Creston Climate Action Plan

ON OUR WAY TO 100% RENEWABLES

CRESTON VALLEY

TOWN of CRESTON

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Executive Summary

The Creston Climate Action Plan (CCAP) is a commitment made by the Town of Creston to mitigate climate change, with the aim of creating an environmentally sustainable, resilient, and emissions-free future. This plan was created to aid in the transition to 100% renewable energy use by 2050, as outlined in the West Kootenay 100% Renewable Energy Plan.

The CCAP is primarily focused on reducing greenhouse gas emissions (GHGs), promoting equitable climate action, and generating environmental, economic, and health benefits for individuals, families, and businesses throughout the community.

The objectives in the plan are meant to provide clear direction and help prioritize efforts and resource allocation. The CCAP reconciles past climate action documents and creates a practical path towards concrete action. The plan builds on current actions and leverages municipal resources to reduce emissions, while also seeking opportunities to collaborate with other levels of government and First Nations, and capitalize on resources from the Regional District, Province, Federal Government, and international organizations.

Tackling climate action at a municipal level means working towards community prosperity and resilience. Creston's Strategic Community Energy and Emissions Plan (2016) (SCEEP), Integrated Community Sustainability Plan (2013) (ICSP), Official Community Plan (2017) (OCP), Multi-Modal Transportation Plan (2022) (MMTP), provide policy direction for many of the actions within this document. The CCAP provides an updated implementation plan for Creston's climate action goals and targets in keeping with the Town's Strategic Priorities.

Introduction

Purpose

The Town of Creston acknowledges and accepts a commitment required to mitigate climate change. In 2021 the Town committed to the West Kootenay 100% Renewable Energy Plan, a roadmap outlining the opportunities and obstacles for the region to achieve 100% of energy used from renewable sources by 2050. This commitment requires that the Town of Creston aim to transition to 100% renewables in all energy use sectors in the community including heating and cooling, transportation, electricity, and waste management no later than 2050. The CCAP is our first step in making this transition. The adoption of the West Kootenay 100% Renewable Energy Plan provides the framework for the Town of Creston moving forward and is a foundational part of the Town's decision-making process.

The CCAP aims to develop a stepping stone towards a robust strategy that continues to evolve. It establishes key goals such as education and sourcing funding to develop a plan built on new climate data and building the Town of Creston's capacity to address climate change.

This plan aims to work towards equitable climate action that generates environmental, economic, and health benefits for individuals, families, and businesses throughout the community. This plan also fosters a culture of environmental sustainability within Town of Creston operations, where it becomes central to the decision-making process.

Territory Acknowledgment

The Town of Creston recognizes, acknowledges, and respects that the lands covered by this plan are located on the unceded traditional territory of the Yaqan Nukiy within the K'tunaxa Nations. Since time immemorial the Yaqan Nukiy stewarded this Valley. It is with gratitude that the Town of Creston plans on these lands.

Scope

The CCAP focuses on mitigating the effects of climate change by reducing GHGs. While adaptation and resiliency are mostly outside the plan's scope, the plan includes some high-level adaptation and resiliency measures as supplementary guidance to the mitigation strategies.

The CCAP identifies five major action areas, or **“Big Moves",** that the Town of Creston deems significant areas of need in terms of climate action. These areas include **transportation, buildings & infrastructure, waste, leadership & education, and adaptation & resiliency.** The "Big Moves" are further broken down into **objectives** that provide a clear direction and help prioritize efforts and resource allocation. Finally, the objectives are categorized into short-term, medium-term, and long-term **actions**. By setting these goals, the Town of Creston is taking concrete steps towards achieving the targets outlined in the West Kootenay 100% Renewable Energy Plan. Although the CCAP's scope is limited to mitigation, it provides a vital framework for the community to work towards climate action.

Municipal Commitment

The Town of Creston supports the Province of British Columbia’s goal to reduce overall GHGs in BC by 40% below 2007 levels by 2030, 60% by 2040, and 80% by 2050. The Town of Creston is a signatory to the Province’s Climate Action Charter, and Council has committed to reducing GHG emissions in the community. Provincial legislation requires municipal governments develop climate targets, plans, and actions to contribute to the climate action journey.

In 2021, the Town of Creston Council passed the following resolution to further advance Climate Action in Creston:

THAT the Town of Creston aims to transition to 100% renewable in all energy use sectors in the community including heating and cooling, transportation, electricity, and waste management not later than 2050; AND FURTHER, THAT Mayor and Council DIRECTS

Town of Creston staff to collaborate with experts and residents, as well as consult the West Kootenay 100% Renewable Energy Plan, to develop a plan for the Town of Creston's transition by 2022.

The plan establishes practical steps for the Town of Creston so that we can continue to work in tandem with Provincial and Federal Governments, First Nations, Corporations, and our community towards climate action.

The following plans provide the policy direction and foundation for the listed actions within this document:

- RDCK's Strategic Community Energy and Emissions Plan (SCEEP)
- Creston's Integrated Community Sustainability Plan (ICSP)
- Creston's Official Community Plan (OCP)
- Creston's Multi-Modal Transportation Plan (MMTP)

The CCAP is cohesive with the Town's Strategic Plan priorities, which include community safety, liveability, economic health, and service excellence. The Strategic Plan emphasizes enhancing quality of life, demonstrating strong leadership, and fostering pride in arts, culture, heritage, and lifestyle amenities. In alignment with these strategic goals, the CCAP upholds principles such as environmental sustainability, innovation, equitable partnerships, and transparency. The strategic plan's emphasis on equitable partnerships and alliances highlights the importance of collaborative and inclusive approaches to address climate change impacts. Moreover, the principles of transparency and accountability within the strategic plan align with the need for effective governance, reporting, and community engagement within the implementation of the CCAP.

Current Situation

The International Panel on Climate Change states, "It is unequivocal that human influence has warmed the atmosphere, ocean, and land"[1]. In general, we are seeing more extreme weather events, hotter average temperatures, and melting sea and land ice

In Creston, we can observationally attest to these changes. Throughout the past few years, Creston experienced extreme heat events with temperatures surpassing 40°C, wildfires, and our neighbouring communities experiencing significant drought. In the future, Creston can expect higher average temperatures, more hot days, shifts in precipitation patterns, and likely an overall increase in precipitation, with less snowpack. These changes are predicted to have damaging impacts such as increased wildfire events, flooding, drought, and negative water quality impacts[2].

"The effects of climate change are not distributed equally, and certain populations are more vulnerable to its impacts. Extreme weather and climate-related disasters are expected to continue, and they will create new risks and worsen existing vulnerabilities in communities. Vulnerable populations include older adults, children, pregnant women, individuals experiencing homelessness, persons with behavioral health conditions, people with lower incomes, individuals with limited English proficiency, migrants or

[1] IPCC. (2021). AR6 Climate Change 2021: The Physical Science Basis. https://www.ipcc.ch/report/ar6/wg1/

[2] Pacific Climate Impacts Consortium. (2018). Climate Summary for the Kootenay Boundary Region. Retrieved from https://pacificclimate.org/sites/default/files/publications/Climate_Summary-Kootenay-Boundary.pdf

refugees, racialized communities, and tribes and Indigenous peoples. Climate change disrupts many areas of life and may lead to increased violence and crime, decreased community unity, and increased social instability. Individuals who contemplate the magnitude of climate change may also experience anxiety and grief about climate change, general despair, or hopelessness"[3].

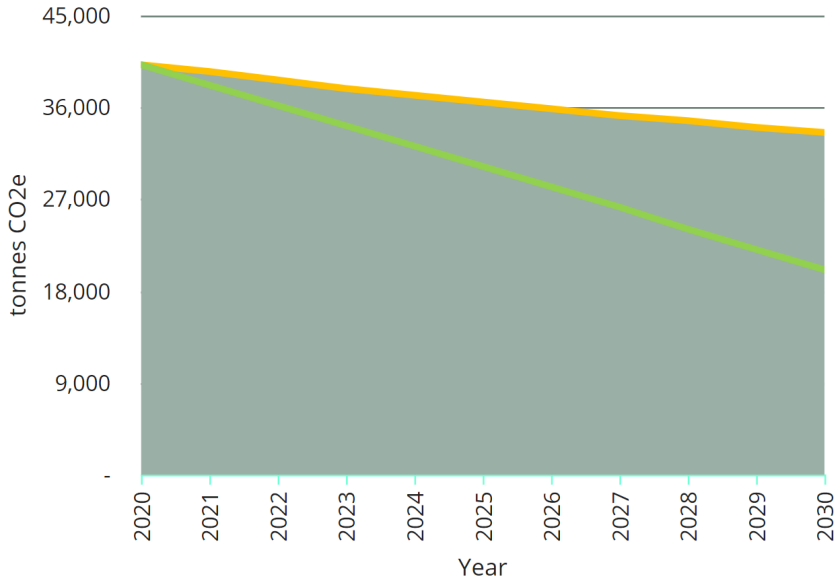
Environmental damage, such as biodiversity loss, ecosystem degradation, and natural disasters like floods, droughts, and wildfires, can have far-reaching consequences on both humans and wildlife. In addition, climate change can affect human health by increasing the risk of heatstroke, respiratory and cardiovascular illnesses, and the spread of infectious diseases. Between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year, from malnutrition, malaria, diarrhea and heat stress. Climate change can exacerbate social inequalities and trigger new ones, leading to the displacement of communities, loss of livelihoods, and social unrest. Areas with weak health infrastructure – mostly in developing countries – will be the least able to cope without assistance to prepare and respond. Furthermore, climate change can pose risks to global security by exacerbating conflicts over resources, migration, and territorial disputes. The costs of climate change are likely to be widespread, profound, and difficult to quantify, affecting various aspects of human society and the natural world[4].

[3] Substance Abuse and Mental Health Services Administration. (2022, March 28). Climate Change and Health Equity. Retrieved April 18, 2023, from https://www.samhsa.gov/climate-change-health-equity

[4] World Health Organization. (2018). Climate change and health. Fact Sheet. https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

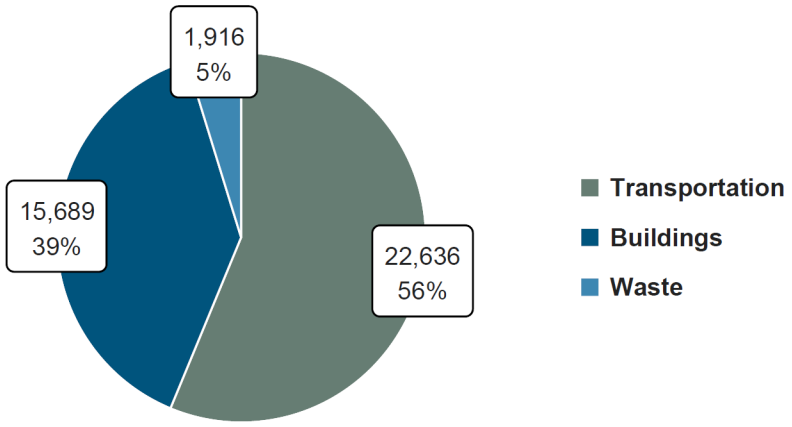
Business as Usual (BAU)

To remain on track with the BC Climate Action Charter targets, which aims for reduced emissions of 40% below 2007 levels by 2030, 60% below 2007 levels by 2040, and 80% below 2007 levels by 2050, Creston's emissions should decrease to around 21,000 CO_2e tonnes by 2030. The Town of Creston would have had to reduce 2020 emissions by approximately 50% by 2030 to come close to this target[5].



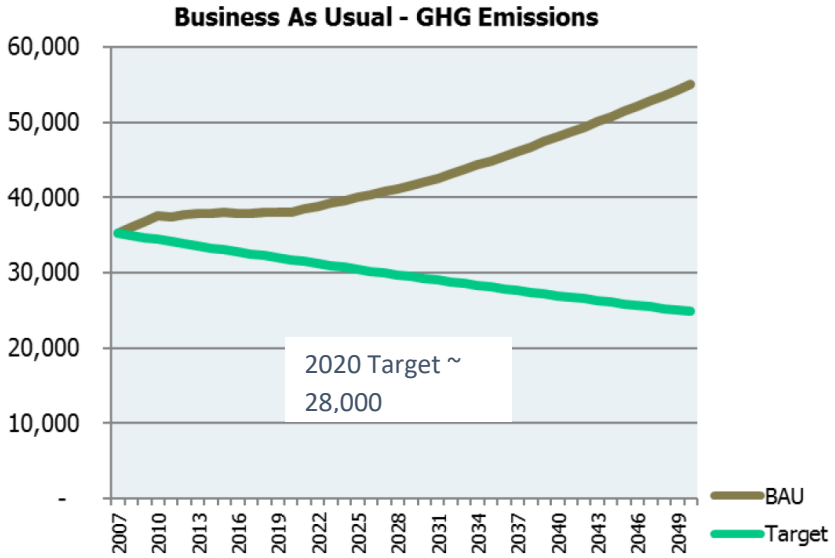
Town of Creston BAU (yellow) versus Target Emissions (50% reduction from 2020 levels) (green)[5]

[5] Community Energy Association. (n.d.). Climate Action Planner. Retrieved April 18, 2023, from https://www.communityenergy.ca/climate-action-planner/



Town of Creston 2020 Emissions Inventory (in tonnes CO_2e) by Sector[5]

Creston did not meet its emissions target for 2020, in fact, we surpassed our Business As Usual (BAU) scenario. The BAU scenario showcases the likely scenario if no behaviours were changed and takes growth and development into account. In 2020, the Town of Creston emitted approximately 39,000 tonnes of CO_2e (Carbon dioxide equivalent) indicating that we need more aggressive actions to meet our targets[5].



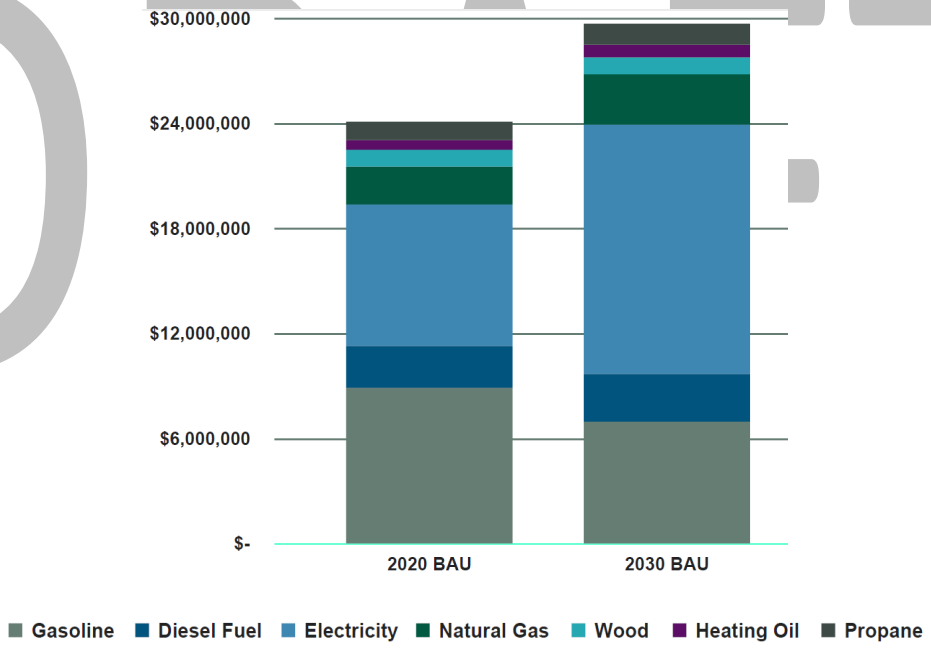
OCP Greenhouse Gas Reduction Targets

Source: SCEEP (2016)

In order to achieve climate action targets, it is necessary to allocate proportionate attention to the major polluters in the areas of transportation, buildings, and waste. Creston plays a significant role in this puzzle.

Emission Costs

The Town of Creston community spends a significant amount on energy. In 2020, Creston's energy costs were approximately $24,000,000. If business were to continue as usual, by 2030, Creston's energy costs would be roughly $30,000,000[5].



Estimated 2020 and 2030 Costs by Fuel Type[5]

With a 2015 baseline, it is estimated that climate change will have cost Canadians $25 billion of national GDP by 2025, $35 billion by 2030, and between $80 and $103 billion by 2080 if continuing with business as usual. These figures represents the accumulation of impacts from each year of climate change since 2015, such as from storms, floods, and fires[6].

A study published by the Institute for Sustainable Finance modelled the physical risk to Canada, and specifically how much capital output might be lost, over various warming scenarios between now and the end of the century. It was found that under a BAU scenario, with no new international GHG mitigation measures taken and allowing the climate to warm 5°C by 2100, the cumulative cost to Canada would be $5.5 trillion[7].These financial impacts could be incredibly detrimental to Canada, without yet considering the damages and costs to the rest of the world.

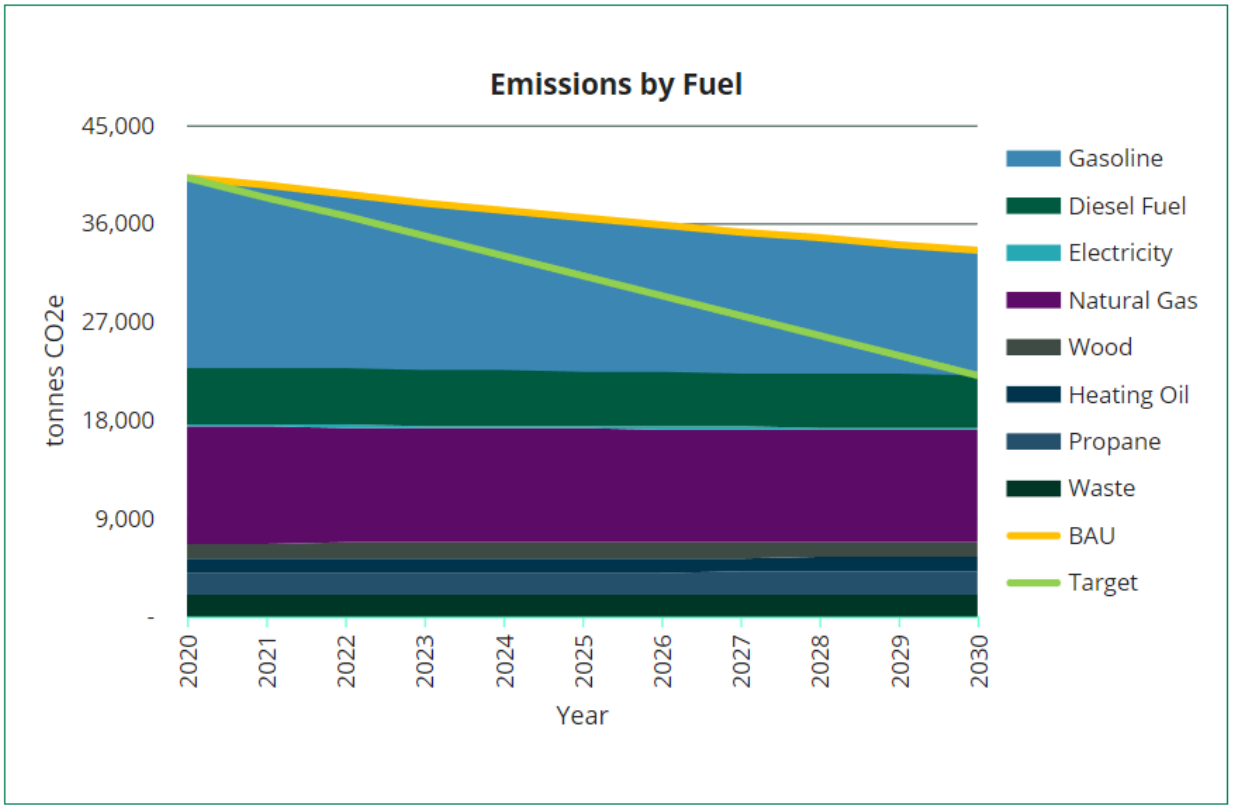
To help address this issue and meet Canada's climate targets, a shift from using fossil fuels to using clean electricity is necessary. This shift would involve generating more clean electricity in all regions, phasing out energy sources that emit GHGs, and using clean electricity to power homes, vehicles, businesses, and industries. This transition is fundamental to reducing GHG emissions and mitigating the impacts of climate change.

[6] Climate Institute. (2018, October 2). The GDP Costs of Climate Change for Canada. Retrieved April 18, 2023, from https://climateinstitute.ca/the-gdp-costs-of-climate-change-for-canada/

[7] Institute for Sustainable Finance. (2021, February 25). Study Models Climate Change Damage to Canada's Economy. Retrieved April 18, 2023, from https://smith.queensu.ca/centres/isf/news/climate-change-damage.php

Forecast Emissions

Creston's largest contributors to GHG emissions are gasoline, natural gas, and diesel fuel. As a result, they provide the biggest opportunities for reduction in carbon emissions. Some of these opportunities include electrification, retrofitting heat sources, and shifting towards active transportation.



Emissions by Fuel[5]

This graph predicts that if we reduce emissions to 45% below 2020 levels by 2030, our total emissions would be approximately 23,000 tonnes of CO_2e[5]. Though this estimate does not precisely align with our goals of reducing emissions 40% below 2007 levels by

2030, it provides an idea as to what we aim to accomplish in a short time with the actions outlined in this plan.

Compounding Factors

Creston's population continues to grow, resulting in greater infrastructure needs. From 2006 to 2016, Creston's population grew 11%, reaching 5351 individuals, and from 2016-2021 Creston's population grew 4.1%, reaching 5583 people[8]. Overall, this represents an average annual increase of 1% from 2006 to 2021. In 2020, buildings accounted for approximately 39% of Creston's GHG emissions. Between 2010 and 2020, over 270 residential units were created, with development significantly increasing in the last four years. In addition, Creston's total emissions increased from approximately 37,500 CO_2e tonnes to about 40,000 CO_2e tonnes from 2010-2020[5]. This works out to approximately 7.5 CO_2e tonnes per capita in 2020.

A growing population translates to more paved roads and pathways, more vehicles on the road, and other services that contribute to emissions through their use, development, or both. Creston will continue to develop more resilient and energy efficient infrastructure to support environmentally sustainable habits, while searching for new avenues to decrease overall emissions.

[8] Statistics Canada. (2017). Census Profile, 2016 Census: Creston [Population centre], British Columbia and British Columbia [Province]. Retrieved April 18, 2023, from https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=POPC&Code1=0212&Geo2=PR&Code2=62&Data=Count&SearchText=Creston&SearchType=Begins&SearchPR=01&B1=All

Lifecycle Costs

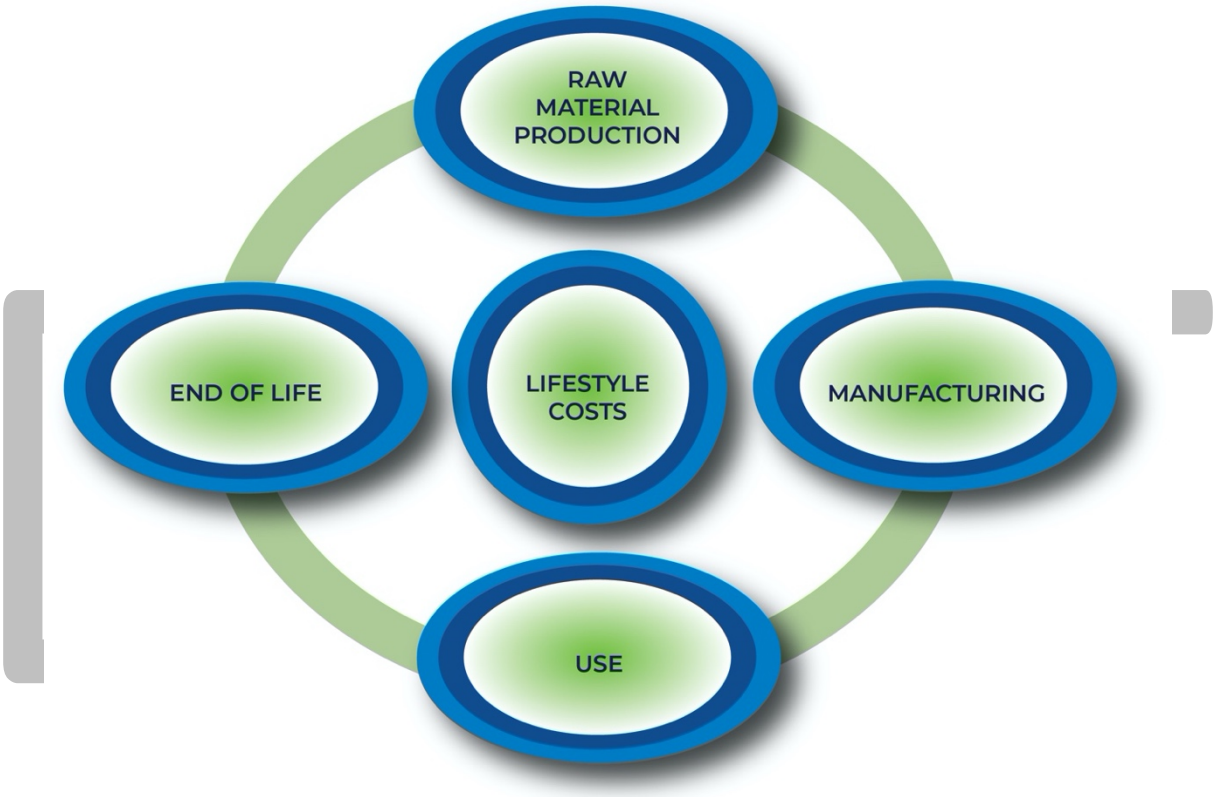
Our consumption choices have a significant impact on the environment, contributing to GHG emissions through the production of goods and services, our use of energy for heating, transportation, and food choices. Manufacturers respond to consumer demands and market pressures, often leading to the production of more environmentally damaging goods and practices, or as is increasingly the case, environmentally friendly options.

Applying a lifecycle cost lens is crucial when evaluating the environmental impact of products and services. This analysis considers a product's environmental impact throughout its entire lifecycle, from production to disposal, and provides a more accurate picture of its environmental impact. By including the environmental cost of manufacturing, transportation, use, and disposal, a lifecycle cost analysis enables decision-makers to make more informed choices that consider both the immediate and long-term environmental impact of a product or service.

When adopting a lifecycle cost lens, it is essential to consider embodied carbon. Embodied carbon refers to the GHGs associated with the production, transportation, and disposal of a product or material, including both direct and indirect emissions. By considering embodied carbon in lifecycle costing, decision-makers can evaluate the environmental impact of different options, such as selecting materials with lower embodied carbon or investing in energy-efficient production processes.

In 2019, the Canadian government established a national minimum price on carbon pollution starting at $20 per tonne, increasing at $10 per tonne to $50 in 2022. The federal government proposed to increase the price on carbon pollution annually at a rate of $15 per tonne from 2023 to reach $170 by 2030. The goal is to accelerate the market adoption of technologies and practices needed to reduce emissions and build a

low carbon economy[9]. The federal carbon pollution pricing benchmark will impact Creston residents as it will increase the price of carbon pollution. This means that some goods and services may become more expensive as producers pass on the cost of the carbon price to consumers. By using a lifecycle cost lens, households and businesses can save money and reduce their carbon footprint.



[9] Government of Canada. (2018). Carbon Pollution Pricing: How it will work. Retrieved April 21, 2023, from https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work/carbon-pollution-pricing-federal-benchmark-information.html

Equitable Transition

In developing the CCAP, several factors have been taken into account to ensure its effectiveness and equity for all community members. The plan recognizes the distinct resource and economic challenges that confront our small, rural community, and the possible impact they may have on achieving GHG reductions in a relatively short period.

The geographical location of Creston, for example, is a crucial factor in determining the viability and efficiency of certain GHG reduction strategies. The rural setting and topography of the area may present challenges in implementing renewable energy technologies like solar and wind power.

An essential consideration in developing an equitable plan is the socioeconomic factors affecting the community. Barriers to accessing energy-efficient technologies with limited financial resources may be faced by low-income residents. While high-income residents may have greater resources and access to technology, they may also have higher GHG emission as they are financially able to consume more overall.

It is important to recognize that impacts of climate change may disproportionately affect certain groups, including indigenous communities, who have a deep connection to the land and its resources. Cultural value and traditions will be considered, as applicable, when implementing individual actions in this plan.

We must also consider members of the community with specific needs, such as those who are elderly or have disabilities, and are particularly vulnerable to the impacts of climate change. Extreme weather events and other consequences of a changing climate can have a significant impact on these individuals, who may face greater challenges in adapting to these changes.

The CCAP has been designed with a focus on equity and effectiveness, considering the unique challenges and opportunities presented by the community's geography, electric

grid, socioeconomics, history, and culture. The goal is to achieve meaningful GHG reductions while creating a more resilient, and equitable community.

Sustainability Objectives

The Town of Creston developed sustainability objectives in its ICSP, which provide a foundation for the CCAP to build upon. The current sustainability objectives are to reduce and eventually eliminate our contribution to:

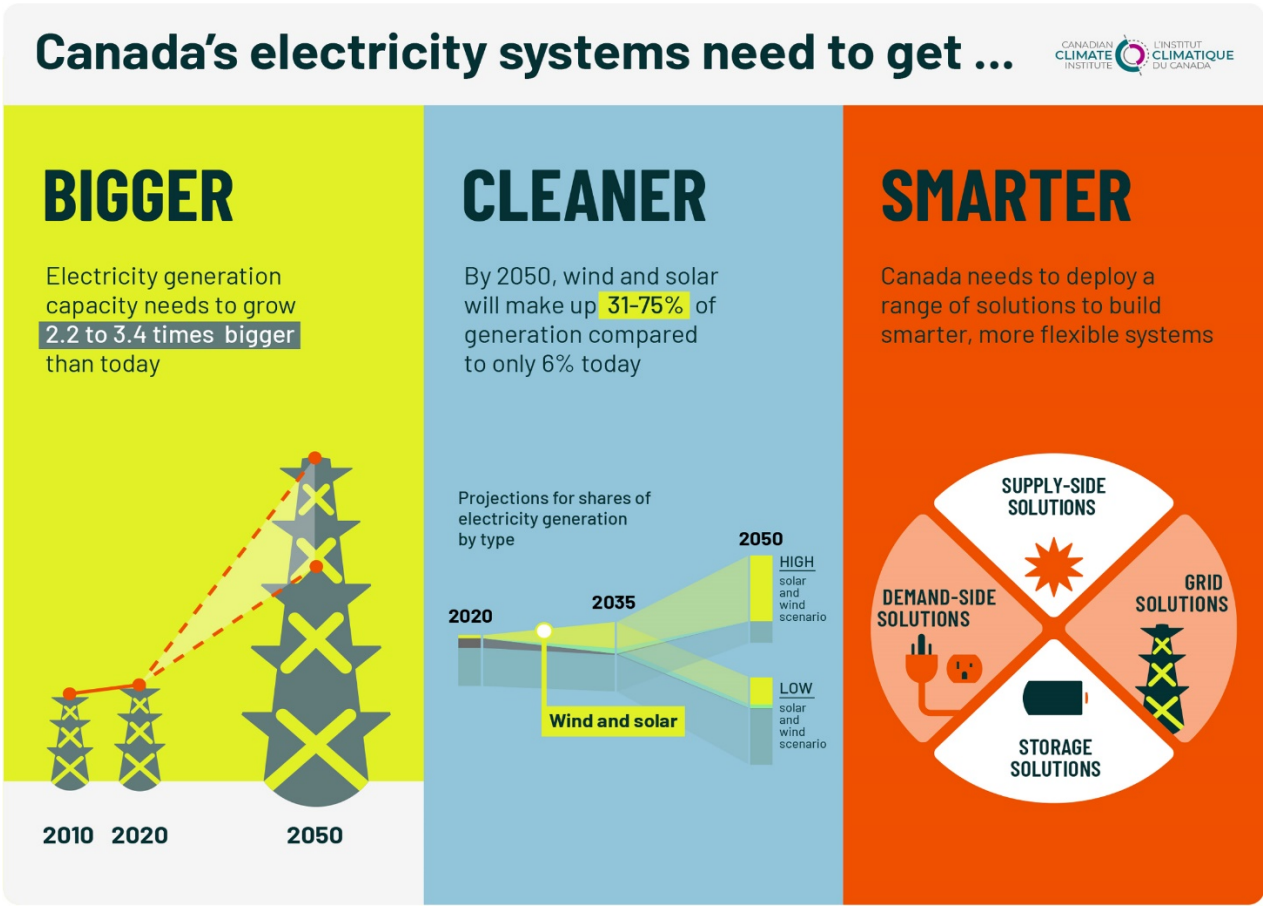
1. The ongoing build-up of materials extracted from the earth's crust.
    - This means favouring activities that support energy efficiency, renewable energy, recycled materials, and reusing what we have.
2. The ongoing build-up of synthetic materials produced by society.
    - This means favouring activities that support natural materials, reusable and recyclable contents, and materials that are managed in tight technical cycles.
3. The ongoing physical degradation of nature.
    - This generally means favouring activities that support using materials and energy sources from well-managed ecosystems, fast growing crops without the use of chemicals, and using previously developed lands.
4. Socio-cultural and economic conditions that undermine people's ability to meet their basic needs.
    - This means favouring activities that support safe and vibrant living and working conditions, sufficient resources for livelihood, political freedoms, inclusive and transparent decision-making, and sourcing affordable products and services.

Looking Ahead

By signing on to the goal of 100% renewable energy by 2050, Creston recognizes that creating complete, compact, energy-efficient communities helps to

reduce GHG emissions and supports healthy and equitable communities. Environmentally conscious communities help to support social, economic, and cultural sustainability.

While commitment at the municipal level plays an important role in climate action, governments of all nations and at all levels need to make bold moves to create the necessary changes to have meaningful results. We acknowledge that while we will not solve the climate crisis on our own, we will be part of the solution. Reaching Canada's climate targets requires a big switch from fossil fuel to clean energy. This switch involves producing more clean electricity in every region, phasing out GHG-emitting sources, and using clean electricity to power more and more of our homes, vehicles, businesses, and industries.



Source: Climate Institute. (2018). Big Switch: How Canada can use renewables and energy efficiency to move from fossil fuels to a low-carbon future.

The transition to 100% renewable energy by 2050 will require a concerted effort by individuals, communities, businesses, and governments across Canada. While it may seem daunting, this switch presents an opportunity to not only mitigate the impacts of climate change, but to become more resilient, learn from our lessons, grow our culture, and bond together for a common purpose. By investing in renewable energy infrastructure, promoting energy efficiency and conservation, and encouraging sustainable transportation, we can reduce our reliance on fossil fuels, improve air and water quality, and create new jobs and economic opportunities. With bold and decisive action, we can build a clean energy future that benefits both the environment and our community.

Impacts of the Climate Action Plan

The CCAP aims to significantly reduce GHG emissions in the Town of Creston. The CCAP recognizes that much of Creston's climate data is based on 2010 data and that reliable baseline data is necessary to inform future decision-making. The Town will be acquiring new climate data to support this plan to build the Town's capacity to address climate change. With the actions in this plan focusing in the areas of transportation, buildings & infrastructure, waste, and leadership & education, this plan presents actions targeted towards major reductions in GHG emissions in these areas. The CCAP is a stepping stone towards a robust strategy that continues to evolve, with the ultimate goal of mitigating the impacts of climate change in Creston.

We recognize that this is not a comprehensive solution. National and global actions are necessary to address the root causes of climate change and to achieve significant reductions in GHGs. The CCAP should be seen as a starting point for the Town to take meaningful action towards climate resiliency and environmental sustainability, with ongoing efforts required to adapt to changing circumstances and emerging best practices.

Transportation

Transportation requires energy to move people and goods from one place to another. Cars, buses, trains, and planes are, in large part, all powered by fossil fuels, which contribute significantly to GHGs and air pollution.

Reducing transportation-related emissions is crucial to mitigating the impacts of climate change and improving air quality. Shifting towards more sustainable transportation options such as electric vehicles, public transportation, biking, and walking can help to reduce GHG emissions and promote healthier communities.

The Town of Creston will promote sustainable transportation by encouraging the development of walkable and bike-friendly infrastructure, public transit, and electric vehicles. These efforts will not only help to reduce emissions and improve air quality, but also support a more connected community.

Current Situation

In 2020, transportation accounted for 56% (22,636 CO_2e tonnes) of emissions generated in the Town of Creston; gasoline was the largest expense[5].

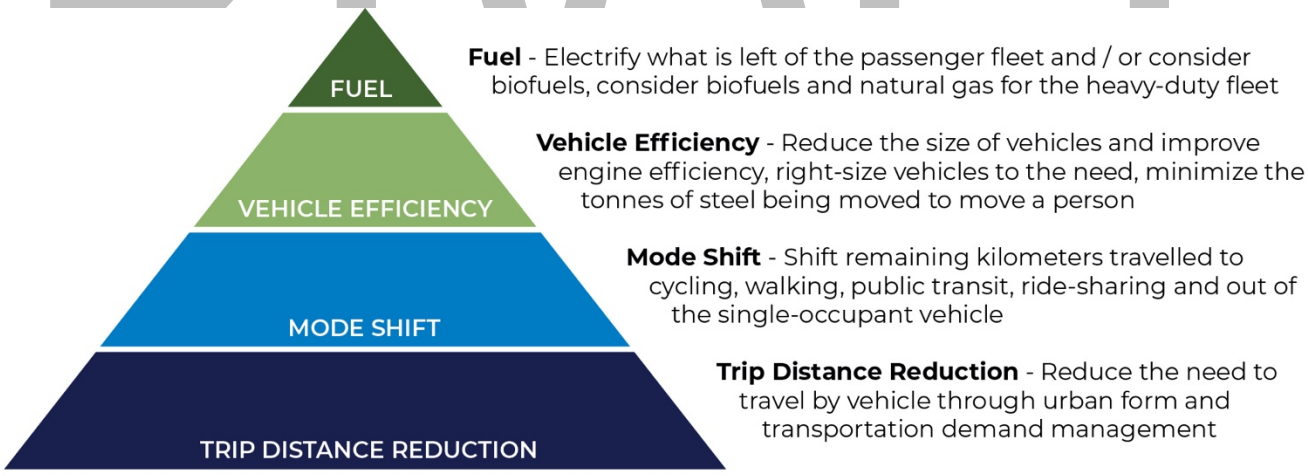
Creston residents and businesses are primarily dependant on fossil fuel vehicles as their primary mode of transportation to support rural living. The Town of Creston recognizes there may be barriers in shifting from gas and diesel powered vehicles to electric vehicles. It remains a challenge for many residents and businesses as large electric vehicles remain cost-prohibitive, and smaller electric vehicles may not meet many individuals' or families' needs. Additionally, the supply of vehicles currently available is limited and unable to keep up with current demand.

While transitioning to electric vehicles in Creston may present challenges, it's worth noting that technological advancements are increasingly making them a more practical and attractive option for drivers. Improvements in battery technology have led to increased range, enabling drivers to travel longer distances without needing to recharge. Additionally, advances in cold resilience have made electric vehicles more reliable in cold weather conditions. Meanwhile, charging times continue to decrease, making it easier and more convenient for drivers to charge their vehicles on the go. These advancements can help make electric vehicles a more viable option for residents in Creston. By adopting cleaner modes of transportation, we can reduce harmful emissions and improve air quality, leading to a healthier, more vibrant Creston.

Transportation Objectives

The following transportation objectives encompass trip distance, mode shift, vehicle efficiency, and fuel considerations.

1. **Encourage the development of compact and walkable neighborhoods that provide access to essential services and amenities, reducing the reliance on automobiles**
2. **Increase vehicle sharing opportunities, expand public transportation options, and implement active transportation orientated planning**
3. **Shift towards vehicle electrification**



Source SCEEP 2016

Getting There

Encourage the development of compact and walkable neighborhoods that provide access to essential services and amenities, reducing the reliance on automobiles

Creston spans 815 hectares, with about 30% of the land remaining undeveloped and lacking essential services. Overall, the Town's land use is reasonably well distributed, with residential, commercial, and industrial zones dispersed throughout the community. This approach to land use planning fosters a cohesive and interconnected community, with convenient access to employment opportunities, shopping centers, and other essential amenities within a reasonable proximity to residents' homes.

According to Statistics Canada's 2016 report, the majority of commute distances in Creston were relatively short. More specifically, over half of the trips taken for commuting purposes were between 1 and 3 kilometers, while approximately 30% were less than 1 kilometer[10].

[10] Statistics Canada. (2016). Commuter data. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/dt-td/Rp-eng.cfm?TABID=2&LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&GC=0&GID=1261913&GK=0&GRP=1&PID=111334&PRID=10&PTYPE=109445&S=0&SHOWALL=0&SUB=0&Temporal=2017&THEME=125&VID=0&VNAMEE=&VNAMEF=&D1=0&D2=0&D3=0&D4=0&D5=0&D6=0

Infill developments, which utilize existing municipal services such as water, sewer, roads, and trails, can result in financial savings and a smaller environmental footprint. In addition to these benefits, infill development can also increase the municipal tax base without expansion or infrastructure, while simultaneously reducing residents' reliance on gas-powered vehicles for commuting.

Creston is the service hub for Wynndel, Erickson, Canyon, Lister, the East Short of Kootenay Lake, Kitchener, and Yahk. Many people commute to Creston for school, work, shopping, entertainment, and services. Creston must continue to support these individuals by providing a one-stop destination to limit the number of trips people must take to meet their needs.

The OCP, ICSP, MMTP, and SCEEP provide supportive policies and actions for reducing our transportation impact. Much of the focus is on creating a well-connected and walkable community that supplies the services community members depend on.

Increase vehicle sharing opportunities, expand public transportation options, and implement active transportation orientated planning

Based on the 2016 Commuter data from Statistics Canada, the vast majority of individuals (82%) who commute for work within Creston rely on driving as their mode of transportation. Of those who drive to work, the overwhelming majority (86%) are solo drivers. Less than 16% of those who drive to work use sustainable transportation options such as active transportation or public transit. Approximately 13% of residents regularly walk, while less than 1% of people regularly bike or use public transit, and around 2% use alternative modes of transportation, such as mobility aid scooters[10].

The Town of Creston currently has over 20km of sidewalks and trails; however, due to the Town's topography, it can be challenging for many individuals to cycle or walk. Additionally, many of the trails are made of gravel, which makes them inaccessible or difficult for road cyclists and people using mobility aids. Most residential neighborhoods

lack sidewalks or trails, and there is a lack of connectivity between neighborhoods and services. In 2016, during public engagement for the OCP at Town Hall, the public expressed that the Town's infrastructure does not meet the needs of youth or those with mobility challenges. Multi-modal transportation requires safety and accessibility to be effective.

To encourage a shift away from single-occupancy vehicles, the Town of Creston must create safe and accessible alternatives, such as multi-use pathways, low-barrier and well-maintained sidewalks, and alternative vehicle transport modes, including carpooling and transit. Additionally, the Town's MMTP identified locations where crossing lights should be added, such as the 18th Ave N/Canyon St intersection and NW Boulevard/Cavell Street, to improve pedestrian visibility and safety when crossing the highway.

During the OCP public engagement, Creston residents expressed a desire for a well-connected community that promotes physical activity. The Town's OCP contains several policies that support an integrated approach to active transportation planning, and the MMTP outlines strategies to meet Creston's active transportation goals for the next 30 years.

The Town is also developing a Trails Master Plan (TMP). The TMP provides a long-term strategy for creating a connected and walkable community that encourages active transportation and outdoor recreation. The TMP identifies key routes that align with Creston's cycling, public transit, and private vehicle networks and provides essential connections to activity hubs throughout the community.

Building multi-modal transportation infrastructure comes at a significant capital cost. Savings can be made by including active transportation infrastructure at times of road replacement and restoration. Secondly, active transportation tends to be a 'lighter' use of Town infrastructure compared to traditional vehicle traffic. Over time, general maintenance costs may decrease. The infrastructure projects required to achieve the commitments in the MMTP and GTMP will require ongoing and multi-year construction, combined with working with the BC Ministry of Transportation and Infrastructure (MoTI) to create safe spaces for active transportation along provincially owned roads. In

addition, the Town of Creston will work with the Ministry to evaluate BC Transit in Creston and advocate for a plan that better meets the community's needs.

Shift toward vehicle electrification

British Columbia (BC) had an annual per capita electricity consumption of 11.8 megawatt-hours (MWh) in 2019, which placed it seventh among all Canadian provinces.

However, the province consumed 21% less electricity than the national average. About 87% of electricity in B.C. is produced from hydroelectric sources, with the remainder coming from biomass, wind, natural gas, refined petroleum products, solar, and other sources[11].

BC has more than 2,500 public charging stations available for electric vehicles. Electrification of personal and fleet vehicles are a critical component of renewable transportation. The Province has set out several targets pressuring manufacturers to create a greater supply of electric vehicles. As part of the Roadmap to 2030[12], B.C. will require 10% of all new, light-duty vehicles sold to be zero-emission vehicles by 2025, rising to 30% by 2030 and 100% by 2040. B.C. already has the highest electric vehicle

[11] Canada Energy Regulator. (2021, March 3). British Columbia Energy Profile 2019. https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-british-columbia.html

[12] Province of BC. (n.d.) Roadmap to 2030. https://www2.gov.bc.ca/assets/gov/environment/climate-change/action/cleanbc/cleanbc_roadmap_2030.pdf

uptake in North America, with more than 10% of new light-duty vehicle sales being electric as of June 2021[13].

The initial cost of electric vehicles remains high. While electric vehicles (EVs) are generally more expensive to purchase than traditional gasoline-powered vehicles, they can be more cost-friendly over time due to several factors. One of the main reasons is fuel cost savings, as EVs have significantly lower operating costs than gasoline-powered vehicles, require less maintenance and have longer lifespans, which can also result in cost savings. The Province has several grant and rebate programs to support vehicle electrification for individuals and fleets.

When considering EVs, we also have to consider infrastructure and charger costs. There are a variety of EV chargers; the slowest charging type is the Level 1 charger, which uses a standard 120-volt household outlet and can provide up to 6-8 kms of range per hour of charging. The Level 2 charger is faster, using a 240-volt outlet and providing up to 40-55 kms of range per hour of charging. DC fast chargers (Level 3) are the fastest available and can provide up to 80% of a car's battery charge in as little as 20-30 minutes. They use a specialized connector and can be found at public charging stations or some dealership service centers. Wireless chargers are still relatively rare but are becoming more common in some markets. It's important to know your car's charging requirements before choosing a charging station, as different EVs may require different types of connectors. EV installation for level 2 and 3 chargers can cost anywhere between $2000 and upwards of $70,000, depending on the type of EV charger, power availability, and existing infrastructure. To date, all of Creston's EV charging stations were installed using grant money.

[13] Government of British Columbia. (2022, February 7). B.C. to Build Canada's Largest Renewable Energy Battery Storage Project. https://news.gov.bc.ca/releases/2022EMLI0018-000468

The OCP contains several policies related to vehicle electrification. Shifting to electric vehicles will have one of the greatest positive impacts on GHG reduction. Over time, the Town envisions shifting towards electric municipal fleet vehicles, purchasing used vehicles, and providing infrastructure to support personal electric vehicles.

Actions

In order to achieve the West Coast 100% Renewable Energy Plan's targets, the following short-term, medium-term, and long-term transportation actions have been established:

Current/ Ongoing

- Revise the OCP and related zoning bylaws to promote reduced reliance on cars by designing walkable neighborhoods with services in close proximity
- Collaborate with neighboring communities to initiate an inter-city ridesharing program.
- Focus on active transportation planning and include active transportation design standards in street restoration, replacement, and new projects.
- Continually explore new technologies for use as they advance such as hydrogen-powered vehicles

Short-term

- Decrease speed limits for safety – ensure people feel safer utilizing other active transportation methods
- Explore partnerships with other governments to create inter-community trails for walkable / bikeable long-distance trips
- Launch Town wide anti-idling initiative
- Conduct spatial analysis of amenities, healthcare, public transportation, and other essential services as they relate to locations of residential units and transportation network
- Adopt a policy for bike lock-ups in all new multi-family residential buildings
- Install public bike lock ups in the downtown commercial zone
- Implement an e-bike/ bike sharing program
- Expand the E-bike loan program to include Town residents
- Consider active transportation when developing Local Area Plans

- Advocate for and educate the public on electric vehicle (EV) rebates and incentives for residential and commercial vehicles
- Identify and allocate locations for future EV charging stations for municipal and public use
- Adopt the Trails Master Plan-

Medium-term

- Develop an interactive map that highlights trails, multi-use paths, and low-traffic roads for those interested in active transportation
- Prioritize road and infrastructure design that is appealing and convenient for pedestrians, cyclists, and public transit users
- Install EV charging stations at pre-allocated locations
- Electrify the Town of Creston's fleet vehicles

Long-term

- Implement the Trails Master Plan
- Invest annually in the design and construction of new walking and cycling infrastructure as set out in the Town's MMTP

Buildings & Infrastructure

Buildings that serve as our homes, workplaces, and recreational spaces require energy to regulate indoor temperatures, light, and provide power for daily activities like cooking and laundry. Over the past few years, extreme temperatures have brought to light the importance of household temperature control for our comfort and our health, requiring large amounts of energy. It is imperative to find ways to reduce energy consumption, while maintaining safe living spaces for the community. Creating energy efficient buildings can also increase building resiliency in the face of climate change and result in long-term savings for residents and businesses. Increasing building efficiency is the second largest opportunity for transitioning to renewable energy.

The Town of Creston aims to shift towards more sustainable buildings by encouraging energy efficient, residential infill development and densification within currently serviced areas, and by encouraging the design and construction of energy efficient new buildings and retrofits in existing residential, commercial and institutional buildings and infrastructure.

Current Situation

By sector (Waste, Transportation, Buildings), Creston's buildings accounted for approximately 15,698 CO2e (39%) tonnes of emissions in 2020. Under the BAU scenario, by 2030 it is estimated that buildings will contribute 15,373 CO2e tonnes of emissions, as BC Building Code, BC Step Code, and other factors improve efficiency.

Increasing building efficiency and reducing building energy consumption are essential for reducing overall GHG emissions. In Creston, most buildings rely on electricity for heating and cooling needs. Because electricity is produced predominately in hydroelectric facilities, it contributes very little to Creston's GHG pollution. Approximately 10% of Creston's residential building heating energy is supplied by wood, another lower-carbon and renewable energy source[5]. The Town has implemented a Wood Stove Exchange Program in partnership with the RDCK that provides a rebate for residents to

exchange their old (pre-1994), uncertified wood stove with a new, EPA- or CSA-certified wood, pellet, or gas heating appliance. Visit the website HERE for more information.

In 2020, natural gas in Creston contributed to approximately 8% of emissions[5]. Natural gas is a fossil fuel, which means that it is formed from the remains of dead plants and animals that have been buried for millions of years. The extraction, processing, and transportation of natural gas can lead to significant GHGs, contributing to climate change. Additionally, natural gas leaks during extraction, transportation, and distribution, can release methane - a potent GHG - into the atmosphere. Natural gas production can result in environmental harm such as water pollution, land degradation, and wildlife habitat destruction. Furthermore, the combustion of natural gas in power plants and buildings releases carbon dioxide, nitrogen oxides, and other air pollutants that contribute to smog, acid rain, and respiratory diseases. Finally, natural gas is a non-renewable resource, which means it will eventually be depleted, and its extraction can cause social, economic, and environmental issues in communities where it is produced[14]. Reducing energy waste through energy-efficient building designs, insulation, and weatherization can significantly reduce the need for natural gas heating.

Improving building efficiency would result in cost savings for businesses and residents. Creston has been observing an escalation in temperature extremes every year, and it is crucial to equip buildings for extreme weather events and increasing temperatures without exacerbating negative climate impacts.

As of May 1st, 2023 in accordance with the BC Building Code regulations, the Town of Creston is requiring builders comply with Step 3 of the BC Energy Step Code. The BC

[14] Union of Concerned Scientists. (2021, March 30). The Environmental Impacts of Natural Gas. https://www.ucsusa.org/resources/environmental-impacts-natural-gas

Building Code is a set of minimum requirements and standards for the construction, renovation, and occupancy of buildings in BC. It covers various aspects of building design, materials, safety, and energy efficiency, among others. The BC Energy Step Code provides a common pathway that local governments may use to ensure BC delivers on its energy goals. It does so by establishing a series of measurable, performance based energy-efficiency requirements for construction that communities may choose to adopt when ready. The BC Energy Step Code requires progressively greater levels of energy efficiency. In 2022 the base building code required 20% more energy efficient buildings. The final two steps are as follows:

- 2027 - Buildings are 40% more efficient than 2018 BC Building Code requirements (Step 4 – Part 9 buildings, Step 3 – Part 3 buildings); and,
- 2032 - Buildings are 80% more efficient than 2018 BC Building Code requirements (Step 5 – Part 9 buildings, Step 4 – Part 3 buildings).

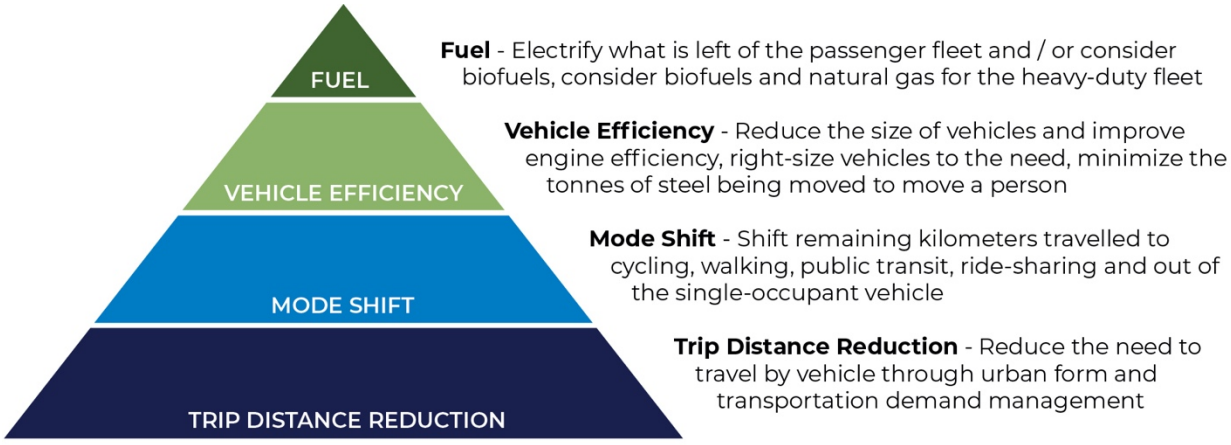
Net-zero energy buildings produce as much or more clean energy as they consume. They are up to 80 percent more energy efficient than a typical new building, and use on-site (or near-site) renewable energy systems to produce the remaining energy they need[15]. A net-zero energy-ready building is one that has been designed and built to a level of performance such that it could, with the addition of solar panels or other renewable energy technologies, achieve net-zero energy performance. The BC Energy Step Code will be an important part of improving building efficiency in Creston.

[15] Canadian Home Builders' Association. (n.d.). Net Zero Homes. Retrieved May 8, 2023, from https://www.chba.ca/netzero#:~:text=Net%20Zero%20Homes,the%20remaining%20energy%20they%20need.

Buildings & Infrastructure Objectives

The following buildings & infrastructure objectives encompass reduced energy demand, reusing waste heat, renewable heat sources, and renewable energy for electricity.

1. **Increase the use of renewable energy sources in new and existing buildings and infrastructure**
2. **Reduce energy demand in buildings and infrastructure through community design, green buildings, and energy efficient technology**
3. **Increase heat recovery to heat buildings and water**



Source SCEEP 2016

Getting There

Increase the use of renewable energy sources in new and existing buildings and infrastructure

Creston is committed to increasing the use of renewable energy sources in new and existing buildings and infrastructure. We recognize the importance of incentivizing the

adoption of renewable energy systems such as photovoltaic panels, geo-thermal systems, wind, and hydro-energy in buildings and infrastructure.

While many of our buildings and infrastructure are aging and may not have been designed with energy efficiency in mind, we believe that there are still opportunities to retrofit and upgrade these structures to incorporate renewable energy sources. To support this goal, we will support outreach and education programs to homeowners and businesses interested in energy-wise retrofit solutions. Additionally, we will explore regulatory measures that can incentivize the adoption of renewable energy systems, such as development cost charge decreases or zoning allowances for renewable energy installations.

Retrofitting existing buildings can come with a high price tag, and affordable housing is a growing challenge for many residents and newcomers. For these reasons, the Town will work to identify funding and financing options for the public to help make energy efficiency upgrades more accessible and affordable. Additionally, we will strive to ensure that these efforts are equitable and accessible to all members of our community, regardless of income or housing status.

To support our renewable energy goals, we will continue to promote the implementation of the BC Step Code and other policies to develop efficient buildings in new construction. By prioritizing energy efficient new development and promoting the adoption of renewable energy sources in existing buildings and infrastructure, we believe that we can reduce energy demand and increase our resiliency to climate change, while also supporting long-term cost savings for residents and businesses.

Reduce energy demand in buildings and infrastructure through community design, green buildings, and energy efficient technology

Creston is home to a mix of ageing buildings and new development. More than 1/4 of our residential buildings were constructed prior to 1960 and 1/3 of our homes were

constructed between 1961 and 1980[16]. Supporting retrofits through outreach, education, and regulatory measures will assist homeowners who are interested in energy-wise retrofit solutions.

Housing costs are many individuals' greatest expenses. In addition, renters typically do not have control of energy efficiency within their homes, even though many renters would highly benefit from a reduced utility bill. Increasing home efficiency will decrease costs in the long term. However, often these savings remain inequitable. There are several incentive and rebate programs provided through Fortis, BC Hydro, and different levels of government for individuals looking to improve their building energy performance. Increased building efficiency will likely lessen the burden of heating and cooling costs, and other energy needs.

Smaller, energy-efficient buildings, or clustered developments with shared walls, can reduce the demand for (and cost of) space heating and cooling thereby increasing building efficiency. Supporting infill development in existing neighbourhoods, where existing services are provided, can help reduce our carbon pollution. Denser development also supports small home development or multi-family development, reducing the energy requirements per household. Encouraging small footprint home development supports low energy demand housing.

Creston's OCP and Building Bylaw support the implementation of the BC Step Code and contain several other policies to develop energy efficient buildings. The Town of Creston will continue to support sustainable new development; however, a particular focus will

[16] RDCK Housing Needs Report: Town of Creston Community Summary (2020)
https://www.rdck.ca/assets/Government/Documents/01_Creston_Community_Summary.pdf

be paid to our existing buildings by looking for avenues to support equitable energy upgrades.

Reducing building energy use will result in long-term savings for residents and businesses. In addition, creating efficient buildings will create resilient buildings in the face of extreme weather events and temperatures that are expected to increase due to climate change. Increasing building efficiency is the second largest opportunity for transitioning to renewable energy.

Increase heat recovery to heat buildings and water

Improving heat recovery to heat buildings and water will be a key strategy in the Town of Creston's efforts to increase energy efficiency and reduce GHG emissions.

Heat recovery is the process of capturing and reusing heat that would otherwise be lost, typically through exhaust gases or waste heat from industrial processes. When applied to buildings and water heating systems, heat recovery can offer significant benefits in terms of energy efficiency and cost savings.

In buildings, heat recovery can be achieved by installing a heat recovery ventilation (HRV) system, which recovers heat from exhaust air and uses it to preheat incoming fresh air. This can help to reduce the amount of energy needed to heat the building, leading to lower energy bills and a reduced GHG emissions. Similarly, waste heat from industrial processes can be captured and used to heat water for use in the building or for other purposes such as washing or cleaning.

By implementing heat recovery systems, building owners and industrial operators can make their operations more environmentally sustainable while also enjoying the economic benefits of reduced energy costs.

Actions

In order to achieve the West Coast 100% Renewable Energy Plan's targets, the following short-term, medium-term, and long-term building & infrastructure actions have been established:

Current/ Ongoing:

- Organize seminars on energy-efficient construction in Creston for builders and property owners
- Promote incentives and funding programs for energy-efficient building upgrades
- Offer technical assistance and resources to help building owners and operators understand the BC Energy Step Code requirements

Short-term:

- Encourage the use of renewable energy sources such as solar, wind, hydro, and geothermal through educational resources and incentive programs
- Offer Development Cost Charge reductions for energy efficient developments
- Assist educational endeavors to guarantee that the construction industry can meet Step 4 and 5 standards of the BC Energy Step code once it is completely implemented by the Province
- Increase the use of local, renewable resources such as utilizing solar power more, or accessing energy from Creston's excess biomass materials
- Expand community garden space and plant more native species in unused grass spaces such as boulevards
- Consider using voluntary financing methods, such as Local Improvement Charges, to offset the costs of installing solar energy systems
- Evaluate altering the rebate structure for the Woodstove Exchange Program
- Research ways to bring lower carbon footprint building materials to Creston

- Conduct a Creston specific feasibility study for alternative energy sources, including district energy, micro-hydro on water supply, biomass, photovoltaics, geothermal, etc.
- Provide an energy advisor rebate for developments that meet Step 4 or 5 of the BC Energy Step Code
- Partner with an Energy advisor to develop a cost-effective energy-efficient housing checklist and preferred applications for the area
- Offer free blower door test to any home builder who receives a building permit for a detached house, duplex, or townhouse project that meets Step 4 or 5 of the BC Energy Step Code
- Amend zoning bylaw floor area ratio to exempt the area occupied by additional wall insulation for homes that achieve Step 4 or 5 of the BC Energy Step Code
- Relax maximum building heights to support deeper insulation in the roof assembly and foundation for homes that achieve Step 4 or 5 of the BC Energy Step Code
- Consider reducing permit fees for energy-efficient retrofit construction, such as improved envelopes, high-efficient windows, and solar panels
- Create an energy-labeling incentive for homes to specify it's new home performance
- Update zoning bylaws to promote infill development
- Adopt a high-efficiency accessory dwelling unit design to expedite infill development
- Investigate the use of land use planning tools to preserve and support multi-family development
- Explore policy options and procedures to detect water leaks within Town Infrastructure
- Examine the possibility of electrifying small-scale public works equipment such as mowers, weed-whackers, hedge trimmers, and leaf blowers
- Monitor energy usage at Town facilities through development of an energy dashboard

- Work with the development community to encourage green building practices including deconstruction, reduced waste generation, and the energy efficient use of resources during construction for all buildings
- Consider a revitalization tax exemption program for buildings with improved energy efficiency

Medium-term:

- Implement energy benchmarking and reporting programs to monitor and reduce energy consumption in Town of Creston buildings
- Retrofit Town-owned Infrastructure to become more energy efficient based on results of feasibility study
- Complete a Town-wide retrofit needs assessment (residential and commercial), and develop a corresponding support program and implementation plan

Long-term:

- Incorporate green infrastructure, such as green roofs, rain gardens, and permeable pavements, into urban design
- Foster energy-efficient residential infill development and densification within serviced areas, focusing on the Residential Growth Containment Area (RCGA)
- Support the development of district energy systems that provide heating, cooling, and hot water for multiple buildings from a central source
- Identify opportunities for eco-industrial park development

Waste

Waste is related to climate change in several ways. Firstly, when waste is sent to landfills, it decomposes and releases methane, a potent GHG, into the atmosphere. By diverting waste from landfills through reduction, reuse, and recycling, the amount of methane released into the atmosphere can be reduced.

Secondly, the embodied carbon of products and materials used in construction and other industries contributes to our overall carbon footprint. By reducing waste and diverting materials from landfills, Creston can reduce the embodied carbon associated with these materials. Promoting the use of low-carbon materials can further reduce the embodied carbon of new development in the community. These actions can help Creston achieve its climate action goals while also promoting a more circular economy.

Lastly, waste diversion can help recover valuable materials like organic waste (e.g. agricultural waste, food waste, yard waste, and forestry residues), which can be transformed into biofuels or other bio-based products through processes like anaerobic digestion or gasification. This provides renewable energy sources, reduces reliance on fossil fuels, and decreases GHGs. Overall, waste diversion is an important strategy in mitigating climate change and reducing our carbon footprint.

To move towards zero waste, the following 5R pollution prevention hierarchy is a useful planning tool, where opportunities for reduction and reuse of materials should be exhausted before exploring opportunities for recycling (reduce, reuse, recycle, recovery, residuals management).

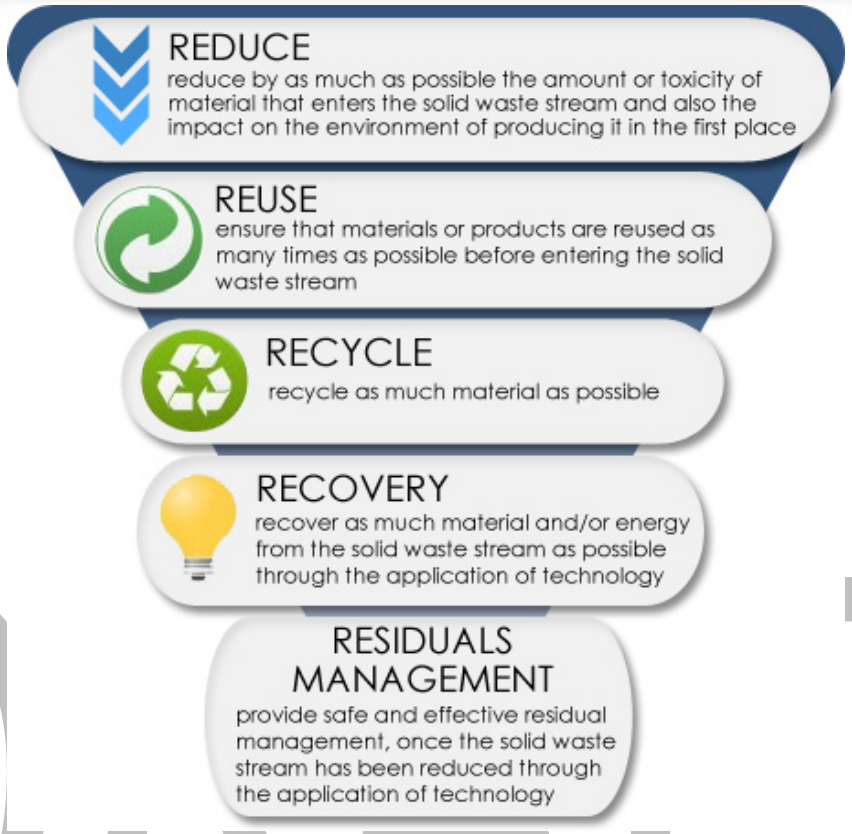


Photo by BC Provincial Government

"The pollution prevention hierarchy supports a circular economy approach which can create jobs, promote innovation that provides a competitive advantage and help to protect people and the environment. In a circular economy resources are never tossed, but instead are reused, recycled and reintroduced as new products. All with a focus on clean technology and energy efficiency."
https://www2.gov.bc.ca/gov/content/environment/waste-management/zero-waste

Current Situation

By sector (Waste, Transportation, Buildings), waste accounted for approximately 1916 CO2e (5%) of emissions in 2020. Under the BAU scenario, by 2030, it is estimated that waste will contribute 1978 CO2e tonnes of emissions[5].

BC has the second-lowest per capita municipal solid waste disposal rate in Canada[17]. However, we can always look for areas to improve. The Creston landfill (which supports the East sub-region) received approximately 6877 tonnes of solid waste in 2020[18]. Reducing the amount of waste generated has a positive business case, and in BC, there is a provincial waste disposal target to lower the municipal solid waste disposal rate to 350 kg per person to reduce waste on land and in the marine environment. In 2022 in the East Kootenays, the waste disposal rate was 590 kg per person of municipal solid waste[19].

There are various approaches to waste reduction, including minimizing the amount of waste generated and maximizing the utilization of waste. In Creston, we collaborate with the RDCK and neighboring communities to develop innovative services and solutions for waste reduction in the greater Creston Valley. The RDCK Resource Recovery Plan is designed to prioritize the repurposing, reuse, or recycling of waste before resorting to landfilling, in order to minimize the amount of waste that ends up in landfills.

The Creston landfill is expected to close in 2050 with an anticipated cumulative waste volume of 801,664 m3[20]. Continued use of the site is dependent on receiving approval from the Province. The RDCK hopes to acquire additional land around the site to extend

[17] Statistics Canada. (2016). Waste management industry survey: Business and government sectors, 2014. Retrieved April 21, 2023, from https://www150.statcan.gc.ca/n1/pub/16-002-x/2016002/article/14672-eng.htm

[18] RDCK Resource Recovery Plan DRAFT (2021). https://www.rdck.ca/assets/Services/Waste~and~Recycling/Documents/FINAL_RRP_26May2021.pdf

[19] Government of British Columbia. (2022). Municipal Solid Waste: Sustainability Indicators. Retrieved from https://www.env.gov.bc.ca/soe/indicators/sustainability/municipal-solid-waste.html

[20] Regional District of Central Kootenay. (n.d.). Creston Landfill. Retrieved from https://www.rdck.ca/EN/main/services/waste-recycling/waste-disposal/creston-landfill.html

the buffer between the landfill operation and surrounding land uses. It is important to keep our waste to a minimum, because once the landfill reaches capacity, Creston will likely have to divert waste to surrounding communities such as Castlegar. At 125km away, this is not only significant in terms of emissions output, but also in terms of cost.

Creston's newly implemented curbside collection program helps to reduce Creston's waste. Community compost and waste diversion can reduce GHG emissions while providing sources of compost for residential, commercial, and industrial uses. The Curbside Collection Service is designed to meet local needs better and divert waste from the landfill. The Town of Creston aims to reduce waste by:

1. Supporting yard waste diversion programs to reduce organics in the waste stream; and,
2. Finding ways to reduce waste within municipal operations.

In 2022, the year of program launch, total material diverted from the landfill was 46.3% and landfill cost savings resulting from curbside organic and recycling division options was approximately $15,000. Creston's Diversion Goal is 60%. Let's keep working towards additional savings!

Waste Mitigation Objectives

The following waste mitigation objectives encompass reduced energy demand, reusing waste heat, renewable heat sources, and renewable energy for electricity.

1. **Utilize products designed for a longer and higher quality of life and that have a lower carbon footprint through production processes**
2. **Promote a circular economy by supporting a system where resources are used for as long as possible, and waste is minimized through reuse and recycling**
3. **Recover energy from waste through processes that produce heat and other, harnessable by-products**

Getting There

Disposal – Responsibly dispose of items that must inevitably be discarded in the landfill

Recover – Recovering energy through processes that produce heat and other by-products as a result

Reuse and recycle – Transforming undesirable objects into fresh materials, or engaging in cleaning, repairing, and refurbishing

Prevention – Utilizing products and systems that have a longer lifespan and are higher quality that have a low carbon footprint during manufacturing

Utilize products designed for a longer and higher quality of life and that have a lower carbon footprint through production processes

One way to reduce waste and GHG emissions is to promote the use of products that are designed to last longer and have a lower carbon footprint during production. By reducing the resources used during the production process, products can have less embodied carbon, helping to mitigate the environmental impacts associated with manufacturing. Manufacturers can achieve this by adopting practices such as reducing water usage in production, utilizing green energy sources such as solar or wind power, and incorporating recycled materials in their processes. Promoting the use of low carbon products can help to shift consumer behavior towards a more environmentally conscious mindset. By working with the community to support education and outreach efforts, we can raise awareness of the benefits of choosing low carbon products and encourage consumers to make more informed and eco-friendly purchasing decisions. Ultimately, by adopting a low carbon product design and consumption mindset, we can help reduce our impact on the environment and promote a more regenerative and sustainable way of living.

Promote a circular economy by supporting a system where resources are used for as long as possible, and waste is minimized through reuse and recycling

The goal of a circular economy is to create a closed-loop system in which resources are continually cycled back into the economy, reducing waste and minimizing the need for new resources, thereby reducing emissions.

To promote a circular economy, it is important to support practices that prioritize reuse and recycling. This can be done at both an individual and institutional level. Individuals can support a circular economy by choosing to buy products that are made from recycled materials or that have a longer lifespan. They can also participate in recycling programs and support businesses that prioritize environmental sustainability. Institutions, such as governments and corporations, can support a circular economy by implementing policies and practices that prioritize resource efficiency and waste reduction, like the Town's Curbside Collection Program.

As waste management becomes more complex, the RDCK and the Town's capital and operating costs increase. The RDCK will continue to make significant capital investments in the Resource Recovery System to meet regulatory requirements and service expectations. It will take longer to fill the landfill if we continue to divert wastes where we are able.

While promoting a circular economy is vital, we recognize that not everyone has equal access to the resources and opportunities needed to achieve this goal. Achieving a circular economy may be particularly challenging for individuals and communities who face equity challenges, such as low-income households or those living in areas without access to recycling facilities. To address these challenges, we will adopt an inclusive approach to promoting a circular economy.

Recover energy from waste through processes that produce heat and other, harnessable by-products

Recovering energy from waste through processes that produce heat and other, harnessable by-products is becoming an increasingly popular method for reducing waste and generating electricity. This process involves using various technologies to convert waste into usable energy, which can then be used to power homes, businesses, and other facilities.

The Town utilizes a process called anaerobic digestion to capture methane from the organic matter in wastewater. The methane gas is then used to heat the boilers at the treatment plant, which is one way to recover energy from waste. Methane is a potent GHG that is produced when organic matter breaks down in the absence of oxygen, such as in landfills and wastewater treatment plants. Instead of allowing this methane to escape into the atmosphere, it can be captured and used as a fuel source. It is important to ensure that the anaerobic digestion process is carefully managed to minimize emissions of other harmful gases, such as hydrogen sulfide.

Recovering energy from waste through processes that produce heat and other by-products has the potential to significantly reduce the amount of waste that goes to landfills while also generating renewable energy.

Actions

To ensure that the Town of Creston aligns with the West Coast 100% Renewable Energy Plan and meets municipal emissions targets, the following short-term, medium-term, and long-term waste mitigation actions have been established:

Current/ Ongoing

- Continue curbside collection program
- Collaborate with the RDCK to reduce contamination of organics so they don't end up in the landfill
- Educate on appropriate waste disposal practices
- Report annual statistics of the waste diversion program

- Work toward paperless practices; digitize Town practices
- Practice hot-in-place asphalt recycling
- Recycle winter aggregate collected during spring street sweeping
- Land apply de-watered Class B bio-solids through an approved engineered Land Application Plan from the Ministry of Environment and explore other alternatives for disposal of this waste
- Continue utilizing bio-gas from the bulk volume fermenter to power the Town boiler and explore additional options for biogas capture and use
- Effectively utilize resources owned by the Town by maximizing their lifespan and ensuring their prolonged usage

Short-term

- Limit the use of single-use items at staff and public events where possible
- Discourage burning grass and leaves and implement educational program to support this initiative
- Collaborate with the food service sector to explore the viability of a food waste prevention network of businesses and non-profit organizations
- Encourage and explore incentives for reuse of building supplies (e.g. restore non-profit business)
- Investigate alternative recycling options
- Investigate options for outdoor waste diversion bins in public spaces to reduce organics in municipal waste bins
- Explore waste heat utilization methods and technologies for integration into Town practices
- Endorse efforts that employ a lifecycle cost perspective to raise awareness and promote responsible behavior regarding the acquisition, consumption, and elimination of products
- Install heat recovery ventilation (HRV) units in Town buildings where appropriate
- Explore incentive options to assist Town residents to install HRVs

Medium-term

- Conduct research on methods to capture freshet and reuse it for municipal operations that require non-potable water
- Explore regulatory options to encourage waste diversion from commercial sectors

Long-term

- Foster a culture of waste reduction, where waste is seen as a valuable resource and efforts are made to minimize waste generation, promote resource recovery, and support sustainable waste management practices
- Create and execute a "Deconstruction Strategy" in collaboration with regional partners that promotes the reuse and recycling of construction and demolition waste
- Encourage and support the development of waste-to-energy facilities, such as incinerators that can safely and efficiently manage the community's waste stream

Leadership & Education

In addition to reducing our footprint by increasing our energy efficiency in transportation, buildings, and waste, Creston can take other measures to reduce GHG emissions and support 100% renewable energy. These actions include integrated sustainable development, carbon sequestration, and water conservation. These organizational moves demonstrate leadership and set precedence for future projects, community development, and place-based solutions.

The Town of Creston has a vision of a community that works together to enhance the quality of life, now and into the future, for the Creston Valley. The Town of Creston's mission is to exhibit strong leadership by providing excellent public service and value through good governance, continued improvement, and maintaining a strong sense of community. We can do this by embracing opportunities for growth that enhance our quality of life, and nurturing and preserving pride in our arts, culture, heritage and lifestyle amenities.

Current Situation

The Town of Creston and community is actively engaged in promoting climate awareness and education. With a focus on leadership, the Creston community is encouraged to take ownership of their individual and collective actions to reduce their carbon footprint. The CCAP includes a range of initiatives aimed at promoting low-carbon living, reducing waste, and increasing energy efficiency. The Town recognizes that climate action requires leadership and education at all levels, including local government, businesses, and individual residents.

Creston has taken a leading role with initiatives such as the Curbside Collection Program and Water Reduction Program, but there is still work to be done. To further advance the Town's climate action efforts, new strategies and partnerships to accelerate the transition to a low-carbon future will be explored. The Town is actively seeking funding opportunities to support innovative projects and initiatives that promote renewable

energy, energy efficiency, and zero to low emission transportation. The Town is also working closely with neighboring communities and the RDCK to develop regional solutions and strategies to reduce GHG emissions and promote energy efficient and low carbon development. Through collaborative efforts and a commitment to climate action, Creston is well-positioned to achieve its long-term sustainability goals.

Leadership & Education Objectives

The following leadership & education objectives encompass integrity, accountability, learning, and sharing.

1. **Foster collaborative efforts with strong ethical behaviour and a culture of learning**
2. **Promote truthful and reliable information while working to increase awareness among diverse community groups**
3. **Demonstrate accountability by prioritizing long-term, environmentally-friendly practices that reduce GHG emissions and contribute to a healthier and more resilient community**

SHARING
Foster a culture of learning by encouraging conversation and developing platforms for sharing information and ideas

LEARNING
Problem solve through an informed understanding to arrive at optimal solutions

ACCOUNTABILITY
Lead by assuming ownership and accountability

INTEGRITY
Be an effective leader by demonstrating strong, ethical behavior

Getting There

Foster collaborative efforts with strong ethical behaviour and a culture of learning

Now more than ever, the Town's collaboration with other levels of government, First Nations, business community groups, and the public is crucial for addressing climate change as the sum of our coordinated efforts is greater than the input of any individual group. Climate change is a complex and multifaceted problem that requires action from governments, businesses, non-profit organizations, and individuals alike. By working together, resources, expertise, and ideas can be pooled to develop more effective and comprehensive solutions. The effects of climate change, including trauma from natural disasters, have far-reaching implications on economy, culture, health and well-being. This is not just an immediate concern, but a concern far into the future if nothing is done.

Municipalities, in particular, play a critical role in addressing climate change because they are responsible, in whole or in part, for managing many of the systems and services that contribute to GHG emissions, such as transportation, waste management, and energy production. However, municipalities often lack the resources and capacity to address these issues on their own. By collaborating with other organizations and individuals, the Town can leverage their strengths and expertise to develop more effective and innovative solutions.

Moreover, collaboration can help ensure that solutions are more equitable and inclusive including marginalized communities that are disproportionately impacted by climate change.

Promote truthful and reliable information while working to increase awareness among diverse community groups

The Town of Creston aims to prioritize transparency by making sure that all information concerning the CCAP is easily accessible to the public, and is both accurate and reliable. The Town will make this information publicly available through various mediums such as the Town's website, social media, and public forums. The Town can also collaborate with local community groups and organizations to reach out to underrepresented or marginalized groups and involve them in the implementation of this Plan.

Additionally, the Town can focus on communication strategies that are inclusive and accessible to a wide range of community members, including those who may have limited access to technology. This may include offering plain-language summaries of technical information, and using diverse communication channels to reach different audiences.

To build trust with organizations and individuals, the Town is open to feedback for incorporation into this plan and for ongoing implementation. The Town encourages participation from diverse voices in the community to ensure that the CCAP reflects the needs and priorities of all residents. Lastly, the Town partners with credible experts and organizations to validate the information and ensure that it is supported by scientific evidence.

Demonstrate accountability by prioritizing long-term, environmentally-friendly practices that reduce GHG emissions and contribute to a healthier and more resilient community

The Town of Creston aims to achieve ambitious targets for reducing GHG emissions and implement the policies needed to achieve them. To ensure accountability for actions taken, the Town plans to establish a clear framework for monitoring and reporting progress towards the targets and goals outlined in the CCAP. This will include setting up a regular reporting cycle to assess progress and evaluate the effectiveness of individual actions and strategies.

The Town will continue to engage with the community to solicit feedback and input on the Climate Action Plan, and its implementation, through community engagement events. This will help ensure that the plan reflects the community's needs and priorities and is being implemented in a way that is responsive to their concerns.

To track its progress towards climate goals and pinpoint areas for improvement, the Town can utilize available data on GHG emissions while also collecting new information. By examining both old and new data, the Town can identify emission patterns and assess the effectiveness of previous and future efforts towards mitigating climate change. This analysis can be valuable for devising new strategies and measures aimed at achieving further reductions in emissions.

Finally, the Town plans to work collaboratively with the community, including local businesses, non-profit organizations, First Nations, and educational institutions, to share information, resources, and best practices. By building partnerships, the Town aims to enhance the effectiveness of its actions and increase its capacity to achieve its goals and objectives outlined in the CCAP.

Actions

In order to achieve the West Coast 100% Renewable Energy Plan's targets, the following short-term, medium-term, and long-term leadership & education actions have been established:

Current/ Ongoing:

- Apply a climate lens to the Town's Strategic Priorities, which will subsequently inform the decisions made by Staff and Council
- Promote the use of renewable energy technologies

Short-term:

- Update applicable OCP policies to align with this plan

- Modify the procurement policy at the Town of Creston to consider a lifecycle cost lens when purchasing
- Display the CCAP on multiple platforms for accessibility
- Engage with youth in the community on climate change initiatives
- Encourage community involvement on climate action through public forums and workshops
- Monitor and evaluate progress towards climate action goals within the Town of Creston's annual report
- Consider developing a policy to protect mature trees in the Town of Creston
- Partner with local organizations for joint education, outreach initiatives, and climate action implementation
- Partner with a local organization to create a native and drought-resistant plant guide for use in a future tree planting initiative
- Foster a culture of environmental leadership and sustainability by recognizing and rewarding individuals and organizations who demonstrate leadership in climate action
- Develop and update policy while applying a climate lens
- Create a 'Climate Action Hub' that provides information on climate change data, ways to prevent climate change, and energy rebates
- Provide an annual climate workshop for municipal staff
- Advocate to the Province of BC to negotiate lifecycle costing into the New West Trade agreement
- Explore opportunities to divest municipal pension plans from fossil fuels
- Conduct a renewable energy feasibility study
- Engage with the public through printed and social media to build common knowledge base and promote climate initiatives and opportunities

Medium-term:

- Incorporate a Climate-guided Development Permit Area into the OCP

Long-term:

- Engage with the RDCK to explore collaborative district energy options
- Create a supportive environment for the growth of green jobs and the development of a green economy

Adaptation & Resiliency

Resiliency refers to the ability of a system or community to cope with and recover from the impacts of climate change. This includes both natural and built systems, as well as social and economic systems. Resiliency efforts focus on preparing for and responding to the impacts of climate change in order to minimize damage, save lives, and maintain the functioning of critical systems. Adaptation, on the other hand, refers to the process of adjusting to the impacts of climate change that are already happening or are likely to occur in the future. Unlike resiliency, which is focused on preparedness and response, adaptation is about coping with the effects of climate change that cannot be avoided.

While resiliency and adaptation are related concepts, there are some key differences between them. One way to think about it is that resiliency is about being able to withstand and recover from impacts, while adaptation is about changing in response to those impacts. Both resiliency and adaptation are important components of climate action, and both are needed to create an environmentally sustainable and resilient future.

The purpose of the section is to provide a general idea of some measures that can be taken to build resilience to the impacts of climate change, but it is not intended to be a comprehensive guide. Resiliency and adaptation are significant measures to be considered in the face of the potential impacts of climate change which includes extreme weather events such as droughts and flooding, rising temperatures, and changes in ecosystems.

Current Situation

There are an abundance of examples that illustrate the necessity of incorporating resiliency planning at the community level, listed below are a few recent events of note:

- In November 2021, an atmospheric river event brought two days of intense precipitation to southwestern BC. This event and associated antecedent

  conditions caused a number of landslides in the region, resulting in at least five fatalities, environmental damage, loss of property and livestock, and economic hardship.

- In June/July 2021, the Village of Lytton, BC was engulfed by a wildfire that destroyed nearly the entire Village and claimed two lives following record breaking temperatures and strong wind.

- In May 2016, a massive wildfire swept through Fort McMurray, Alberta, destroying more than 2,400 homes and buildings and forcing the evacuation of nearly 90,000 people. The wildfire was fueled by a combination of high temperatures, low humidity, and strong winds, all of which are expected to become more frequent and severe due to climate change.

- In June 2013, heavy rainfall caused severe flooding in Calgary, Alberta, damaging thousands of homes and businesses and causing billions of dollars in damages.

- In December 2013, a severe ice storm hit Toronto, Ontario, causing widespread power outages and damage to trees and infrastructure.

- Coastal erosion is an ongoing issue in Tuktoyaktuk, a community in the Northwest Territories that is facing the impacts of climate change, including sea level rise and melting permafrost. The community has been working to build resilient infrastructure, such as shoreline protection systems, and to adapt to the changing environment in order to protect their homes and way of life.

- In July 2010, a heat wave hit Montreal, Quebec, causing dozens of deaths and overwhelming emergency services.

- Drought has become an ongoing issue in Saskatchewan, where farmers and communities are facing the impacts of changing precipitation patterns and increasingly arid conditions.

The devastating impacts of natural disasters, such as wildfires, floods, and heat waves, are felt by communities across Canada and demonstrate the urgent need for action.

Collaboration with organizations and individuals is essential to leverage resources, expertise, and ideas to develop more effective and comprehensive solutions. By working together, the Town can implement innovative solutions that not only reduce GHG emissions but also address the impacts of climate change on the community, including marginalized communities that are disproportionately impacted.

Adaptation & Resiliency Objectives

1. **Develop adaptation strategies to prepare for the evolving impacts of climate change**
2. **Create and implement resiliency plans to withstand the impacts of climate change**

Getting There

Develop adaptation strategies to keep up with the evolving impacts of climate change

Adaptation strategies are measures that communities can take to adjust to the changes that are already happening or that are expected to occur as a result of climate change. These measures can include changes in infrastructure, land use planning, emergency management, and other areas. For example, the Town of Creston may need to redesign buildings and infrastructure to withstand more extreme weather events, or modify land use practices to better protect against flooding or erosion.

As the impacts of climate change become increasingly severe, it is crucial for the Town to develop adaptation strategies that can help us cope with and respond to these changes. It is critical for us to have a deep understanding of our vulnerabilities. As the Town continues to gather more climate and emissions data and implement changes, we will gain a greater understanding of what is required to be adaptive and resilient to climate change.

Create and implement resiliency plans to withstand the impacts of climate change

Resiliency plans involve measures that can be taken to prepare for, withstand, and recover from the impacts of climate change. These measures can include changes to infrastructure, the development of emergency management plans, the implementation of land use policies, and other actions that can help build community resilience. For example, the Town of Creston may need to invest in more robust stormwater management infrastructure to better cope with the increased risk of flooding, or develop emergency response plans to deal with extreme weather events.

The Town of Creston's success in reducing water consumption is a great example of the importance of building resilience in the face of climate change. As the climate becomes more unpredictable, it is crucial for communities to take steps to prepare for the impacts of climate change and reduce their vulnerability.

The Town of Creston is surrounded by abundant water sources. A changing climate makes this finite resource far less predictable. During the summer months, water consumption increases by up to 50%, and during arid times, water can be used faster than the Arrow Creek system can refill it. The Town of Creston and the Regional District of the Central Kootenay, and Columbia Basin Trust, established a water conservation strategy. This program aims to reduce basin-wide water consumption by 20% based on 2009 water consumption. The Town of Creston was able to not only reach this target by

2018, but to exceed it by decreasing water consumption by 23% in 2018, and has been consistently exceeding the 20% target since. In 2022, water consumption was 27% less than the 2009 baseline. This is a tremendous success achieved by the Town of Creston and residents. In addition to reduction, the Town has ensured that we have back up ground water pumping capacity to completely replace our gravity system if Arrow Creek was ever unable to keep up with demand.

In the case of the Town of Creston, the water conservation strategy was a crucial step towards building resilience. By reducing water consumption, the Town delayed the need for costly infrastructure upgrades, minimized the impact on energy bills, and continues to ensure the sustainable use of this finite resource.

To become a resilient community, the Town will need to take a variety of measures, such as improving infrastructure, promoting sustainable practices, and enhancing emergency response plans. The ultimate objective is to ensure that the Town can continue to function and thrive in the face of climate change events.

Actions

To ensure that the Town of Creston aligns with the West Coast 100% Renewable Energy Plan and meet municipal emissions targets, the following short-term, medium-term, and long-term adaptation & resiliency actions have been established:

Current/ Ongoing:

- Implementation of the Wildfire Protection Plan

Short-term:

- Explore ways to motivate organizations and individuals to actively participate in the development of resilient infrastructure

- Develop a stormwater plan to minimize the negative impacts of stormwater runoff and maximize benefits such as groundwater recharge and maintaining streamflow
- Develop a flood management plan to reduce the potential for flooding and to minimize the negative impacts of floods on people, property, and the environment
- Develop an extreme weather response plan to help the Town organize and respond to extreme weather events
- Develop a recovery plan to restore normal operations and recover from a disruptive event or crisis, such as a natural disaster caused by climate change
- Develop incentives or rebates to promote water use reduction (e.g. rain barrel rebates)

Medium-term:

- Implement stormwater, flood management, extreme heat, and recovery plans

What's Next?

Climate action is a vital and pressing matter that requires immediate attention and action. The future of our planet and generations to come depend on it. The good news is, it's not only a responsibility, but also an opportunity to drive positive change and improve the world we live in. From reducing energy consumption to adopting environmentally friendly practices, every small effort when combined can make a big impact. This is a time for bold and decisive actions to address the pressing challenge of climate change and create a lasting legacy of a cleaner and healthier planet.

It's crucial that we come together and work as a global community to drive progress and implement solutions that can help reduce GHG emissions and mitigate the effects of climate change. The impact of our actions today will shape the world we leave for tomorrow.

There are already many existing works of innovation and collaboration, locally and globally, that can inspire us to move forward toward climate action. Some of these initiatives include:

- The Great Bear Rainforest Carbon Project: A forest conservation and carbon offset project located in the Great Bear Rainforest in BC. The project is a collaboration between the Province of BC, First Nations, and environmental organizations, and aims to protect forest and wildlife while generating carbon offsets for sale in national and international markets.

- The Kimberley Solar Farm: A community-led project in Kimberley, BC that is helping to reduce GHGs. The solar farm was built through a partnership between the City of Kimberley, EcoSmart, and Teck Resources Ltd., and it generates enough clean energy to power approximately 250 homes.

- The Ocean Cleanup: A project that is developing advanced technologies to remove plastic pollution from the world's oceans. The project uses a passive drifting system that collects plastic debris using ocean currents. The Ocean Cleanup now has technologies to intercept plastic in rivers before it reaches the ocean, and technologies to remove the plastic that is already out there.

- Vertical Farming: Vertical farming is a method of growing crops in vertically stacked layers, using artificial lighting and climate control systems. This technology can significantly reduce land use and water consumption while increasing food production in urban areas.

- The Great Green Wall: The Great Green Wall is a project that aims to combat desertification in the Sahel region of Africa by planting an 8000 km green belt of trees and vegetation across the continent. The project has the potential to provide food security, create jobs, and combat climate change. The GGW initiative's ambition is to restore 100 million hectares of currently degraded land and sequester 250 million tons of carbon.

- Solar-Powered Desalination: Solar-powered desalination is a technology that uses solar energy to power the desalination of seawater, providing a sustainable source of freshwater in regions with limited access to water.

- Carbon Farming: Carbon farming involves using land management techniques to increase carbon sequestration in soils and vegetation. This can help to mitigate GHGs and improve soil health and productivity.

- The Powerhouse Kjørbo: The Powerhouse Kjørbo is a building in Norway that produces more energy than it consumes, using a combination of solar panels, geothermal energy, and energy-efficient design features.

We can harness the power of innovation, collaboration, and determination to ensure protection of our environment and natural resources. The Town of Creston will begin working on actions within the “Big Moves”. We will also be engaging with experts to collect new climate data, develop indicators, and work to understand which actions are most impactful. We will continue to communicate our climate goals and action status equitably with the community and keep you informed on our progress, so you know where we are going next.

As we embark on the CCAP, it's important to acknowledge the flexibility of this plan. We understand that new information and technologies will emerge, and that circumstances may change. We must remain adaptable and open to modifying our strategies as needed to ensure that we stay on track to meet our climate goals. We will continue to monitor our progress, assess the effectiveness of our actions, and make changes accordingly. This fluidity and adaptability are crucial to the success of our plan and to achieving a cleaner and healthier planet for future generations. So, while we have a plan in place, we also recognize that it will evolve with us as we learn and grow.