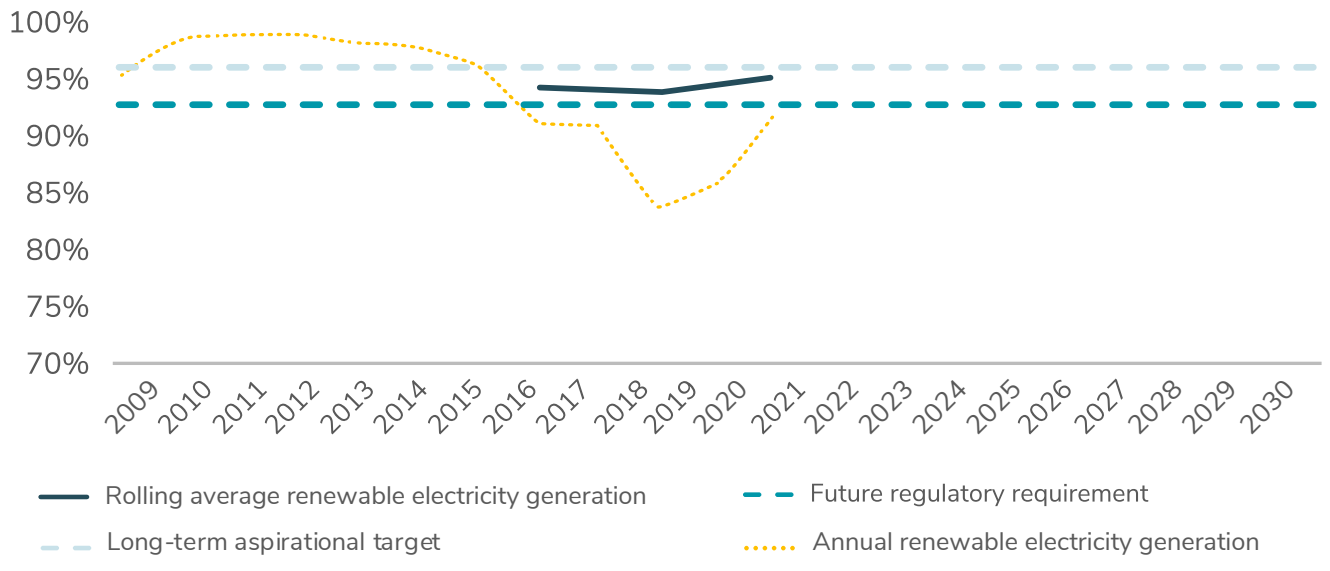


Figure 3. Percentage of renewable electricity generation on the Yukon's main electricity grid, calculated as a rolling average over the previous 25-year period.

30 per cent less diesel for off-grid electricity generation by 2030

In 2021, 5.6 million litres of diesel were burned to generate electricity in the Yukon's four off-grid communities: Beaver Creek, Burwash Landing/Destruction Bay, Watson Lake and Old Crow. This is eight per cent higher than 2010 when 5.2 million litres of diesel were burned to generate electricity in these communities.

To reach the 2030 target of a 30 per cent reduction compared to 2010 levels, we need to reduce the amount of diesel used to 3.6 million litres or less. We will accomplish this through community-based renewable electricity projects and energy efficiency measures, such as the Old Crow Solar Project, Sree Vyah, that began generating renewable electricity in May 2021.

50 per cent renewable heating by 2030

In 2009, we estimated that 26 per cent of the Yukon's heating needs were met from renewable sources such as clean electricity. Through *Our Clean Future*, we will increase that amount to 50 per cent by 2030.

Adapt to the impacts of climate change

Overview

Climate change adaptation involves making informed, forward-looking decisions to avoid or minimize the negative impacts that climate change may have to what matters to Yukoners, such as the values that contribute to the Yukon's resilience. This includes impacts on our health and well-being, our culture and heritage, our livelihoods, our ability to access the places and services we need, the natural spaces, wild animals, and the clean air and water that we depend on, and our homes, buildings and infrastructure.

Through *Our Clean Future*, the Government of Yukon is completing over 50 actions that help us adapt to the impacts of climate change. The actions from the 2021 calendar year help us:

- ensure roads, runways and other transportation infrastructure are resilient to the impacts of climate change;
- ensure electricity generation, transmission and distribution infrastructure is resilient to the impacts of climate change;
- respond to the impacts of climate change on wild species and their habitats;
- ensure we are prepared for emergencies that are becoming more likely due to climate change;
- ensure mining projects are prepared for the impacts of climate change;
- ensure the goals of this strategy are incorporated into government planning and operations; and
- ensure Yukoners have the information needed to make evidence-based decisions.

Climate change adaptation and mitigation support one another – many efforts to reduce greenhouse gases also help us build resilience. For example, Yukon communities are improving energy efficiency and developing renewable energy projects to reduce their reliance on imported energy sources. This strengthens resilience by increasing their self-sufficiency. It also decreases their reliance on trucked-in fuel, which could be impacted by a disruption in highway travel due to flooding, fire, permafrost thaw or landslides.

Our Clean Future sets a target that the Yukon will be highly resilient to the impacts of climate change by 2030. Resilience is the capacity of social, economic and environmental systems to cope with a hazardous event or, trend or disturbance.

The Yukon framework for resilience emphasizes nine values that matter to Yukoners:

- infrastructure;
- food security;
- energy;
- culture and heritage;
- access;
- community;
- livelihoods;
- environmental health; and
- health and wellbeing.

Figure 4: The Yukon's framework for resilience.

Climate resilience in the Yukon

As a first step to understanding how to make progress towards this target, the Government of Yukon worked on a territory-wide climate risk and resilience assessment throughout 2021. The assessment brought together perspectives from Yukoners, territorial governments, Yukon First Nations, Inuvialuit and transboundary Indigenous governments, municipalities, youth, academia, non-profit organizations, and sectors such as health, food, tourism, mining and business development. Together, we developed a framework for understanding climate resilience in the Yukon (Figure 4).

The Yukon's climate resilience stems from the types of actions that Yukoners can take to safeguard those values, and the extent to which climate change impacts continue to pose risks to the things that matter to us.

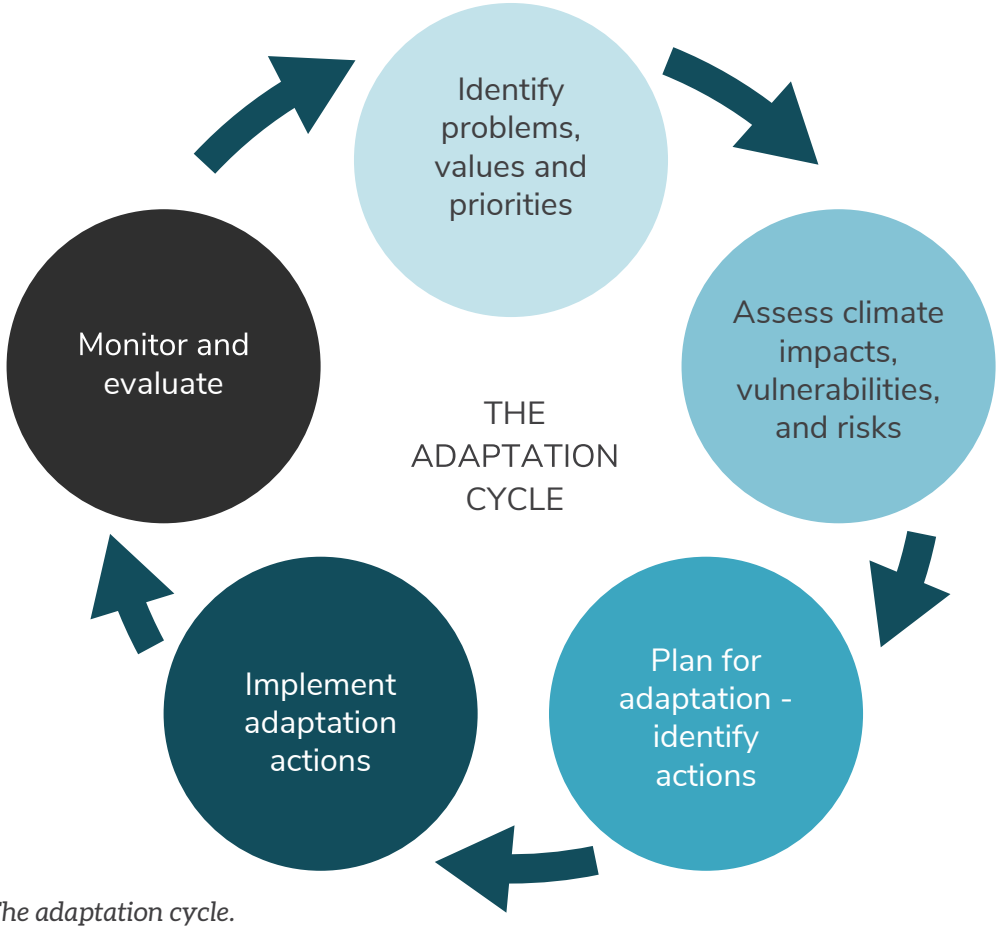


Figure 5: The adaptation cycle.

As a next step in meeting the resilience target in *Our Clean Future*, the Government of Yukon is developing a reporting and evaluation framework that helps us monitor our resilience over time. We are building on the indicators that we are already tracking. For example, the proportion of communities with flood maps completed, the number of road at risk of permafrost thaw that have undergone geohazard mapping, and the percentage of Yukoners that are food insecure.

The Yukon Climate Risk and Resilience assessment will inform future updates to *Our Clean Future*. For more information, see the Executive Summary and full report.

Build a green economy

Overview

A green economy creates economic prosperity while protecting and restoring the natural environment to support a healthy, prosperous future for generations to come. We are tracking our progress toward building a green economy by looking at changes to two key indicators:

- Greenhouse gas emissions per person.
- Greenhouse gas emissions per unit of real gross domestic product, referred to as the emissions intensity of the economy.

These indicators tell us whether the Yukon's economy is becoming more efficient in terms of the greenhouse gas emissions generated relative to the number of people living in the territory and the size of our economy.

Greenhouse gas emissions per person

In 2010, each Yukoner produced 20 tonnes of carbon dioxide equivalent on average. This is based on the Yukon's total greenhouse gas emissions and the number of people living in the territory, as shown in Figure 6 below. In 2020, our greenhouse gas emissions per person were significantly lower at 17.5 tonnes of carbon dioxide equivalent, in part due to a COVID-19 related decrease in 2020's emissions. Over the next 10 years, we anticipate this number to continue going down.

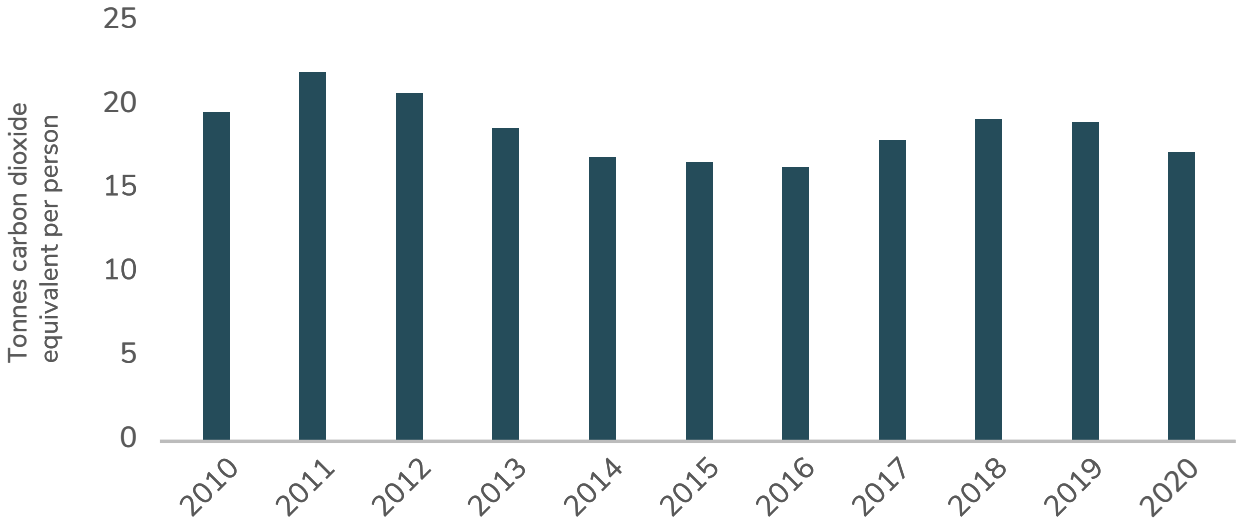


Figure 6. Average greenhouse gas emissions per person from 2010 to 2020.

Emissions intensity of the economy

In 2010, the Yukon's economy generated 309 tonnes of carbon dioxide equivalent per unit (million chained dollars) of real gross domestic product (GDP), as shown in Figure 7 below. In 2020, that number had decreased to 274 tonnes of carbon dioxide equivalent. As with greenhouse gas emissions per person, we expect emissions intensity of economic activity to continue going down over the next 10 years.

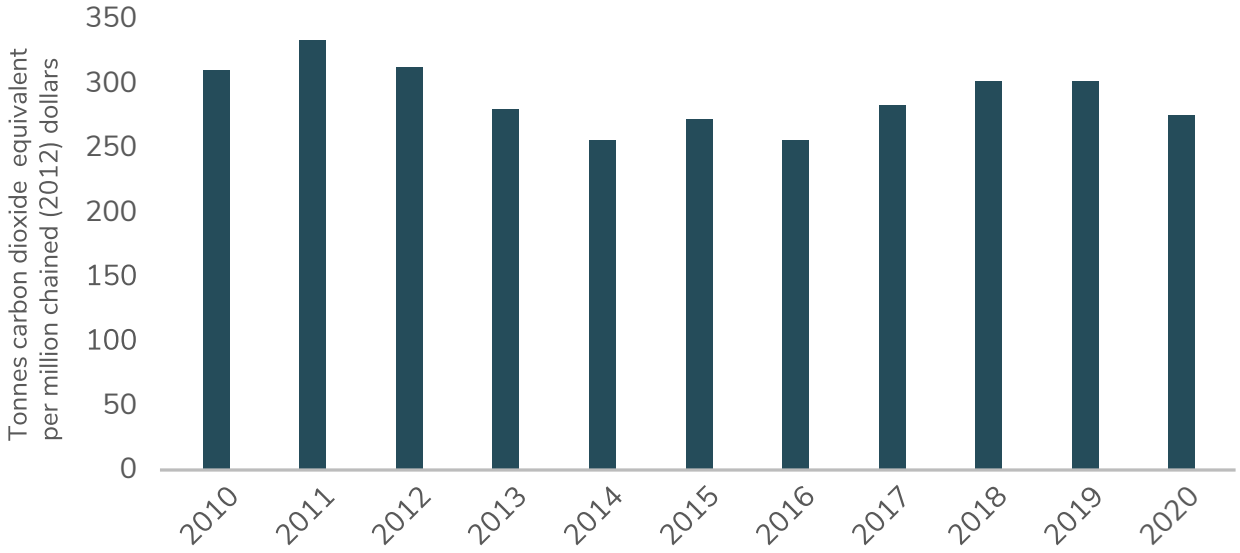


Figure 7. The emissions intensity of Yukon's economy from 2010 to 2020.

Part B: Objectives and actions

This part of the report describes progress toward the specific objectives and actions in *Our Clean Future*. In this section, you will find information on which actions have been completed and data on key progress indicators.

Overview

To achieve the goals of *Our Clean Future*, the Government of Yukon set out 131 specific, tangible actions. With five new actions added this year, there are now 136 actions. Each action contributes to reaching one of the objectives in *Our Clean Future*, which are organized into seven areas:


Transportation


Communities


Homes and buildings


Innovation


Energy production


Leadership


People and the environment

Each area is colour-coded for easy identification, and actions within each area are assigned a number. In addition, the Government of Yukon department or agency responsible for leading the implementation of each action is listed beside each action for transparency and accountability.

Government of Yukon departments and agencies			
CS:	Community Services	HPW:	Highways and Public Works
EcDev:	Economic Development	JUS:	Justice
EDU:	Education	PSC:	Public Service Commission
EMR:	Energy, Mines and Resources	TC:	Tourism and Culture
ENV:	Environment	YDC:	Yukon Development Corporation
ECO:	Executive Council Office	YEC:	Yukon Energy Corporation
HSS:	Health and Social Services	YHC:	Yukon Housing Corporation

The Government of Yukon's actions will be updated over time to ensure the strategy remains relevant from now until 2030 and that we remain up-to-date on best practices and new developments.

Action statuses

Of the 136 actions in *Our Clean Future*, 106 are new commitments with deadlines. The remaining 30 are commitments to continue with existing successful initiatives.

For the purposes of annual reporting, all *Our Clean Future* actions with deadlines are assigned one of the following three statuses:

- **Complete** – The action has been completed.
- **In progress** – Work on the action is underway.
- **Not started** – Actions that have not been started.

2021 actions: Complete

#	Action description	Area
T6	Require new residential buildings to be built with the electrical infrastructure to support Level 2 electric vehicle charging beginning on April 1, 2021.	Transportation
T15	Begin a pilot project in 2021 to test the use of short-haul medium and heavy-duty electric vehicles for commercial and institutional applications within the Yukon.	Transportation
H25	Analyze and compare the climate benefits of different types of biomass harvesting and use in the Yukon by 2021 in order to identify recommended forest management practices to guide sustainable and low-carbon biomass use.	Homes and buildings
H27	Establish a partnership between the Government of Yukon, Yukon Energy Corporation and ATCO Electric Yukon by 2021 that will collaborate on the delivery of energy and capacity demand-side management programs.	Homes and buildings
E8	Increase the limit of the Standing Offer Program under the Independent Power Production Policy from 20 gigawatt hours (GWh) to 40 GWh by 2021 to support additional community-based renewable energy projects on the Yukon's main electrical grid.	Energy
E13	Improve modeling of the impacts of climate change on hydroelectricity reservoirs by 2021 and incorporate this information into short, medium and long-term forecasts for renewable hydroelectricity generation.	Energy
I8	Increase the Government of Yukon's participation in intergovernmental initiatives related to mine resiliency, low-carbon mining and innovation by 2021.	Innovation

I10	Establish and implement a framework to measure the sustainability of tourism development in the Yukon by 2021.	Innovation
I11	Develop and implement a system to track greenhouse gas emissions from the Yukon's tourism industry by 2021.	Innovation
I13	Develop legislation that will enable the Government of Yukon to restrict or prohibit the production, supply or distribution of appropriate single-use bags by 2021.	Innovation
L2	Incorporate a climate change lens into the decision-making process for major Government of Yukon policies, programs and projects by 2021.	Leadership
L12	Create easy access to technical information and lessons learned about climate change, energy and green economy for governments and stakeholders by 2021.	Leadership
L13	Launch a Yukon-wide information or social marketing campaign in 2021 that will educate Yukoners on greenhouse gas emissions, renewable energy, climate change adaptation, and other topics and highlight what Yukoners can do to support climate change initiatives.	Leadership

2021 actions: In progress

#	Action description	Area
H3	Provide low-interest financing to support energy efficiency retrofits to homes and buildings beginning in 2021.	Homes and buildings
H18	Provide low-interest financing to install smart electric heating devices in residential, commercial and institutional buildings in collaboration with the Yukon's public utilities beginning in 2021.	Homes and buildings
H19	Provide low-interest financing to install biomass heating systems in commercial and institutional buildings beginning in 2021.	Homes and buildings

2021 actions: Change of course

#	Action description		Area
T20	Changed from: Develop and implement a system by 2021 to coordinate carpooling for Government of Yukon staff travelling by vehicle for work within the Yukon.	Changed to: Develop and implement a system by 2023 to coordinate carpooling for Government of Yukon staff travelling by vehicle for work within the Yukon.	Transportation
T21	Changed from: Develop guidelines for the Government of Yukon Fleet Vehicle Agency's fleet by 2021 to ensure appropriate vehicles are used for the task at hand.	Changed to: Develop and implement guidelines for Government of Yukon's fleet by 2023 to ensure appropriate vehicles are used for the task at hand, including prioritizing zero-emission vehicles.	Transportation
P12	Changed from: Purchase a moveable clean air shelter by 2021 that can be set up in communities to protect public health during wildfire smoke events.	Changed to: Identify existing buildings in communities that can be used as clean air spaces to protect public health during wildfire smoke events and if necessary improve existing air filtration systems by 2023.	People and the environment

For the status of all of the actions in *Our Clean Future*, see Appendix A.
For information on new and revised actions, see Appendix C.

Overall progress

In addition to the status of each action, we are tracking several indicators to help us understand progress on our objectives and the actions that support them. The sections below share key progress indicators and other information for each objective, organized by area, for the 2021 calendar year.

In this section, we have also taken the opportunity to highlight progress on climate change and energy initiatives by Yukon First Nations, transboundary Indigenous groups, and Yukon municipalities that partnered in the development of *Our Clean Future*. A complete list of actions that Indigenous and municipal partners included in *Our Clean Future* is in Appendix B.

Area #1: Transportation

Transportation is consistently the largest source of emissions in the Yukon (see figure 8). The Government of Yukon has a number of initiatives in place to increase the uptake of zero emission vehicles, enhance active transportation, travel more efficiently and reduce the carbon intensity of fossil fuels.

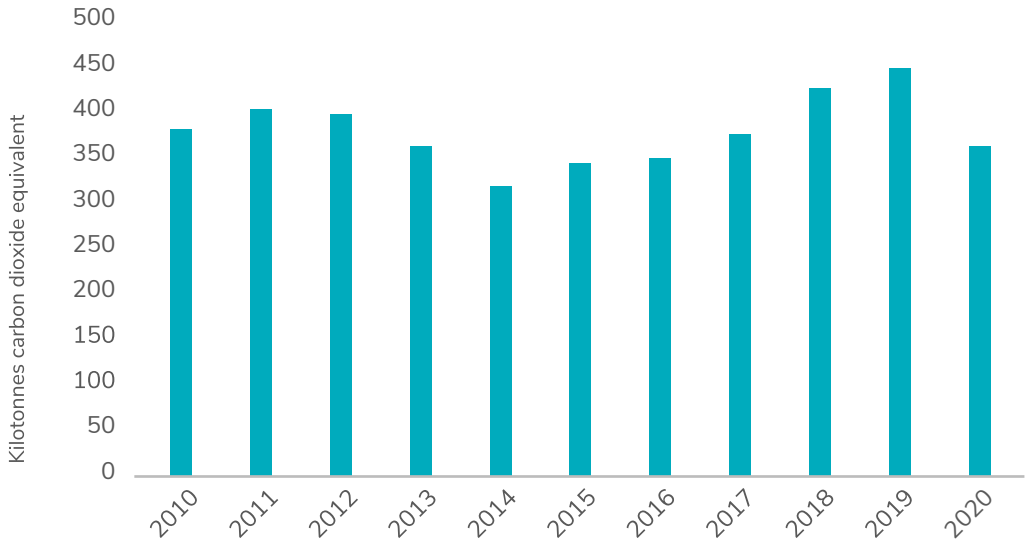


Figure 8. Greenhouse gas emissions from road transportation from 2010 to 2020.

The Yukon Climate Risk and Resilience Assessment found that continuing to build the resilience of the Yukon's transportation infrastructure is a priority. Interruptions and damage to the Yukon's roads and highways can affect all facets of Yukoners' lives. For example, they can make it challenging for fuel and food to arrive, sever connections between communities, make it more difficult or impossible for Yukoners to travel for healthcare or essential services and prevent local businesses from operating.

Zero emission vehicles

Our Clean Future includes a target to have 4,800 zero emission vehicles on our roads by 2030.

- At the end of 2021, there were **129** zero emission vehicles registered in the Yukon.

In 2021, we:

- Issued **68** rebates for zero emission vehicles (**action T3**)
- Issued seven rebates for Level 2 chargers (**action T5**).
- Updated building permits to require new residential buildings are built with electrical infrastructure that supports electric vehicle charging starting in 2022 (**action T6**).
- Five fast-charging stations are operational for electric vehicles (**action T4**).
- Purchased three new zero emissions vehicles for the Government of Yukon's fleet (**action T2**).

Renewable fuels

Renewable fuel blending can reduce the carbon intensity of fossil fuels. It also offers a significant opportunity to reduce transportation emissions in the near term as we shift toward greener transportation options over the long term. Numerous jurisdictions in Canada, including Ontario, BC, Alberta, Saskatchewan and Manitoba have renewable fuel regulations in place in an effort to reduce greenhouse gas emissions from motor vehicles. Through partnership with the federal government and introduction of new legislation, we will:

- Require that all gasoline sold in the Yukon for transportation align with the percentage of ethanol by volume in leading Canadian jurisdictions (**action T9 and T10**).

Public and active transportation

The majority of the Yukon's emissions come from transportation, which includes activities like commuting to school or work. In 2020, 81 per cent of Yukoners travelled to work as a driver. By choosing active transportation, such as walking or biking, or public transportation, such as travelling by bus, Yukoners can play a role in reducing emissions.

In 2021, the Government of Yukon took action to encourage greater use of alternative modes of transportation in the future. We:

- Issued **274** rebates for electric bicycles in 2021 through the Good Energy rebate program (**action T11**).
- Supported **five** public transportation infrastructure projects (**action T12**).

Moving forward, the Government of Yukon will continue to work with Yukon First Nations and municipal partners on public and active transportation projects.

Medium and heavy-duty vehicles

Medium and heavy-duty vehicles, often powered through diesel, contribute to a significant amount of our transportation emissions.

- To reduce emissions from this area, we are starting a pilot project to explore the use of medium and heavy-duty electric vehicles in the Yukon. The pilot project will support local organizations to purchase and evaluate these vehicles (**action T15**).
- In 2021, we supported the purchase of **two** medium-duty electric vehicles: an electric passenger van (airport shuttle, in partnership with NVD) and an electric water truck (Teslin, in partnership with municipality of Teslin).

Efficient travel

The Government of Yukon leads by example when it comes to reducing greenhouse gas emissions from transportation. In 2021, we:

- Launched a remote work policy in fall 2021 (**action T18**).
- Incorporated fuel efficiency into purchasing decisions for future fleet vehicle procurements (**action T22**).
- Trained all heavy-duty vehicle operators on efficient driving techniques (**action T16**).

Resilient transportation infrastructure

Geohazard maps, flood maps and vulnerability studies help us understand where existing infrastructure may be at risk from climate impacts like permafrost thaw and flooding. We can then put appropriate preventative measures and precautions in place. In 2021, the Government of Yukon:

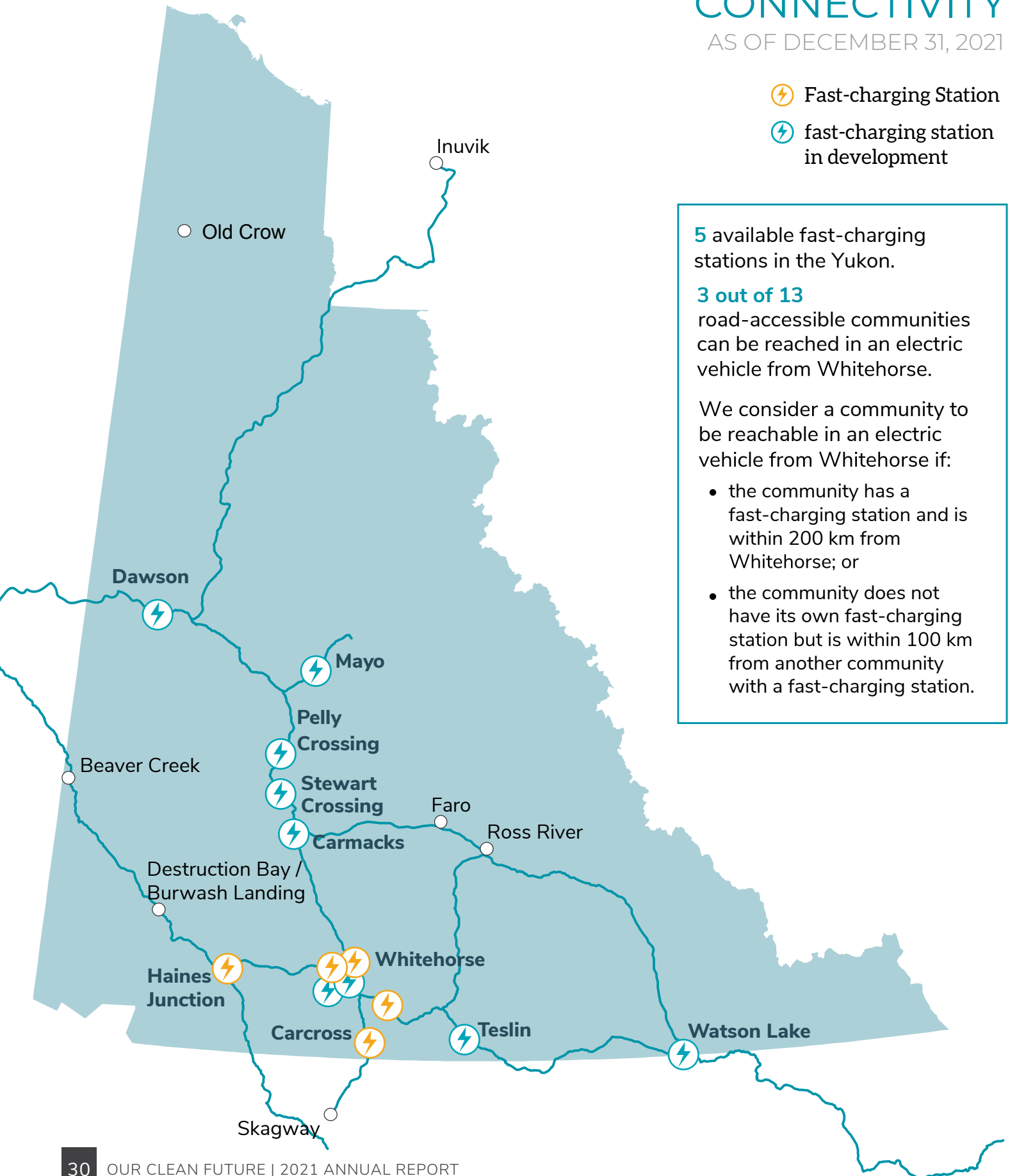
- Studied permafrost risk for 274 km of roads for the **geohazard mapping program** (**action T26**).
- Began analysis of **flood risk** for critical transportation corridors, to be completed by 2023 (**action T27**).
- Undertook federal Climate Lens assessments for major capital highway projects planned. (**action T28**).

ELECTRIC VEHICLE CONNECTIVITY

AS OF DECEMBER 31, 2021

Fast-charging Station

fast-charging station in development



5 available fast-charging stations in the Yukon.

3 out of 13 road-accessible communities can be reached in an electric vehicle from Whitehorse.

We consider a community to be reachable in an electric vehicle from Whitehorse if:

- the community has a fast-charging station and is within 200 km from Whitehorse; or
- the community does not have its own fast-charging station but is within 100 km from another community with a fast-charging station.

Area #2: Homes and buildings

Our homes and buildings provide spaces for us to live, learn, work and play. How we design, use and heat these buildings affects our comfort, safety, productivity, health and finances. At the same time as we make our buildings more efficient, we can ensure they are designed to be more resilient to fires, floods, permafrost thaw and heat stress. This will reduce long-term repair and maintenance costs, health risks like mold, and improve public safety.

The Yukon Climate Risk Assessment emphasized that local buildings are very important to all aspects of community life, especially in smaller and more remote places. They serve as gathering spaces, provide shelter in case of emergencies, and host neighboring communities during special events.

"Everybody in the community is impacted. If one person can't access a building, everyone feels the grief of that person losing access. If there is one house that's in a spot that is not stable because it is in the zone of a landslide or permafrost, the entire community feels anxiety and feels grief over the change of that landscape. When you have a community feeling anxious, isolated, at risk – that impacts all of the relationships between the community and governments who work with them." – *Permafrost scientist who participated in the Yukon Climate Risk Assessment (2021)*

Throughout 2021, the Government of Yukon has been completing actions to make sure that new and existing buildings are climate resilient. This includes maintenance and monitoring of government-owned buildings located on permafrost, and working on actions to support financial recovery and assistance for losses related to floods, fires and permafrost thaw.

Improving energy efficiency by heating highly efficient buildings with low-carbon energy sources like wood and clean electricity is a key step toward significantly reducing greenhouse gas emissions.

In 2020, 135 kilotonnes of greenhouse gas emissions were produced from heating homes and buildings across the Yukon, shown in Figure 10. This level is an increase above the 2010 emissions of 119 kilotonnes and can be attributed to various factors, including an increase in housing stock and fluctuations in heating degree days.

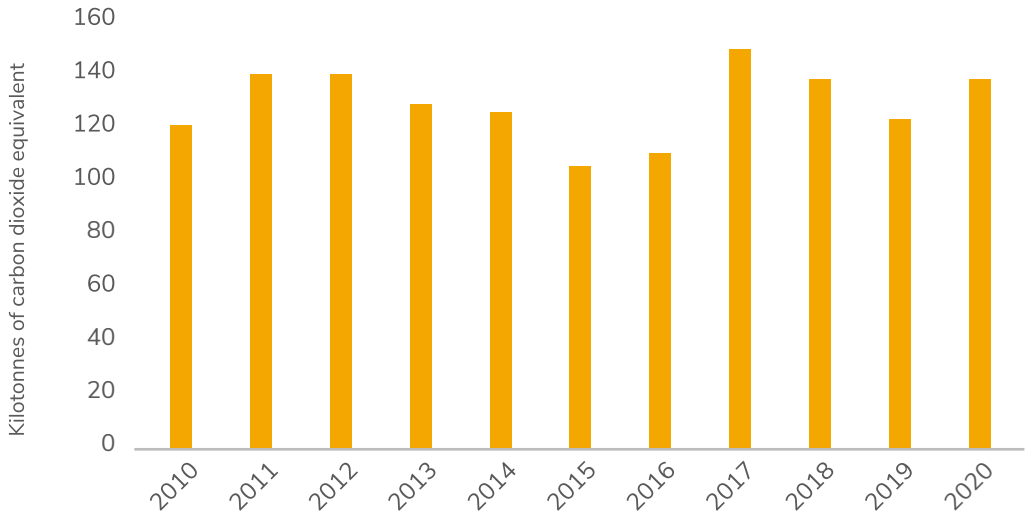


Figure 10: Greenhouse gas emissions from heating fuel from 2010 to 2020.

Energy efficiency of new and existing buildings

We have set a target to retrofit 2,000 existing residential, commercial and institutional buildings by 2030. These retrofits will reduce energy use and greenhouse gas emissions while saving Yukoners money on utility bills. Plans to reach this target include offering low-interest loans for building retrofits (**action H3**) and continued capacity development with local industry (**action I4**).

In 2021, we:

- Supported **19** more high performance energy retrofits to homes and buildings, excluding Government of Yukon buildings.

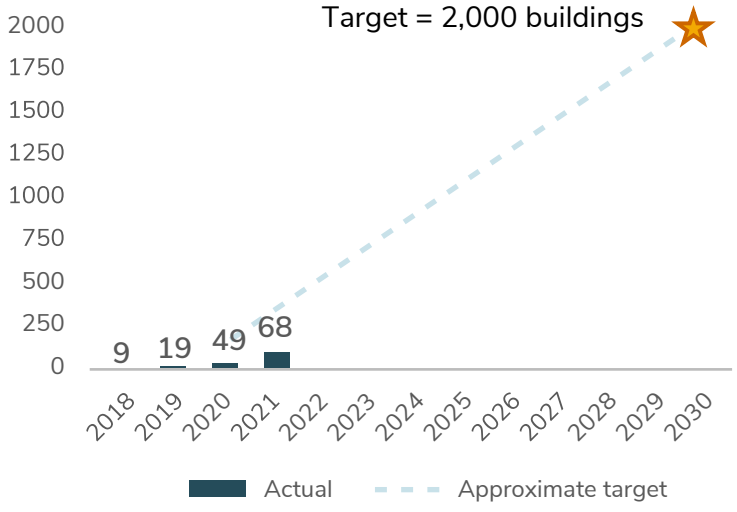


Figure 11: Cumulative counts of high performance building retrofits.

Partner highlight: Tr'ondëk Hwëch'in has completed energy audits for five of their buildings, and are now planning upgrades to reduce greenhouse gas emissions.

Ensuring that homes and buildings are energy efficient is critical to reaching our targets.

- We have passed legislation and are currently working on actions to provide low-interest financing to support energy efficient retrofits in homes and buildings (**action H3, action H18 and action H19**).

As the population in the Yukon grows, new homes and buildings are being constructed. To ensure that new homes and buildings are built to be energy efficient, we have continued to provide rebates for new homes that are net-zero ready. In 2021, we:

- Provided rebates for **129** super insulated new homes (**action H16**).
- Conducted energy assessments for 40 per cent of Government of Yukon buildings to identify ways to reduce our energy use and greenhouse gas emissions (**action H2**). Improving the energy efficiency of our existing buildings is a key part of our strategy to achieve our greenhouse gas reduction target in Government of Yukon buildings by 30 per cent by 2030.

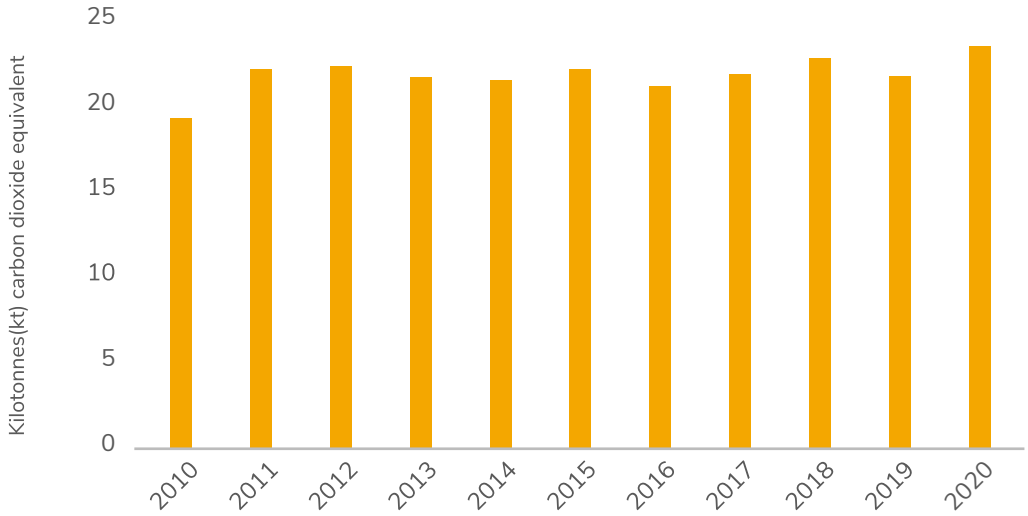


Figure 12: Greenhouse gas emissions from Government of Yukon buildings

In 2020, greenhouse gas emissions from Government of Yukon buildings were 22 kilotonnes. This is an 11 per cent increase from 2010 levels of 18 kilotonnes.

In 2021, we:

- Initiated 41 energy efficient retrofits in Government of Yukon buildings (**action H7**).
- We are also continuing to design all new Government of Yukon buildings to use 35 per cent less energy than the targets in the National Energy Code for Buildings (**action H13**).

Homes and buildings are resilient to the impacts of climate change

As the climate continues to change, our homes and buildings may be impacted by floods, permafrost thaw and wildfire. In order to ensure that these spaces are resilient to changes, we are taking the following steps.

- Assessing ways to ensure Yukoners can access adequate insurance for fires, floods and permafrost thaw (**action H9**).
- Assessing ways to provide financial support for actions to improve the climate resiliency of homes and buildings (**action H11**).

Renewable heating systems

Many of the ways in which we heat our homes also heat the planet. Right now, many homes use more energy than they need. Renewable heating options such as smart electric and biomass systems help lower our greenhouse gas emissions.

In 2021, we:

- Supported the installation of **21** heat pumps and **50** smart heating devices, including electric thermal storage units.
- Increased the rebate for smart electric heating systems (**action H21**).
- Launched a partnership with local industry to test the use of electric heat pumps with backup fossil fuel heating systems (**action H22**).

Partner highlight: The Yukon Conservation Society also launched an electric thermal storage demonstration project that installed **21** smart electric heating systems in 2021.

In 2021, **one** new biomass heating system was installed and operating in commercial or institutional buildings, excluding Government of Yukon buildings. This means we are on track to reach our target of 20 new large biomass systems between 2020 and 2030.

To support this progress, in 2021, we:

- Continued to evaluate renewable energy heating options in 70 Government of Yukon buildings (**action H17**).
- Worked with four Yukon First Nations on four biomass feasibility studies, in addition to four in 2020. (**action H20**).
- Evaluated the climate change impacts of harvesting and using different types of biomass with respect to the harvesting and use in the Yukon. This work will identify recommended forest management practices and guide sustainable and low-carbon biomass use (**action H25**).

Energy efficient supply and demand

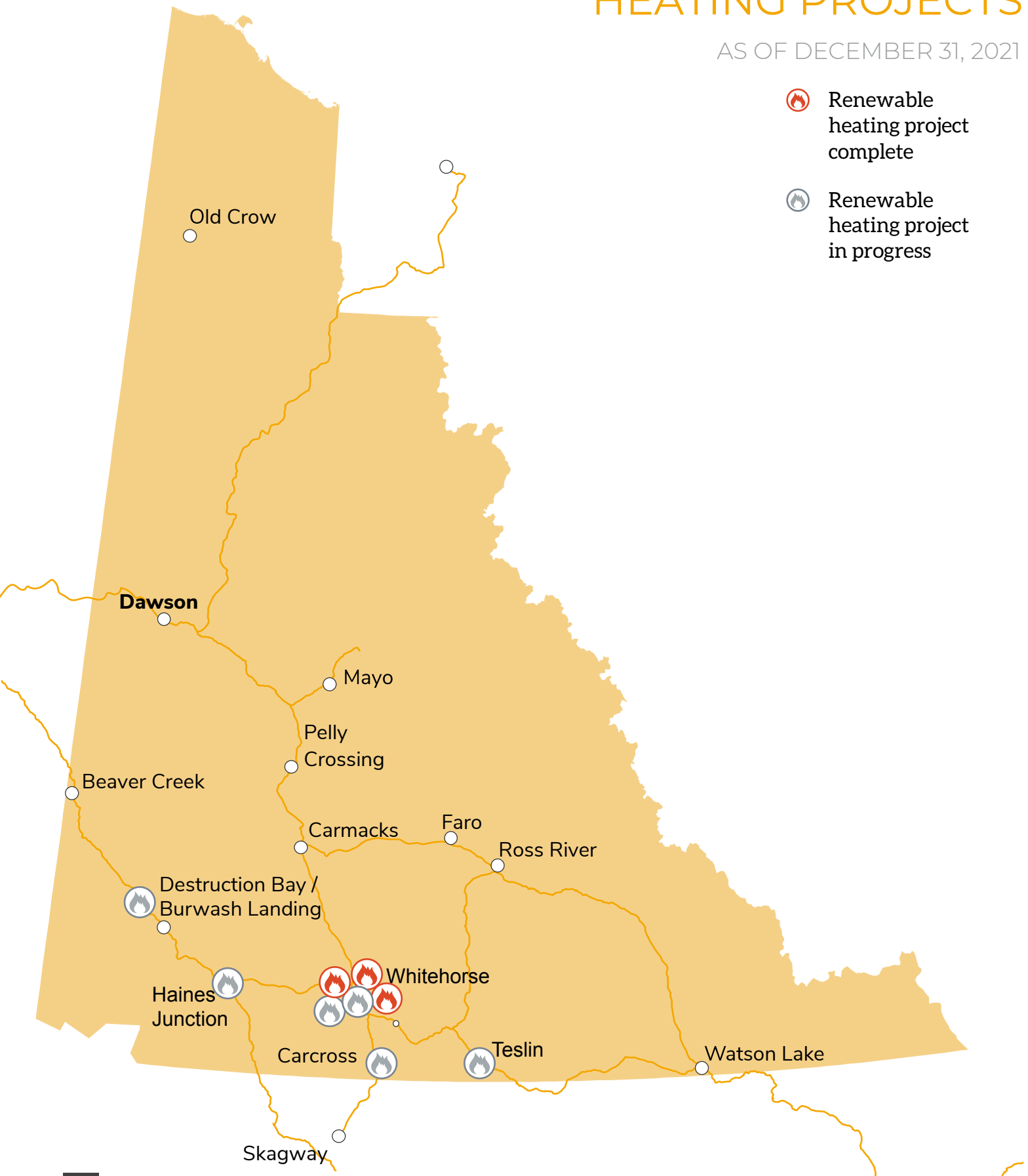
Understanding and lowering our energy use in homes and buildings is essential to lowering our emissions. In 2021, we took the following steps.

- Established a partnership between the Government of Yukon, Yukon Energy Corporation, and ATCO Electric Yukon to collaborate on the delivery of delivering energy and capacity demand-side management programs (**action H27**).
- Have installed peak smart devices in over 50 per cent of the program's total target households, completing nine peak smart demand test events (**action H28**).

Partner highlight: The Village of Mayo continues to heat their swimming pool using solar energy.

RENEWABLE HEATING PROJECTS

AS OF DECEMBER 31, 2021



Area #3: Energy production

Through *Our Clean Future*, we will increase the amount of renewable energy produced for electricity and heating. These efforts, combined with electricity grid investments, will ensure our electricity infrastructure is climate-resilient and suited to new patterns of electricity generation and use. By 2030, we will see an increase in local and community-based renewable electricity generation, including operating independent power production projects in all of the Yukon's off-grid communities. Community-based renewable electricity generation also contributes to climate resilience, by building self-sufficiency and reducing our reliance on southern fuel imports.

Through *Our Clean Future* and the Yukon Energy Corporation's 10-year renewable electricity plan, we will continue to support reliable renewable electricity sources, especially those that add winter capacity to our grid. As Yukoners increasingly invest in electric vehicles and electric heating technologies, demand for electricity will continue to grow.

In 2020, greenhouse gas emissions from electricity generation were 55 kilotonnes, shown in Figure 13.

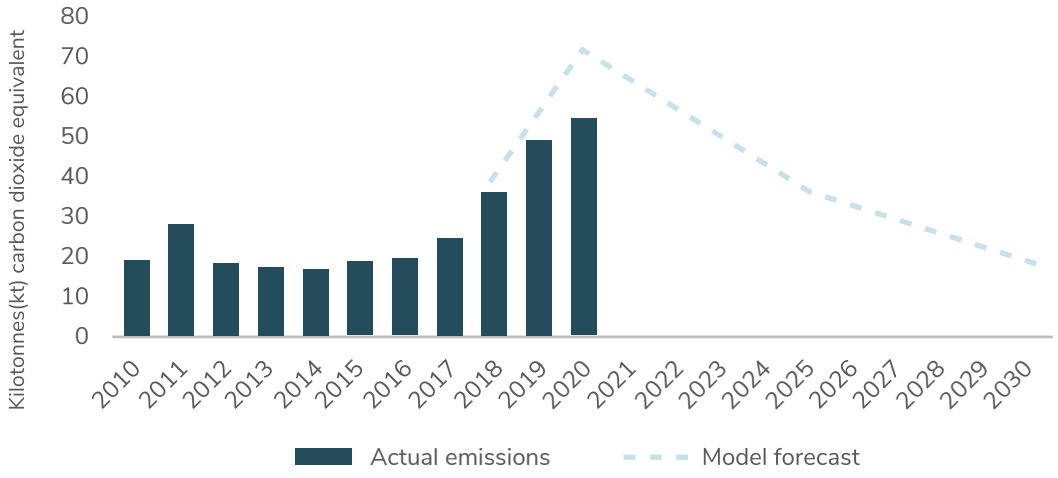


Figure 13. Greenhouse gas emissions from electricity generation from 2010 to 2020.

Renewable electricity supply

In 2021, the Government of Yukon worked collaboratively with partners to increase the amount of renewable energy generated and produced in the territory. Specifically, we took the following actions.

- Provided financial support for **15** renewable energy projects through the Innovative Renewable Energy Initiative and the Arctic Energy Fund (**action E6**).
- Signed **one** Energy Purchase Agreement for a solar project with Klondike Development Organization under the Independent Power Production Policy. Five other Energy Purchase Agreement projects continued operation or development (**action E7**).
- Advanced work on new clean energy legislation that will include our commitment to a minimum of **93 per cent** renewable electricity generation on the Yukon's main grid on average each year (**action E1**).
- Began studies in three communities to investigate the potential for geothermal energy production in the Yukon (**action E12**).

These actions, and the work of many others, support renewable electricity generation, energy sovereignty and community resilience.

Community-based renewable energy projects

Local and community-based renewable energy projects create jobs and opportunities across the Yukon, support self-sufficiency and help Yukoners be part of the clean energy economy.

- One of the ways we are supporting renewable electricity generation in the Yukon is through the Micro-generation Program (**action E10**). This program enables households to generate clean electricity and sell power to the grid.
- At the end of 2021, **5.9** Megawatts (MW) of renewable capacity were installed through the program, putting us ahead of schedule for our 2030 target of 7 MW (see Figure 14).
- We also worked with partners to increase the limit of the Standing Offer Program and develop policy to support additional community-based renewable energy projects on the Yukon's main electrical grid (**action E8**).

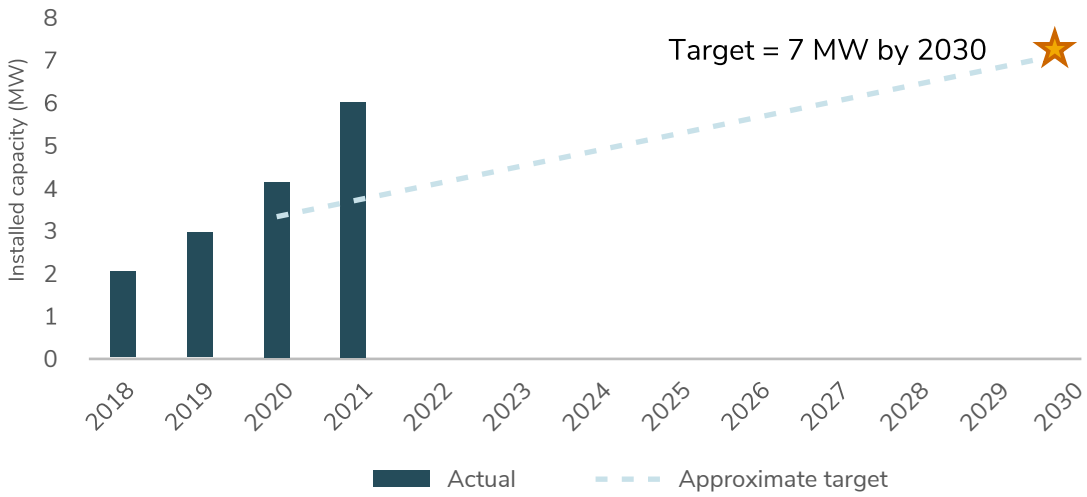
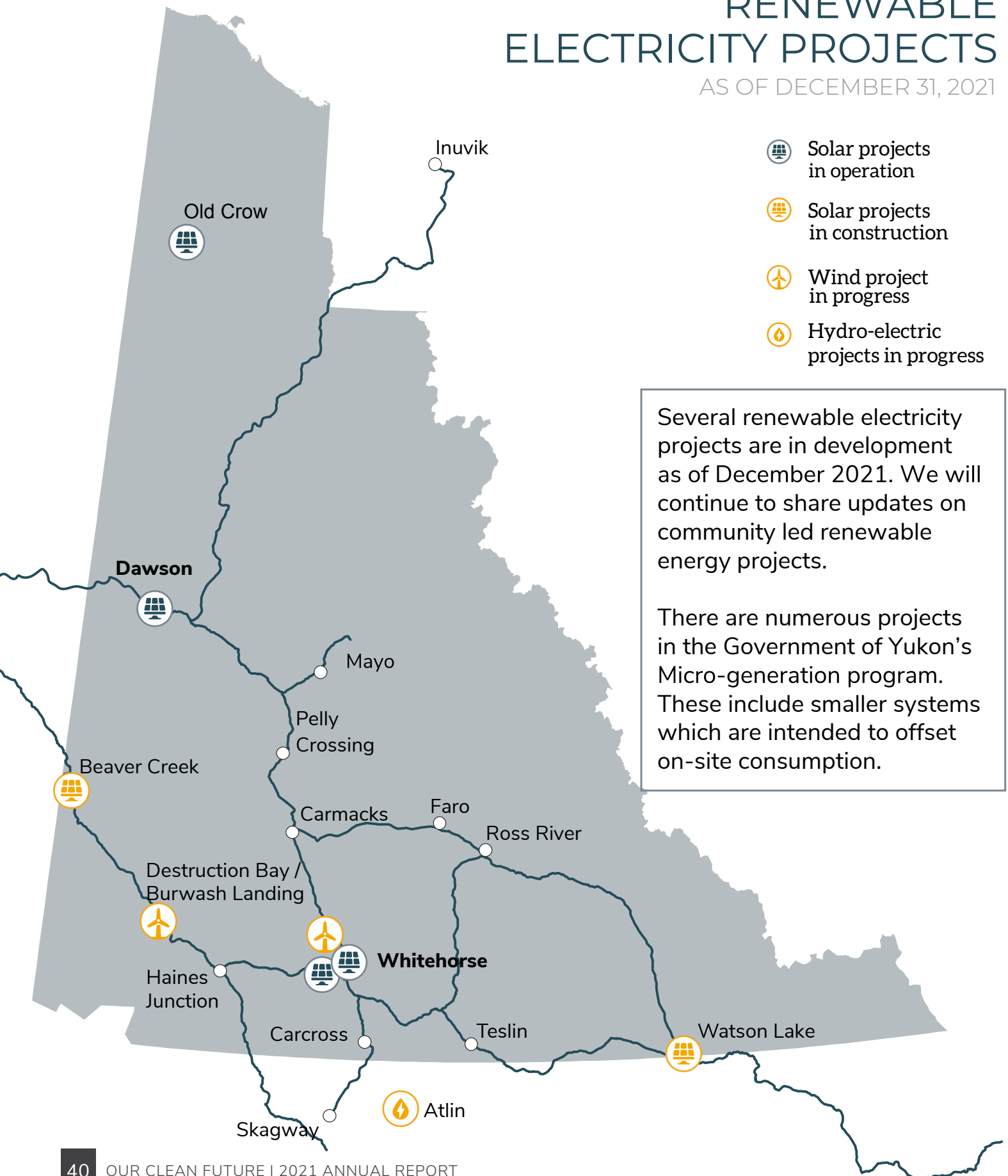


Figure 14: Renewable electricity generation through our microgeneration program.

Partner highlight: The Inuviaulit Regional Corporation developed an energy action plan. The plan provides a scheme of each of the Inuvialuit Settlement Region community's energy landscape and proposes actions to confront challenges related to energy availability and cost by providing practical solutions for a more sustainable, inclusive, and healthy future to benefit communities.

COMMUNITY-BASED RENEWABLE ELECTRICITY PROJECTS

AS OF DECEMBER 31, 2021



Several renewable electricity projects are in development as of December 2021. We will continue to share updates on community led renewable energy projects.

There are numerous projects in the Government of Yukon's Micro-generation program. These include smaller systems which are intended to offset on-site consumption.

Energy infrastructure is resilient to the impacts of climate change

In 2021, the Yukon Energy Corporation completed the following.

- Conducted simulations to estimate **the impacts of climate change on the water reservoirs** that feed Yukon Energy's hydro facilities, including the impacts of climate change on the glaciers that affect those reservoirs. The data from the simulations were incorporated into the model that Yukon Energy uses to inform hydroelectricity generation forecasts (**action E13**).

- Developed a **Climate Change Adaptation Plan** that is now being implemented by identifying risks and figuring out how risk reduction measures will be incorporated into the utility's practices and processes (**action E14**).

Partner highlight: Sree Vyah, a Solar Project in Old Crow, began producing electricity in the spring of 2021. The system generates enough electricity to meet 24 per cent of annual power needs.

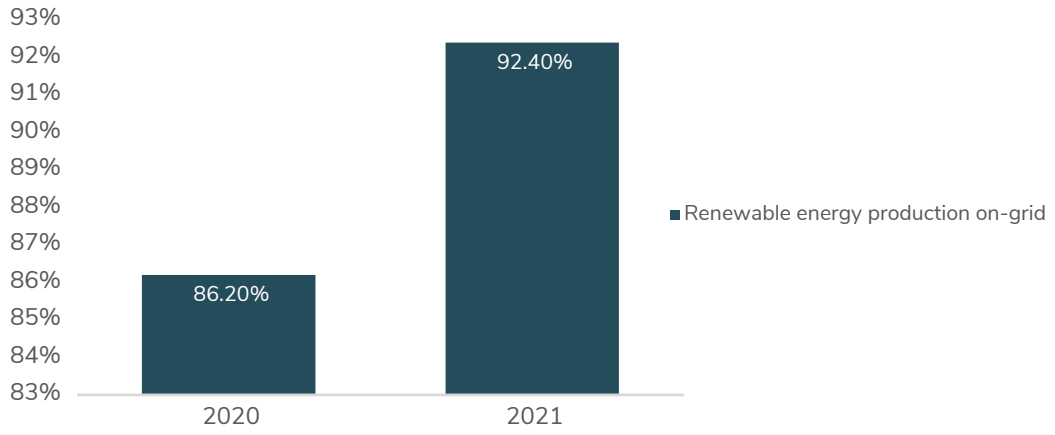


Figure 15: Percentage of renewable electricity supply on the Yukon's main electricity grid by year.

Partner highlight: The Gwich'in Tribal Council is working with partner organizations to convert the Gwich'in Camp from diesel power to hybridized renewable energy sources. In 2021, solar panels were installed to supply half of the energy needs of the camp, while two biomass furnaces were installed to supply half of the Camp's heating needs.

Area #4: People and the environment

Under *Our Clean Future*, we are taking action to respond to the impacts of climate change on wild species and their habitats, maintain our ability to practice traditional and cultural activities on the land, and protect and enhance human health and wellbeing as the climate changes.

Participants who supported the Yukon Climate Risk Assessment emphasized that Yukoners have a close relationship to the land, water, plants and animals. Yukon First Nations people and transboundary Indigenous peoples in particular stressed that cultural identity is inseparable from the land. Throughout the assessment, participants emphasized that environmental health is closely linked to human health and well-being. They made it clear that climate change is affecting places and species that are important for Yukon communities, cultures, health and well-being, and food security.

Wild species and their habitats

In 2021, we improved our understanding of how climate change is affecting wild species and their habitats. This included taking the following steps.

- Measuring the **baseline conditions of some of the Yukon's wetlands** to better understand future changes (**action P1**).
- Conducting **scientific research on the impacts of climate change on species and their habitats,** like how climate change is affecting wild species such as caribou and bats as well as keystone species that drive ecosystem dynamics and food webs, such as hare, beaver, voles and lake trout. We studied the spread of winter ticks in deer, elk, moose and horses. We also monitored rare grassland ecosystems and shrub expansion into grassland, meadow and upland sites (**action P3**).

Maintain our ability to practise traditional and cultural activities on the land

In 2021, we completed the following.

- Held **eight** women-only tailored **hunter education courses** (**action P7**). We continued to discuss training standards and lesson plans with participating First Nations and offered opportunities for First Nations instructors to shadow Government of Yukon instructors.
- Began work on how heritage sites and culturally important lands that may be impacted by climate change will be documented and develop a management plan for those sites (**action P7**).

Partner highlight: The Gwich'in Tribal Council is tracking environmental change in the Gwich'in Settlement Area by enhancing community-driven monitoring of lakes and rivers. In 2021, community meetings and questionnaires helped the team understand what water related concerns were in each community, and where water monitoring should be undertaken.

Human health and wellbeing in a changing climate.

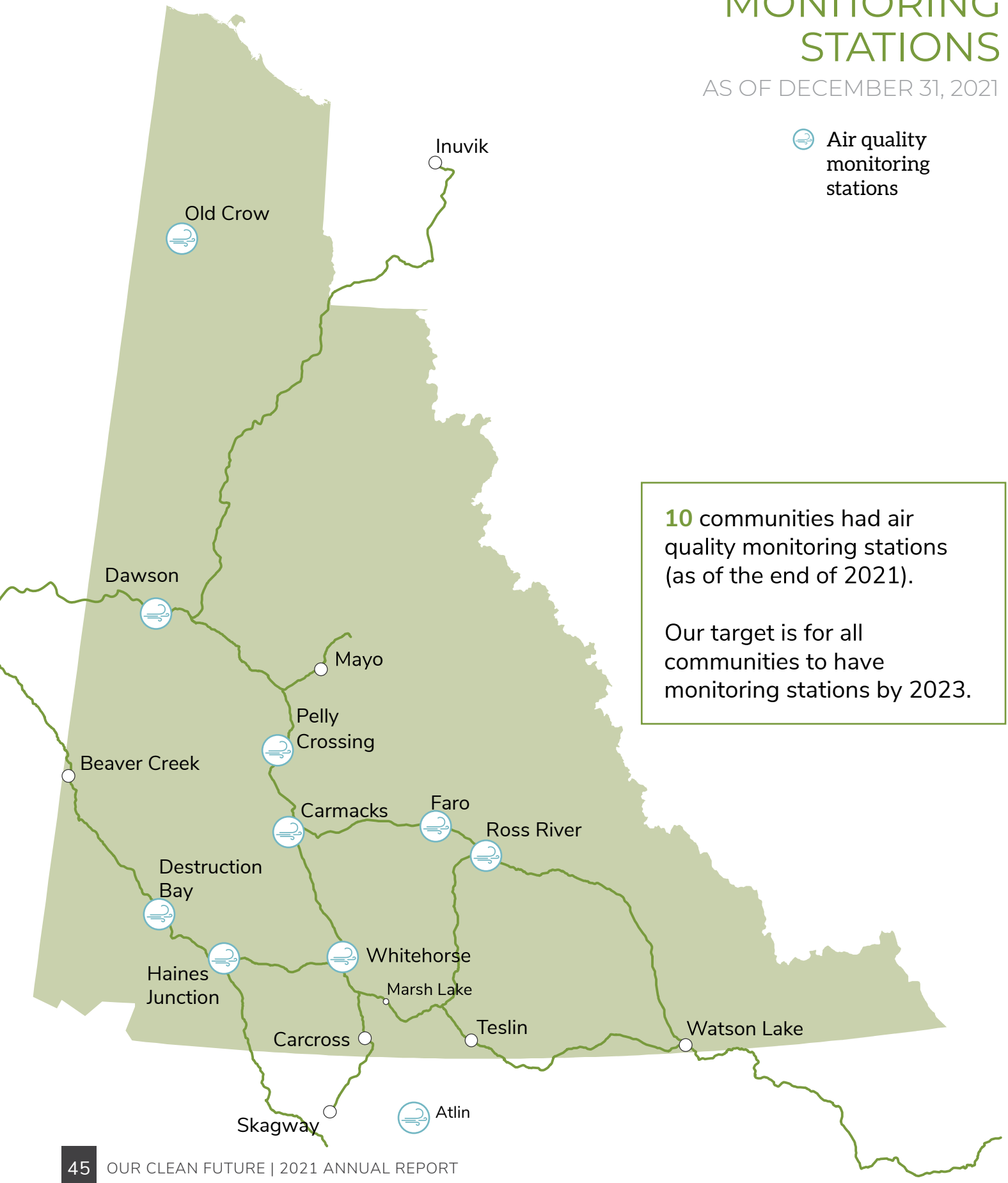
In 2021, we completed the following.

- Installed air quality monitors in **eight** communities across the Yukon (**action P11**). These monitors provide real-time data on the amount of particulate matter in the air, which is produced through wildfires and wood burning. The data are publicly available through the University of Northern British Columbia. By 2023, monitors will be installed in all communities across the Yukon.
- Purchased 30 air filters to be used in shelters and community clean air shelters during smoky periods (**action P12**).
- We reviewed existing information on food insecurity in order to develop a system to **gather and track food insecurity information** consistently moving forward. Reporting and tracking food insecurity data will help us assess our progress to protect and enhance human health and wellbeing, and will inform future actions (**action P12**).

For information on how we are supporting local food production in the Yukon, see Area #5.

AIR QUALITY MONITORING STATIONS

AS OF DECEMBER 31, 2021



10 communities had air quality monitoring stations (as of the end of 2021).

Our target is for all communities to have monitoring stations by 2023.

Area #5: Communities

Through Our Clean Future, geohazard and flood maps will be completed for all at-risk communities to inform infrastructure and community design decisions. Emergency management plans and wildfire protection plans will be developed and implemented in all Yukon communities. We will also increase local food production in ways that are low-carbon and contribute to climate resilience.

Low-carbon and resilient communities

Geohazard and flood maps help us identify and understand the parts of our communities most at risk from climate impacts like permafrost thaw and flooding. With this information, we can modify existing infrastructure and decide where and how to build new infrastructure. When significant new infrastructure projects are being designed, a detailed climate risk assessment uses this information to inform the project's design.

In 2021, we took the following actions to support community resilience.

- Initiated the development of a flood mapping strategy, prioritizing flood mapping for the Southern Lakes area (**action C2**).
- Conducted climate risk assessments for 45 per cent of community infrastructure projects built or funded by the Government of Yukon (**action C5**).

Partner highlight: The Gwich'in Tribal Council is partnering with the University of Saskatchewan to improve and develop more comprehensive energy audits in the Gwich'in communities. In 2021, they hosted a two-day public symposium on Indigenous leadership, energy policy and Arctic issues.

Sustainable local food

In 2021, the Government of Yukon made strides to improve sustainable local food production, by way of the following initiatives.

- Provided access to funding for three community garden and greenhouse projects in Teslin and Whitehorse (**action C15**).
- Supported two First Nations and municipal agricultural and animal husbandry projects (**action C16**).
- Continued a research project to investigate how climate change will impact the agricultural sector (**action C17**) and paired with that, supported eight agriculture producers in adapting to climate change and adopting low carbon practices (**action C18**).

Ensure we are prepared for climate change emergencies

Lessons from 2021 – floods, fires and a pandemic

The year 2021 highlighted important lessons for emergency response. The southern Yukon experienced unusually high precipitation in winter 2021. This was followed by a cooler-than-average spring that delayed snowmelt, then by above-average temperatures in June, culminating in a heat wave at the end of June and into early July. The heat resulted in a rapid melt of the record-breaking snowpack in the alpine regions of the Southern Lakes basin. At the same time, the heat led to favorable conditions for forest fires. As a result, the Yukon experienced severe wildfires and flooding at the same time, all while emergency response agencies were grappling with the COVID-19 outbreak. While emergency response efforts were considerable, the combination of floods, fires, and the pandemic stretched the Yukon's capacity to deal with multiple stressors at once to its limit.

The 2021 events presented an opportunity to learn from our response to these stressors and build resilience. Opportunities exist to bring together those responsible for forecasting, planning and responding to emergencies to share lessons learned, resource requirements and roles and responsibilities should a similar situation occur in the coming years. Opportunities also exist to learn from past flooding events, such as the 2007 flood in the Southern Lakes region. The Government of Yukon is working to identify and seek resources to support a flood program, which will bring together different government departments working on forecasting, preparing for and responding to floods.

– Government of Yukon. 2022. Risk and Resilience: Assessing climate change risks in the Yukon

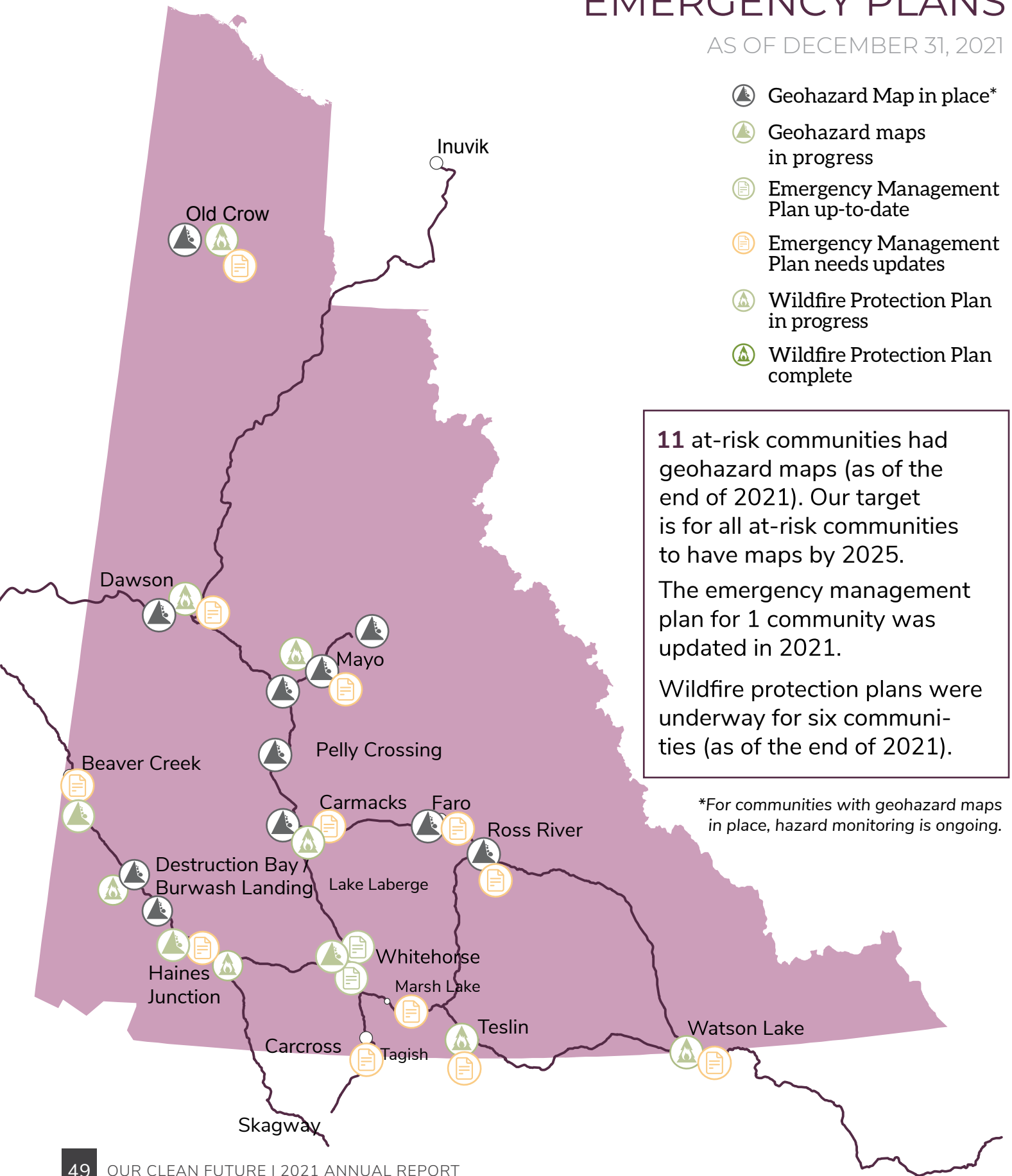
In 2021, the Government of Yukon worked to improve how prepared we are for emergencies that are becoming more likely due to climate change through the following initiatives.

- Initiating a project to identify the current state of emergency management plans in the Yukon, leading to re-engagement with communities on the development of emergency management plans following COVID-19 (**action C12**).
- Beginning work on the Whitehorse South Fuel break that will help protect Whitehorse from wildfires while producing wood that can be used as a heating source (**action C9**).

Partner highlight: The Inuviaulit Regional Corporation launched a climate change strategy to the public. Work remains ongoing to implement the goals and action items outlined in the strategy.

HAZARD MAPS AND EMERGENCY PLANS

AS OF DECEMBER 31, 2021



- Geohazard Map in place*
- Geohazard maps in progress
- Emergency Management Plan up-to-date
- Emergency Management Plan needs updates
- Wildfire Protection Plan in progress
- Wildfire Protection Plan complete

11 at-risk communities had geohazard maps (as of the end of 2021). Our target is for all at-risk communities to have maps by 2025.

The emergency management plan for 1 community was updated in 2021.

Wildfire protection plans were underway for six communities (as of the end of 2021).

**For communities with geohazard maps in place, hazard monitoring is ongoing.*

Area #6: Innovation

Innovation is finding new and improved ways of doing something, whether it is how we interact with each other, how we generate and use energy, how we manage waste, or how we access resources.

Our Clean Future will see more Yukoners participating in the green economy, reductions in the emissions intensity of the Yukon's mining industry, enhanced sustainability of our tourism industry, and improved waste management.

Support innovation and green business practices

Yukoners require new skills to participate in the green economy and deliver on *Our Clean Future*'s ambitious commitments.

The Government of Yukon's Energy Branch has developed a Good Energy Network of service providers in the Yukon that will be eligible for green economy professional development opportunities. The Good Energy Network will enable the government to consistently engage with service providers like air-source heat pump installers and energy efficiency professionals and learn about the best ways to support them in their work.

In 2021, the Government of Yukon also supported innovation and green business practices in two key ways:

- Incorporating greenhouse gas emissions into the decision-making process for Department of Economic Development funding programs, including the new Economic Development fund. Applications to the new fund will be evaluated based on their potential climate impacts and their alignment with the Yukon's climate change and energy goals identified in *Our Clean Future* (**action I1**).
- Advancing the process on a draft Sustainable Procurement Strategy and Implementation Plan to support Government of Yukon departments in making more sustainable and environmentally friendly decisions when procuring goods and services (**action I2**).

Partner highlight: The City of Dawson has began to set improved service standards with respect to waste pickup, snow plowing, and water bleeders. In 2021, a new, more efficent garbage truck was purchased.

Mining: Reducing carbon intensity and increasing resilience

Efforts to improve energy use in all phases of mining from planning to closure – such as using more efficient equipment or generating low-carbon energy onsite – can save money, lower greenhouse gas emissions and support corporate social responsibility efforts. We also need to make sure that mining activities are planned and carried out with climate change in mind.

In 2021, we took the following steps:

- Continued to work on guidelines that will ensure critical mine infrastructure is planned, designed and built to withstand current and projected impacts of climate change (**action I6**).
- Drafted new reporting requirements for mines to report annual greenhouse gas emissions through the quartz mine licensing process (**action I7**).
- Increased our participation in intergovernmental initiatives related to mine resiliency, low-carbon mining and innovation (**action I8**).
- We continue to work toward modelling greenhouse gas emissions from mining and mineral exploration. This model will help support actions that can be implemented to reduce the emissions intensity of the Yukon's mining industry and to set one or more intensity-based targets for the industry (**action I9**).

Sustainability of Yukon's tourism industry

The Yukon Tourism Development Strategy committed to developing a framework to measure sustainable tourism. Measuring the state of sustainable tourism creates evidence, which can be used to guide decision-making, policy and investment decisions. It can support identifying sector priorities that support healthy communities, preserve our natural environment for future enjoyment and benefit Yukoners for generations to come.

In 2021, we made the following strides to create a more sustainable tourism industry:

- Established the Yukon Sustainable Tourism Framework. The framework identifies 17 key elements of tourism to be monitored annually. They include climate action, energy management, cultural sustainability, accessibility, equity, diversity and inclusion, and resident and visitor sentiment. The framework is endorsed by Destination Canada, Canada's national tourism authority. It was designed to complement the Yukon Tourism Development and Our Clean Future strategies. The framework is also based on the United Nations World Tourism Organization's International Network of Sustainable Tourism Observatories framework (**action I10**).
- Developed a model to measure greenhouse gas emissions from tourism and used it to estimate emissions for the years 2017-2019 (**action I11**).

Moving towards a more circular economy

In a circular economy, products are designed to avoid waste and pollution, products and materials are used for longer before being recycled or composted, and natural systems are regenerated. It is different from the usual linear approach, which is when we make something, use it and then throw it away. Better waste management is a key part of a circular economy, and something the Yukon can act on now.

By 2025, we aim to divert 40 per cent of the waste we generate away from our landfills. In 2021, 25.6 per cent of our waste was diverted. In future annual reports on Our Clean Future, we will track our progress in this area.

By 2030, Yukoners will also generate 10 per cent less waste per person than we did in 2020. In 2021, each Yukoner generated 1.01 tonnes of waste on average. We will compare waste generation in future years to this baseline. By 2030, the amount of waste we generate should be 0.83 tonnes per person or less.

In 2021, we took the following actions to manage our waste better:

- Developed legislation that banned the distribution and sale of plastic single-use bags (**action I13**).
- Began designing a system for Extended Producer Responsibility. Extended Producer Responsibility is an approach to make producers of products and packaging responsible for the proper management of products when they reach the end of their life cycle. We are near completion of the exploration stage and are finalizing our path forward (**action I14**).

Area #7: Leadership

Our Clean Future aims to empower each and every government, business and individual to take a leadership role in building a healthy, prosperous Yukon for years to come.

Government planning and operations

Building a healthy, resilient future is not something that can be done in isolation from government policy. We are taking action to ensure that the goals of this strategy are incorporated into government processes. We made the following progress in 2021.

- Continued work on a new Clean Energy Act that will legislate our greenhouse gas reduction targets and other commitments in *Our Clean Future* to hold the Government of Yukon accountable (**action L1**).
- Developed a process to incorporate climate change considerations into the decision-making for the Government of Yukon's major policies, programs, and projects (**action L2**).
- Delivered Climate Adaptation and Resilience training to 23 Government of Yukon employees, and began developing basic climate change training for Government of Yukon employees to be launched in 2022 (**action L5**).

Educate and empower youth

The Yukon's youth are already active in climate change related initiatives. Actions in Our Clean Future will support youth in continuing climate leadership. In 2021, we took the following step to support youth climate action.

- Supported the first cohort of the Youth Panel on Climate Change, who delivered their recommendations for action on climate change to the Government of Yukon in October 2021. In partnership with BYTE, a youth organization, we launched the second cohort, which will focus on capacity-building, leadership skills and engaging other youth on climate action (**action L6**).

Partner highlight: The vision and action plan has been drafted by the Yukon First Nations Climate Youth Fellows and is now in its engagement phase with Yukon First Nations governments, organizations and citizens.

Informing Yukoners

Research, knowledge and information to inform evidence-based decision-making is essential to effective climate action. In 2021, we made the following strides toward better informing Yukoners of climate change.

- Completed the first Yukon-wide Climate Risk Assessment titled Risk and Resilience: Assessing Climate Change risk in the Yukon to assess climate hazards and vulnerabilities to hazards across the Yukon (**action L9**).
- Launched a Yukon-wide climate change education campaign to educate Yukoners on greenhouse gas emissions, renewable energy, and climate change adaptation to highlight what Yukoners can do to support climate change initiatives (**action L13**).

Partner highlight: The Gwich'in Tribal Council continues to run the Climate Future Exchange program to connect northern youth to their counterparts from other regions and enable them to create community-based projects that use Indigenous Knowledge to reduce the carbon footprint in the Gwich'in Settlement Area. In 2021, the project was recognized by Clean50.

Upcoming actions and initiatives in 2022

#	Action description	Area
T16	Train the Government of Yukon's heavy equipment operators on efficient driving techniques for all new equipment by 2022.	Transportation
T17	Expand the Government of Yukon's video and teleconferencing systems and require employees to consider these options when requesting permission for work travel by 2022.	Transportation
T18	Expand the Government of Yukon's video and teleconferencing systems and require employees to consider these options when requesting permission for work travel by 2022.	Transportation
T19	Develop a planning and engagement strategy by 2022 to change how and where Government of Yukon employees work by providing choices and flexibility through a modern workplace.	Transportation
T23	Expand virtual health care services to Whitehorse medical clinics by 2022 in order to improve access to healthcare while reducing greenhouse gas emissions from travel to and from Whitehorse.	Transportation
T26	Establish a geohazard mapping program for major transportation corridors and prioritize sections for targeted permafrost study by 2022.	Transportation
E9	Develop a framework by 2022 for First Nations to economically participate in renewable electricity projects developed by the Yukon's public utilities.	Energy
H23	Identify regulatory improvements that could support the growth of the Yukon's biomass energy industry during the review of the Forest Resources Act by 2022.	Homes and buildings
H28	Complete the Peak Smart pilot project by 2022 to evaluate the use of smart devices to shift energy demand to off-peak hours.	Homes and buildings
P1	Establish a standardized method to determine the health status of wetland ecosystems and complete a pilot study to measure the baseline conditions of various reference wetlands by 2022 to better understand future changes.	People and the environment
I1	Incorporate greenhouse gas emissions into the decision-making process for Department of Economic Development funding programs by 2022.	Innovation

I5	Create an award program by 2022 to recognize the achievements of local green businesses and organizations.	Innovation
I6	Include new provisions in quartz mine licenses by 2022 that will ensure critical mine infrastructure is planned, designed and built to withstand current and projected impacts of climate change.	Innovation
I7	Require quartz mines to project their anticipated greenhouse gas emissions, identify measures to reduce emissions, and annually report greenhouse gas emissions through the quartz mine licensing process beginning in 2022.	Innovation
I9	Establish an intensity-based greenhouse gas reduction target for the Yukon's mining industry and additional actions needed to reach the target by 2022.	Innovation
L3	Incorporate climate change risks into Government of Yukon departmental planning processes by 2022.	Leadership
L5	Develop and offer climate change training for Government of Yukon employees by 2022.	Leadership
L11	Begin participating in the National Forest Inventory monitoring program in 2022 to gather information about forest carbon stocks, potential biomass energy supply, pest and forest fire risks, and climate impacts on the Yukon's forests.	Leadership

Appendix A: Status of all Government of Yukon actions

The table below lists the status of all of the Government of Yukon's actions in Our Clean Future as of December 2021. Actions with deadlines are classified as "not started," "in progress" or "complete", while actions without deadlines are considered "ongoing." Actions that have been altered this year, will have the status "change of course."

#	Action name	Department	Status
T1	Work with local vehicle dealerships and manufacturers to establish a system by 2024 to ensure zero emission vehicles are 10 per cent of light-duty vehicle sales by 2025 and 30 per cent by 2030.	EMR	In progress
T2	Develop and implement a system to prioritize and purchasing zero emissions vehicles for all new Government of Yukon fleet acquisitions, where available and suitable.	HPW	Change of course
T3	Provide a rebate to the Yukon's businesses and individuals who purchase eligible zero emission vehicles beginning in 2020.	EMR	Complete
T4	Continue to install fast-charging stations across the Yukon to make it possible to travel between all road-accessible Yukon communities by 2027 and work with neighbouring governments to explore options to connect the Yukon with BC, NWT and Alaska.	EMR and HPW	In progress
T5	Provide rebates to support the installation of smart electric vehicle charging stations at residential, commercial and institutional buildings in collaboration with the Yukon's public utilities beginning in 2020.	EMR	Complete
T6	Require new residential buildings to be built with the electrical infrastructure to support Level 2 electric vehicle charging beginning on April 1, 2021.	CS	Complete
T7	Draft legislation by 2024 that will enable private businesses and the Yukon's public utilities to sell electricity for the purpose of electric vehicle charging.	EMR	In progress
T8	Continue to run public education events and campaigns to raise awareness of the benefits of electric vehicles and how they function in cold climates.	EMR	Ongoing
T9	Require all diesel fuel sold in the Yukon for transportation to align with the percentage of biodiesel and renewable diesel by volume in leading Canadian jurisdictions beginning in 2025, aiming for around 20 per cent.	EMR	In progress
T10	Require all gasoline sold in the Yukon for transportation to align with the percentage of ethanol by volume in leading Canadian jurisdictions beginning in 2025, aiming for around 10 per cent.	ENV	In progress
T11	Provide rebates to encourage the purchase of electric bicycles for personal and business commuting beginning in 2020.	EMR	Complete
T12	Continue to support municipalities and First Nations to make investments in public and active transportation infrastructure.	CS	Ongoing

#	Action name	Department	Status
T13	Develop Yukon-specific design guidance and a plan for active transportation facilities by 2024 to guide investments in active transportation infrastructure into corridors near communities.	HPW	Change of course
T14	Update the Government of Yukon's heavy-duty vehicle fleet by 2030 to reduce greenhouse gas emissions and fuel costs.	HPW	In progress
T15	Begin a pilot project in 2021 to test the use of short-haul medium and heavy-duty electric vehicles for commercial and institutional applications within the Yukon.	EMR	Complete
T16	Train the Government of Yukon's heavy equipment operators on efficient driving techniques for all new equipment by 2022.	HPW	Complete
T17	Expand the Government of Yukon's video and teleconferencing systems and require employees to consider these options when requesting permission for work travel by 2022.	HPW	In progress
T18	Implement new policies to enable Government of Yukon employees in suitable positions to work from home for the longer term by 2022.	PSC	Complete
T19	Change how and where Government of Yukon employees work by creating healthier and more sustainable office spaces that reflect the reality of increasingly digital, flexible and collaborative work by 2024.	HPW	Change of course
T20	Develop and implement a system by 2023 to coordinate carpooling for Government of Yukon staff travelling by vehicle for work within the Yukon.	HPW	Change of course
T21	Develop and implement guidelines for Government of Yukon's fleet by 2023 to ensure appropriate vehicles are used for the task at hand, including prioritizing zero-emission vehicles and other low-carbon transportation options.	HPW	Change of course
T22	Incorporate fuel efficiency into purchasing decisions for Government of Yukon fleet vehicles beginning in 2020 to reduce greenhouse gas emissions and fuel costs.	HPW	Complete
T23	Expand virtual health care services by 2023 to improve access to healthcare while reducing greenhouse gas emissions.	HSS	Change of course
T24	Continue to operate the Yukon Rideshare program to make carpooling and other shared travel easier.	ENV	Ongoing
T25	Complete a climate change vulnerability study of the road transportation network by 2023 to inform the prioritization of improvements to existing infrastructure being impacted by climate change.	HPW	Change of course

#	Action name	Department	Status
T26	Establish a geohazard mapping program for major transportation corridors and prioritize sections for targeted permafrost study by 2022.	EMR	In progress
T27	Analyze flood risk along critical transportation corridors at risk of flooding by 2023.	ENV	In progress
T28	Continue to conduct climate risk assessments of all major transportation infrastructure projects above $10 million, such as through the federal Climate Lens assessment.	HPW	Ongoing
H1	Conduct retrofits to Government of Yukon buildings to reduce energy use and contribute to a 30 per cent reduction in greenhouse gas emissions by 2030.	HPW	In progress
H2	Conduct energy assessments of Government of Yukon buildings to identify opportunities for energy efficiency and greenhouse gas reductions, with the first period of assessments completed by 2025 and the second period completed by 2030.	HPW	In progress
H3	Provide low-interest financing to support energy efficiency retrofits to homes and buildings beginning in 2021.	CS	In progress
H4	Continue to provide financial support to assist First Nations and municipalities to complete major energy retrofits to institutional buildings across the Yukon, aiming for 30 retrofits by 2030.	EMR	In progress
H5	Continue to provide financial support for municipal and First Nations energy efficiency projects.	CS	Ongoing
H6	Continue to work with Yukon First Nations to retrofit First Nations housing to be more energy efficient.	YHC	Ongoing
H7	Continue to retrofit Government of Yukon community housing to reduce greenhouse gas emissions in each building by 30 per cent.	YHC	Ongoing
H8	Continue to provide rebates for thermal enclosure upgrades and energy efficient equipment to reduce energy use in homes and commercial buildings.	EMR	Ongoing
H9	Assess ways to ensure Yukoners can access adequate insurance for fires, floods and permafrost thaw by 2023.	CS	In progress
H10	Develop and implement a plan by 2024 to conduct routine monitoring of the structural condition of Government of Yukon buildings located on permafrost.	HPW	In progress
H11	Assess options to provide financial support for actions to improve the climate resiliency of homes and buildings by 2023.	ENV	In progress

#	Action name	Department	Status
H12	Work with the Government of Canada to develop and implement building codes suitable to northern Canada that will aspire to see all new residential and commercial buildings be net zero energy ready by 2032.	CS	In progress
H13	Continue to require all new Government of Yukon buildings to be designed to use 35 per cent less energy than the targets in the National Energy Code for Buildings, in accordance with the Government of Yukon's Design Requirements and Building Standards Manual.	HPW	Ongoing
H14	Adopt and enforce relevant building standards by 2030 that will require new buildings to be constructed to be more resilient to climate change impacts like permafrost thaw, flooding and forest fires.	CS	Not started
H15	Continue to conduct climate risk assessments of all major building projects over $10 million that are built or funded by the Government of Yukon.	CS	Ongoing
H16	Continue to provide rebates for new homes that are net zero energy ready, aiming for 500 homes by 2030.	EMR	In progress
H17	Install renewable heat sources such as biomass energy in Government of Yukon buildings by 2030 to create long-term demand for renewable heating and contribute to a 30 per cent reduction in greenhouse gas emissions.	HPW	In progress
H18	Provide low-interest financing to install smart electric heating devices in residential, commercial and institutional buildings in collaboration with the Yukon's public utilities beginning in 2021.	CS	In progress
H19	Provide low-interest financing to install biomass heating systems in commercial and institutional buildings beginning in 2021.	CS	In progress
H20	Continue to assist First Nations to complete feasibility studies for the installation and operation of biomass heating systems.	EMR	Ongoing
H21	Continue to provide rebates for residential, commercial and institutional biomass heating systems and smart electric heating devices and increase the current rebate for smart electric heating devices beginning in 2020.	EMR	Complete
H22	Work with local industry to install and test 25 electric heat pumps with backup fossil fuel heating systems or utility-controlled electric thermal storage from 2020 to 2023.	EMR	In progress
H23	Identify regulatory improvements that could support the growth of the Yukon's biomass energy industry during the review of the Forest Resources Act by 2022.	EMR	In progress

#	Action name	Department	Status
H24	Amend the Air Emissions Regulations by 2025 in order to regulate air emissions from commercial and institutional biomass burning systems to minimize the release of harmful air pollutants.	ENV	In progress
H25	Analyze and compare the climate benefits of different types of biomass harvesting and use in the Yukon by 2021 in order to identify recommended forest management practices to guide sustainable and low-carbon biomass use.	ENV	Complete
H26	Provide direction to the Yukon Utilities Board in 2020 to allow the Yukon's public utilities to partner with the Government of Yukon to pursue cost-effective demand-side management measures.	YDC	Complete
H27	Establish a partnership between the Government of Yukon, Yukon Energy Corporation and ATCO Electric Yukon by 2021 that will collaborate on the delivery of energy and capacity demand-side management programs.	EMR	Complete
H28	Complete the Peak Smart pilot project by 2022 to evaluate the use of smart devices to shift energy demand to off-peak hours.	YEC	In progress
H29	Implement an education campaign for Government of Yukon building occupants and visitors by 2026 to encourage more energy efficient behaviours.	HPW	In progress
H30	Work with partners to contribute to net 30 per cent greenhouse gas reductions from the Government of Yukon's building portfolio.	HPW	* New action
E1	While aiming for an aspirational target of 97 per cent, develop legislation by 2023 that will require at least 93 per cent of the electricity generated on the Yukon Integrated System to come from renewable sources, calculated as a long-term rolling average.	EMR and YDC	In progress
E2	Substitute some of the diesel used to generate electricity on the Yukon Integrated System and in off-grid communities with clean diesel alternatives like biodiesel and renewable diesel beginning in 2025, aiming for around 20 per cent.	EMR	In progress
E3	Update the *Public Utilities Act* by 2025 to ensure an effective and efficient process for regulating electricity in the Yukon.	JUS and EMR	In progress
E4	Install renewable electricity generation systems in five Government of Yukon buildings in off-grid locations by 2025 to reduce reliance on diesel-generated electricity.	HPW	In progress
E5	Evaluate the potential to generate renewable electricity at remote historic sites co-managed by the Government of Yukon and Yukon First Nations by 2022.	TC	Complete

#	Action name	Department	Status
E6	Continue to provide financial and technical support for Yukon First Nations, municipalities and community organizations to undertake community-led renewable energy projects.	YDC	Ongoing
E7	Work with the Yukon's public utilities to continue to implement the Independent Power Production Policy that enables independent power producers, including Yukon First Nations and communities, to generate and sell electricity to the grid.	EMR	Ongoing
E8	Increase the limit of the Standing Offer Program under the Independent Power Production Policy from 20 gigawatt hours (GWh) to 40 GWh by 2021 to support additional community-based renewable energy projects on the Yukon's main electrical grid.	EMR	Complete
E9	Develop a framework by 2022 for First Nations to economically participate in renewable electricity projects developed by the Yukon's public utilities.	YDC	In progress
E10	Continue to deliver the Micro-generation Program in collaboration with the Yukon's public utilities, targeting seven megawatts (MW) of installed renewable electricity capacity by 2030.	EMR	In progress
E11	Develop legislation by 2023 to regulate and encourage geothermal energy development in the Yukon.	EMR	In progress
E12	Research the potential to use geothermal energy for heating and electricity, with a focus along the Yukon's fault systems, by 2025.	EMR	In progress
E13	Improve modelling of the impacts of climate change on hydroelectricity reservoirs by 2021 and incorporate this information into short, medium and long-term forecasts for renewable hydroelectricity generation.	YEC	Complete
E14	Develop a climate change adaptation plan for the Yukon Energy Corporation by 2022 that will identify risks and appropriate responses to ensure the Yukon's main electrical grid is resilient to the impacts of climate change.	YEC	Complete
E15	Implement a glacier monitoring program in 2020 to improve our ability to predict the impacts of glacier melt on hydrological systems and hydroelectricity generation.	EMR	Complete
P1	Establish a standardized method to determine the health status of wetland ecosystems and complete a pilot study to measure the baseline conditions of various reference wetlands by 2022 to better understand future changes.	ENV	In progress

#	Action name	Department	Status
P2	Adapt existing surface and groundwater monitoring networks by 2026 to be able to track long-term trends in water quality and quantity in a changing climate.	ENV	In progress
P3	Continue to lead and participate in projects that improve our understanding of how climate change is affecting ecosystems, wild species and their habitats.	ENV and EMR	Ongoing
P4	Continue to monitor key species that will provide an indication of the impacts of climate change on the Yukon's ecosystems and expand monitoring to more taxonomic groups.	ENV	Ongoing
P5	Continue to incorporate climate change into the design of protected and managed areas using landscape conservation science in order to allow native species to move, adapt and survive in the face of climate change.	ENV	Ongoing
P6	Continue to track new and invasive species to the Yukon that could impact ecosystems and biodiversity.	ENV	Ongoing
P7	Work with Yukon First Nations to develop a tailored hunter education program by 2023 that can be adapted and delivered by Yukon First Nations for First Nations citizens.	ENV	In progress
P8	Work collaboratively with First Nations and the Inuvialuit to document information from historic sites and culturally important places on the North Slope that are at risk due to climate change by 2024.	TC	In progress
P9	Provide training to healthcare providers beginning in 2023 to be better able to identify and treat the physical and mental health impacts of climate change.	HSS	In progress
P10	Develop a system to enable tracking of climate-related illnesses such as heat stroke, respiratory illness, and vector-borne diseases in the Yukon by 2023.	HSS	Change of course
P11	Expand monitoring of concentrations of particulate matter in the air from biomass burning and forest fires to all Yukon communities by 2023.	ENV	In progress
P12	Identify existing buildings in communities that can be used as clean air spaces to protect public health during wildfire smoke events and if necessary improve existing air filtration systems by 2023.	HSS	Change of course
P13	Provide financial support to vulnerable Yukoners to install cleaner air spaces in their homes and buildings beginning in 2023 to provide protection from wildfire smoke.	YHC	Not started

#	Action name	Department	Status
P14	Analyze existing information on food insecurity in the Yukon by 2023 to inform the development of a system to gather food insecurity data into the future.	HSS and EMR	In progress
C1	Expand geohazard map coverage to all Yukon communities with a high risk of permafrost thaw by 2025.	EMR	In progress
C2	Develop flood probability maps for all Yukon communities at risk of flooding by 2023 that incorporate climate change projections.	ENV	In progress
C3	Develop detailed guidelines by 2025 that can be used by the Government of Yukon and partners to develop walkable, bike-friendly and transit-oriented communities.	ENV	Not started
C4	Continue to develop, encourage and apply applicable climate resiliency standards to community design and infrastructure development projects built by or receiving capital funding from the Government of Yukon.	CS	Ongoing
C5	Continue to conduct detailed climate change risk assessments of all major community infrastructure projects over $10 million that are built or funded by the Government of Yukon.	CS	Ongoing
C6	Continue to make recommendations to consider the impacts of climate change in regional land use and local area planning processes, which inform the Government of Yukon's development permitting and zoning decisions.	EMR	Ongoing
C7	Continue to provide technical and administrative support to Yukon First Nations and municipalities to prepare integrated asset management plans.	EMR	In progress
C8	Expand monitoring networks and improve modelling tools to generate reliable daily flood forecasts and relevant warnings for all at-risk Yukon communities by 2024.	ENV	In progress
C9	Work with First Nations and municipalities to develop Wildfire Protection Plans for all Yukon communities by 2026 and to complete the forest fuel management activities outlined in the plans by 2030.	CS	In progress
C10	Increase the capacity in Yukon Wildland Fire to prevent wildfires and respond to extended fire seasons by investing in staffing in 2020.	CS	Complete
C11	Complete hazard identification and risk assessments (HIRAs) for all Yukon communities by 2022 that include climate change risks.	CS	In progress

#	Action name	Department	Status
C12	Work with First Nations and municipalities to complete emergency management plans for all Yukon communities by 2022 informed by community hazard identification and risk assessments (HIRAs).	CS	In progress
C13	Develop a territorial disaster financial assistance policy by 2022 to support recovery from natural disasters that result in extensive property damage or disruption to the delivery of essential goods and services.	CS	In progress
C14	Incorporate support, where possible, for local food producers into Government of Yukon procurement processes beginning in 2020.	HPW	Complete
C15	Continue to provide funding for community gardens and greenhouses, especially in rural communities.	EMR	Ongoing
C16	Continue to provide technical advice to assist First Nations and municipal governments with their agricultural and animal husbandry projects.	EMR	Ongoing
C17	Continue to conduct and provide access to funding for research on how climate change could affect local agriculture.	EMR	Ongoing
C18	Continue to support agricultural producers to adapt to the impacts of climate change, adopt low-carbon practices and use surface water and groundwater efficiently.	EMR	Ongoing
I1	Incorporate greenhouse gas emissions into the decision-making process for Department of Economic Development funding programs by 2022.	EcDev	Complete
I2	Develop procurement guidance, operational requirements, and a collection of evaluation criteria to better support sustainable and local procurement by 2024.	HPW	Change of course
I3	Identify and develop options to address potential regulatory and policy barriers to the growth of green businesses in the Yukon by 2023.	EcDev	In progress
I4	Expand the range of relevant professional development offerings by 2023 to enable more Yukoners to participate in the green economy.	EMR	In progress
I5	Create an award program by 2022 to recognize the achievements of local green businesses and organizations.	EcDev	In progress
I6	Include new provisions in quartz mine licenses by 2022 that will ensure critical mine infrastructure is planned, designed and built to withstand current and projected impacts of climate change.	EMR	In progress

#	Action name	Department	Status
I7	Require quartz mines to project their anticipated greenhouse gas emissions, identify measures to reduce emissions, and annually report greenhouse gas emissions through the quartz mine licensing process beginning in 2022.	EMR	In progress
I8	Increase the Government of Yukon's participation in intergovernmental initiatives related to mine resiliency, low-carbon mining and innovation by 2021.	EMR	Complete
I9	Establish an intensity-based greenhouse gas reduction target for the Yukon's mining industry and additional actions needed to reach the target by 2022.	EMR & ENV	In progress
I10	Establish and implement a framework to measure the sustainability of tourism development in the Yukon by 2021.	TC	Complete
I11	Develop and implement a system to track greenhouse gas emissions from the Yukon's tourism industry by 2021.	TC	Complete
I12	Assess options for establishing a comprehensive waste diversion system in Government of Yukon buildings, including reuse, recycling, compost and e-waste collection by 2030.	HPW	In progress
I13	Develop legislation that will enable the Government of Yukon to restrict or prohibit the production, supply or distribution of appropriate single-use bags by 2021.	ENV	Complete
I14	Design and implement a system for Extended Producer Responsibility by 2025 that will make producers responsible for managing materials through the lifecycle of a product.	ENV	In progress
I15	Develop and implement a system by 2023 to promote the reuse of government assets throughout the Government of Yukon.	HPW	* New action
L1	Create a Clean Energy Act by 2023 that legislates our greenhouse gas reduction targets and our commitments to energy efficiency and demand-side management to hold the Government of Yukon accountable.	EMR	In progress
L2	Incorporate a climate change lens into the decision-making process for major Government of Yukon policies, programs and projects by 2021.	ECO	Complete
L3	Incorporate climate change risks into Government of Yukon departmental planning processes by 2022.	ENV	In progress
L4	Incorporate greenhouse gas emissions and energy efficiency into the process for identifying and prioritizing Government of Yukon building retrofits and new construction projects by 2023.	HPW	Complete

#	Action name	Department	Status
L5	Develop and offer climate change training for Government of Yukon employees by 2022.	ENV	In progress
L6	Create a Youth Panel on Climate Change in 2020 that will provide advice and perspectives to the Government of Yukon on climate change, energy and green economy matters that reflects the diversity of the Yukon's youth.	ECO	Complete
L7	Provide mentorship opportunities for Yukon youth to participate in major international climate change and energy events with Government of Yukon staff beginning in 2023.	ENV	Not started
L8	Continue to support land-based programs in the Yukon school curriculum that teach First Nations ways of knowing and doing to youth.	EDU	Ongoing
L9	Assess climate hazards and vulnerabilities to those hazards across the Yukon every three to four years between 2020 and 2030 to prioritize climate change adaptation actions.	ENV	In progress
L10	Support the Government of Canada's work to develop a northern climate hub by 2030 that will support access to climate data and projections for the north.	ENV	In progress
L11	Begin participating in the National Forest Inventory monitoring program in 2022 to gather information about forest carbon stocks, potential biomass energy supply, pest and forest fire risks, and climate impacts on the Yukon's forests.	EMR	In progress
L12	Create easy access to technical information and lessons learned about climate change, energy and green economy for governments and stakeholders by 2021.	ENV	Complete
L13	Launch a Yukon-wide information or social marketing campaign in 2021 that will educate Yukoners on greenhouse gas emissions, renewable energy, climate change adaptation, and other topics and highlight what Yukoners can do to support climate change initiatives.	ENV	Complete
L14	Develop and implement new guidelines for addressing climate change hazards in all major Government of Yukon infrastructure projects in the Yukon by 2024.	HPW	* New action
L15	Develop and implement a framework to incorporate greenhouse gas emissions and climate risk into government infrastructure investments in 2024.	HPW	* New action
L16	Align the Government of Yukon's energy management program with an internationally standardized energy management system by 2025.	HPW	* New action

* Action wording will be changed upon approval from Deputy Minister committee

Appendix B: Indigenous- and municipal-led actions

Action	Lead organization	Progress update
TRANSPORTATION		
Purchase an electric or hybrid vehicle and install an electric vehicle charging station in Mayo	Village of Mayo	Not started – This action is in the planning phase.
Investigate replacing the bylaw vehicle with a plug-in hybrid electric vehicle.	City of Dawson	Not started
New * Identify possible electric vehicle use to replace some of the current Tr'ondëk Hwëch'in fleet.		Not started
HOMES AND BUILDINGS		
Upgrade insulation in the City of Dawson Public Works shop.	City of Dawson	In progress – Design work underway.
Implement a modern Building Management System for the Dawson City Hall and Fire Hall to increase the efficiency of all heating, ventilation and air conditioning components.	City of Dawson	Not started
Retrofit the Village of Mayo Community Centre to be more energy efficient based on an energy assessment completed for the facility.	Village of Mayo	In progress – LED lighting and weather stripping have been installed. Energy efficiency upgrades are planned for 2021-22.
Explore opportunities to replace diesel heat in Old Crow with fast-growing, locally harvested willow, distributed through a district heat system.	Vuntut Gwitchin Government	In progress – The Vuntut Gwitchin Government has begun work on a forest resources harvest management plan to explore opportunities for sustainable willow harvest, and to support local fuel wood harvest.
Partner with the University of Saskatchewan to improve and develop more comprehensive energy audits in the Gwich'in communities.	Gwich'in Tribal Council	In progress – Partners are working together to train students in energy security. In 2021, they hosted a symposium on Indigenous leadership, energy policy and Arctic issues.

Action	Lead organization	Progress update
Undertake an energy audits of buildings and prepare plans to upgrade buildings.	Tr'ondëk Hwëch'in	Complete - Energy audits have been carried out for five buildings, LED lighting for two buildings has been installed. Detailed planning for energy upgrades aimed at reducing greenhouse gas emissions in applicable buildings by 60%.
Design and install housing energy upgrades.	Tr'ondëk Hwëch'in	Complete - Retrofit two housing units, increased roof, wall insulation and installed heat recovery ventilation and LED lighting.
New* Reduce diesel use for heating Tr'ondëk Hwëch'in buildings by designing and installing alternative heating sources.	Tr'ondëk Hwëch'in	Not started
New* Carry out detailed planning, including construction drawings, of energy and engineering for retrofits for Tr'ondëk Hwëch'in buildings.	Tr'ondëk Hwëch'in	Not started
ENERGY PRODUCTION		
Investigate energy mapping of the Dawson area in a possible collaboration with Tr'ondëk Hwëch'in.	City of Dawson	In progress - Residential and Commercial energy use surveys have been issued to the public.
Develop an energy action plan for the Inuvialuit Settlement Region by 2021.	Inuvialuit Regional Corporation	Complete – The energy Action Plan has been developed. The plan provides a scheme of each Inuvialuit Settlement Region community's energy landscape and proposes actions to confront challenges related to energy availability and cost by providing practical solutions to attain a more sustainable, inclusive and healthy future to benefit residents.

Action	Lead organization	Progress update
Build a 1.5 megawatt (MW) solar farm in Beaver Creek that will displace up to 60 per cent of the diesel used for electricity generation in the community.	White River First Nation	In progress – Detailed design and pre-construction work is ongoing. Funding applications are being advanced to support construction and commissioning.
Build a solar farm in Old Crow that will meet 24 per cent of Old Crow's electricity demand and enable the diesel generators to be turned off for 2,200 hours each year.	Vuntut Gwitchin Government	Complete – Sree Vyah, the Old Crow Solar Project began producing electricity in the spring of 2021. The system generates enough electricity to meet 24 per cent of annual power needs.
Set up a wind measurement tower in summer 2020 to investigate the potential for a wind energy project to meet Old Crow's electricity demand in the winter months.	Vuntut Gwitchin Government	Complete – The wind measurement tower was installed late fall 2020 and is currently collecting data at a site on Crow Mountain that shows potential for a commercial wind project.
Work with partner organizations to convert the Gwich'in Camp from full reliance on diesel power to hybridized renewable energy sources.	Gwich'in Tribal Council	In progress – A solar system has been installed in summer 2021 to supply half of the electrical needs at the Camp. Two biomass furnaces have also been installed to supply half of the Camp's heating needs and upgrades will continue as the Camp transitions to a fully renewable energy-sourced facility.
Continue to heat the Village of Mayo swimming pool using solar energy.	Village of Mayo	Ongoing – Using solar energy to help heat the outdoor pool is reducing greenhouse gas emissions and operating costs.
Drill two geothermal wells in order to heat drinking water. Currently, the system relies on a propane boiler. This conversion will reduce greenhouse gas emissions and operating costs.	Village of Mayo	Not started

Action	Lead organization	Progress update
PEOPLE AND THE ENVIRONMENT		
new Monitor climate change impacts and capacity building in Gwich'in Communities.	Gwich'in Tribal Council	Not started
new Track environmental change in the Gwich'in Settlement Area by enhancing community-driven monitoring of lakes and rivers.	Gwich'in Tribal Council	In progress – The Gwich'in Tribal Council and Wilfrid Laurier University are working with communities on community-based water quality monitoring in each region.
Work with Polar Knowledge Canada to create and mobilize knowledge of sustainable energy, food sovereignty and revitalization and promotion of Indigenous Traditional Knowledge.	Gwich'in Tribal Council	Not started
COMMUNITIES		
Develop a climate change strategy for the Inuvialuit Settlement Region by 2021.	Inuvialuit Regional Corporation	Complete – The climate change strategy has been launched to the public. Work remains ongoing to implement the goals and action items outlined in the strategy.
Increase the amount of fire smarting that occurs in Haines Junction and educate residents on the importance of fire smarting.	Village of Haines Junction	In progress – 2.5 hectares were fire smarted in the fall of 2021, and 2.5 more hectares will be fire smarted in 2022.
INNOVATION		
Create a reserve fund for projects related to climate change, energy, and green economy, and fund it from the municipal carbon tax rebate.	City of Dawson	Not started
Set improved service standards with respect to waste pickup, plowing, and bleeders.	City of Dawson	In progress – A new, efficient garbage truck has been purchased and options for waste levels of service are being explored.

Action	Lead organization	Progress update
Explore and implement a comprehensive composting program to encourage and incentivize increased diversion of food waste.	City of Dawson	In progress – Compost transfer stations are active and curbside compost collection has been identified as a priority.
New* Construct a solid waste diversion centre	City of Dawson	Not started
With support from Gender Equality Canada, work with women artisans in Beaufort Delta communities to address the systemic gaps that are hindering their business's opportunities.	Gwich'in Tribal Council	Not started
Continue looking for partnerships to build innovative technical solutions to decrease the diesel dependency in the Gwich'in Settlement Area.	Gwich'in Tribal Council	Ongoing – The Gwich'in Tribal Council is working with other First Nations and governments to reduce dependence on fossil fuels, including support to green energy projects such as the Inuvik Wind Project.
LEADERSHIP		
Retain a climate change coordinator to advance Tr'ondëk Hwëch'in priorities.	Tr'ondëk Hwëch'in	Complete – climate change coordinator hired.
Develop a Yukon First Nations Climate Vision and Action Plan.	Council of Yukon First Nations and Assembly of First Nations Yukon Region	In progress - The vision and action plan has been drafted by the Yukon First Nations Climate Youth Fellows and is now in its engagement phase with Yukon First Nations governments, organizations and citizens. Moving forward, engagement will occur at a variety of events over summer 2022 and with specific organizations in the fall of 2022. A Yukon First Nations working group will also be in place throughout the fall to provide input. The release of the plan is anticipated for February 2023 in concert with the 50th anniversary of 'Together Today, for Our Children Tomorrow'.

Action	Lead organization	Progress update
Create an Energy and Sustainability Analyst position by 2020 to help build the Council of Yukon First Nations' capacity to assist Yukon First Nations in the pursuit of projects, programs and policies that support renewable energy and reduce greenhouse gas emissions as well as provide guidance and visioning on the creation of a Yukon First Nations Climate Strategy and help strengthen Yukon First Nations energy literacy and capacity overall.	Council of Yukon First Nations	Complete – The Energy and Sustainability Analyst position has been in place since September 2020.
Develop a Community Energy and Implementation Plan for Old Crow that will identify activities to reduce reliance on fossil fuels and achieve the 2019 Vuntut Gwitch'in First Nation General Assembly resolution to reach carbon neutrality by 2030.	Vuntut Gwitch'in Government	In progress – This project is currently at the data gathering stage.
Develop a policy for municipal operations and events, including with respect to resource use, waste, and energy efficiency.	City of Dawson	In progress – Five major City of Dawson facilities have been set up on the Energy Star Portfolio Manager.
Continue to run the Climate Future Exchange program to connect northern youth to their counterparts from other regions and enable them to create community-based projects that use Indigenous knowledge to reduce carbon footprint in the Gwich'in Settlement Area.	Gwich'in Tribal Council	Ongoing – The Gwich'in Tribal Council collaborated and co-designed the program with the Youth Climate Lab, which was recognized as a Clean50 project in 2021.

Appendix C: New and revised Government of Yukon Actions

#	New action name	Previous action name	Department	Status
H30	Work with partners to contribute to net 30 per cent greenhouse gas reductions from the Government of Yukon's building portfolio.	New action. Builds off action H17: Install renewable heat sources such as biomass energy in Government of Yukon buildings by 2030 to create long-term demand for renewable heating and contribute to a 30 per cent reduction in greenhouse gas emissions.	HPW	New
L14	Develop and implement new guidelines for addressing climate change hazards in all major Government of Yukon infrastructure projects in the Yukon by 2024.	New action. Builds off action L2: Incorporate a climate change lens into the decision-making process for major Government of Yukon policies, programs and projects by 2021.	HPW	New
L15	Develop and implement a framework to incorporate greenhouse gas emissions and climate risk into government infrastructure investments in 2024.	New action. Builds off action L2: Incorporate a climate change lens into the decision-making process for major Government of Yukon policies, programs and projects by 2021.	HPW	New
L16	Align the Government of Yukon's energy management program with an internationally standardized energy management system by 2025.	New action. Supports our vision and value: Make informed decisions and be accountable. Incorporate greenhouse gas emissions and energy efficiency into the process for identifying and prioritizing Government of Yukon building retrofits and new construction projects by 2023.	HPW	New
I15	Develop and implement a system by 2023 to promote the reuse of government assets in throughout the Government of Yukon.	New action. Supports objective "Improve how we manage our waste to move toward a more circular economy."	HPW	New

#	New action name	Previous action name	Department	Status
T2	Develop and implement a system to prioritize and purchasing zero emissions vehicles for all new Government of Yukon fleet acquisitions, where available and suitable.	Ensure at least 50 per cent of all new light-duty cars purchased by the Government of Yukon are zero emission vehicles each year from 2020 to 2030.	HPW	Change of course
T4	Continue to install fast-charging stations across the Yukon to make it possible to travel between all road-accessible Yukon communities by 2027 and work with neighbouring governments and organizations to explore options to connect the Yukon with BC, NWT and Alaska.	Same action name, lead department has been amended to reflect collaboration and leadership of two departments.	HPW and EMR	In progress
T9	Require all diesel fuel sold in the Yukon for transportation to align with the percentage of biodiesel and renewable diesel by volume in leading Canadian jurisdictions beginning in 2025, aiming for around 20 per cent.	Same action name, lead department has been amended from ENV to EMR.	EMR	In progress
T10	Require all gasoline sold in the Yukon for transportation to align with the percentage of ethanol by volume in leading Canadian jurisdictions beginning in 2025, aiming for around 10 per cent.	Same action name, lead department has been amended from ENV to EMR.	HPW	In progress
T13	Develop Yukon-specific design guidance and a plan for active transportation facilities by 2024 to guide investments in active transportation infrastructure into corridors near communities.	Continue to incorporate active transportation in the design of highways and other Government of Yukon transportation infrastructure near communities.	HPW	Change of course

#	New action name	Previous action name	Department	Status
T19	Change how and where Government of Yukon employees work by creating healthier and more sustainable office spaces that reflect the reality of increasingly digital, flexible and collaborative work.	Develop a planning and engagement strategy by 2022 to change how and where Government of Yukon employees work by providing choices and flexibility through a modern workplace.	HPW	Change of course
T20	Develop and implement a system by 2023 to coordinate carpooling for Government of Yukon staff travelling by vehicle for work within the Yukon.	Develop and implement a system by 2021 to coordinate carpooling for Government of Yukon staff travelling by vehicle for work within the Yukon.	HPW	Change of course
T21	Develop and implement guidelines for Government of Yukon's fleet by 2023 to ensure appropriate vehicles are used for the task at hand, including prioritizing zero-emission vehicles and other low-carbon transportation options.	Develop guidelines for the Government of Yukon Fleet Vehicle Agency's fleet by 2021 to ensure appropriate vehicles are used for the task at hand.	HPW	Change of course
T23	Expand virtual health care services by 2023 to improve access to healthcare while reducing greenhouse gas emissions.	Expand virtual health care services to Whitehorse medical clinics by 2022 in order to improve access to healthcare while reducing greenhouse gas emissions from travel to and from Whitehorse.	HSS	Change of course

#	New action name	Previous action name	Department	Status
T25	Complete a climate change vulnerability study of the road transportation network by 2023 to inform the prioritization of improvements to existing infrastructure being impacted by climate change.	Complete a climate change vulnerability study of the road transportation network by 2023 to inform the development of standards and specifications.	HPW	Change of course
P10	Develop a system to enable tracking of climate-related illnesses such as heat stroke, respiratory illness, and vector-borne diseases in the Yukon by 2023.	Incorporate climate-related illnesses like heat stroke, respiratory illness, and vector-borne diseases into the new 1Health Yukon health information system by 2023 to enable tracking of climate-related illnesses in the Yukon.	HSS	Change of course
P12	Identify existing buildings in communities that can be used as clean air spaces to protect public health during wildfire smoke events and if necessary improve existing air filtration systems by 2023.	Purchase a moveable clean air shelter by 2021 that can be set up in communities to protect public health during wildfire smoke events.	HSS	Change of course
I2	Develop procurement guidance, operational requirements, and a collection of evaluation criteria to better support sustainable and local procurement by 2024.	Update the Government of Yukon's procurement policies and standards in 2020 to better support sustainable and local procurement.	HPW	Change of course