



CITY OF VICTORIA

2019 CLIMATE ACTION STRATEGY –

PROPOSED PROGRAMS AND INITIATIVES

COTW Nov 14, 2019



OVERVIEW

- Climate Emergency
- City Leadership
- Policy Directions
- High Impact Initiatives
- Recommendations

Climate Leadership Plan Overview



BUILDINGS

Page 24

- » All buildings are highly energy efficient.
- » All buildings are powered by renewable energy.



MOBILITY

Page 34

- » All Victorians have access to low carbon, high-performance and affordable multi-modal transportation.
- » Vehicles in Victoria are powered by renewable energy.
- » Smart land use minimizes transportation emissions.



WASTE MANAGEMENT

Page 42

- » Organic materials are managed to avoid GHG emissions.



MUNICIPAL OPERATIONS

Page 48

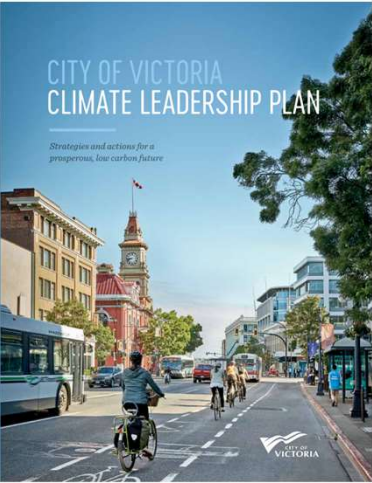
- » The City is a recognized leader in climate mitigation and adaptation.
- » The City takes integrated and informed climate action.
- » The City will provide timely and accurate data supporting strong climate mitigation and adaptation actions.



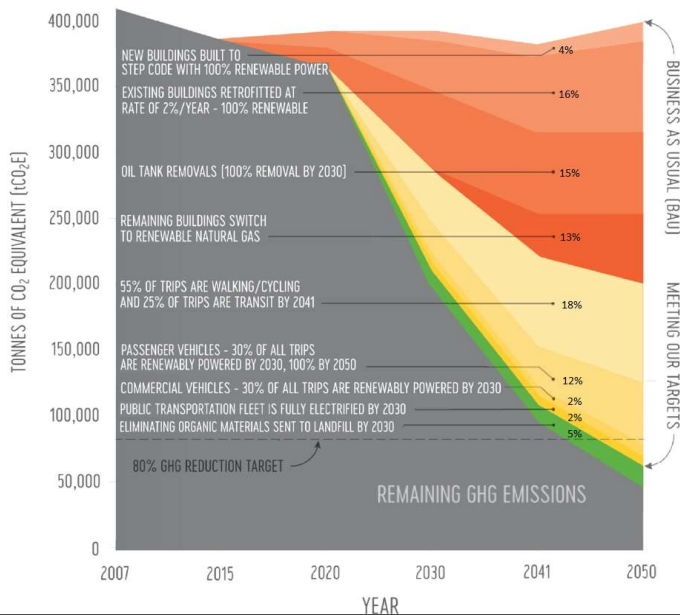
ADAPTING EARLY

Page 54

- » All climate-related risks to city infrastructure are minimized through early planning and action.
- » Victoria's natural environment flourishes in a changing climate.
- » All Victorians are empowered and prepared for climate impacts and emergencies.



Pathways to 2050 GHG Reduction Targets



Highest impact areas:

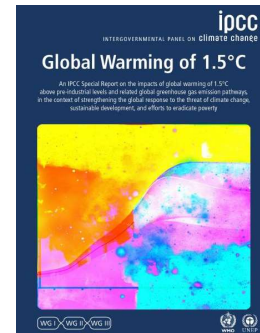
- **Building Retrofits: 31%** of total GHG reduction potential (including oil tank removal)
- **Low Carbon Mobility: 34%** GHG reduction potential (active transportation, transit mode shift, electrification)



(CLP, p. 16)
(CoTW, p. 8-9)

Climate Urgency, Climate Emergency

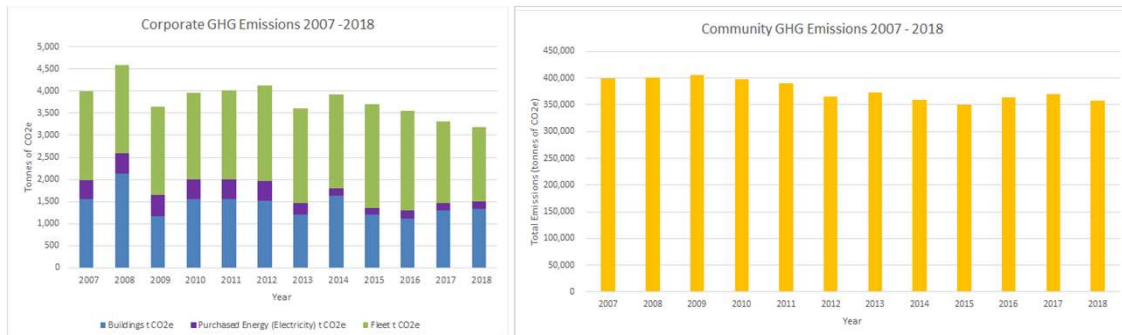
- Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels
- Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate
- 11 years to keep warming to a maximum of 1.5°C. Half a degree will significantly worsen the risks of drought, floods, extreme heat and poverty for hundreds of millions of people
- Increasing public demand for bold climate action worldwide and locally



CLIMATE LEADERSHIP PLANNING PRINCIPLES

- 1 Lead and inspire** – The City will be a regional and national leader on climate mitigation and adaptation. It will take urgent action to drive innovative GHG reductions, creatively and collaboratively with other leaders and key stakeholders.
- 2 Harmonize climate action to secure co-benefits** – GHG reduction actions should be integrated with all other priority areas for City planning, including health, safety, and environmental protection, affordability, and quality of life.
- 3 Universal accountability** – All Victorians (residents, businesses, employees, and visitors) have a role to play in improving GHG performance, and should be encouraged to take meaningful action.
- 4 Make energy visible** – Our community's energy use, GHG performance, and climate impacts must be clearly known to drive effective change.
- 5 Evidence-based decisions** – Energy and GHG decisions should be socially-minded, cost-effective and supported by science, including a full, life-cycle understanding of relevant issues and technologies. ●
- 6 Renewable energy for all** – Our entire community, regardless of circumstances, must have access to efficient, affordable and renewable energy options.
- 7 Dismantle barriers** – The City will remove barriers preventing rapid decarbonisation of our energy mix by supporting policies that support smart energy choices and GHG-reduction behaviours. ●
- 8 Climate resilience is developed early** – Victoria must act with a sense of urgency and take early and meaningful action to avoid the most disruptive economic, social, and environmental impacts imposed by climate change.
- 9 Think globally, change locally, partner regionally** – Partnering and advocating across jurisdictional boundaries is key to achieving consensus and maximizing global GHG reductions.
- 10 Track and Adjust** – The City will measure, track and report on its targets and actions annually, making adjustments where required. ●

Victoria's GHG Emissions



Climate Leadership – Direct Action 2020

Fleet

- Fleet Master Plan initiated, priority vehicle replacements, corporate car share, fleet right sizing

Facilities

- Facilities Master Plan incorporating GHG reductions,
- Community Centre HVAC, All major facilities energy audited. City Hall Annex HVAC replacement (gas to electric heat pump),
- Crystal Pool planning 100% renewable energy

Public Infrastructure

- Installation of 6 Level 2 EV chargers downtown, additional chargers into parkades, first DC Fast Charger, EV ready regulations for new developments

• Project Management / Administration

- Procurement guidelines update, initial guidelines GHG tracking of procured goods and services

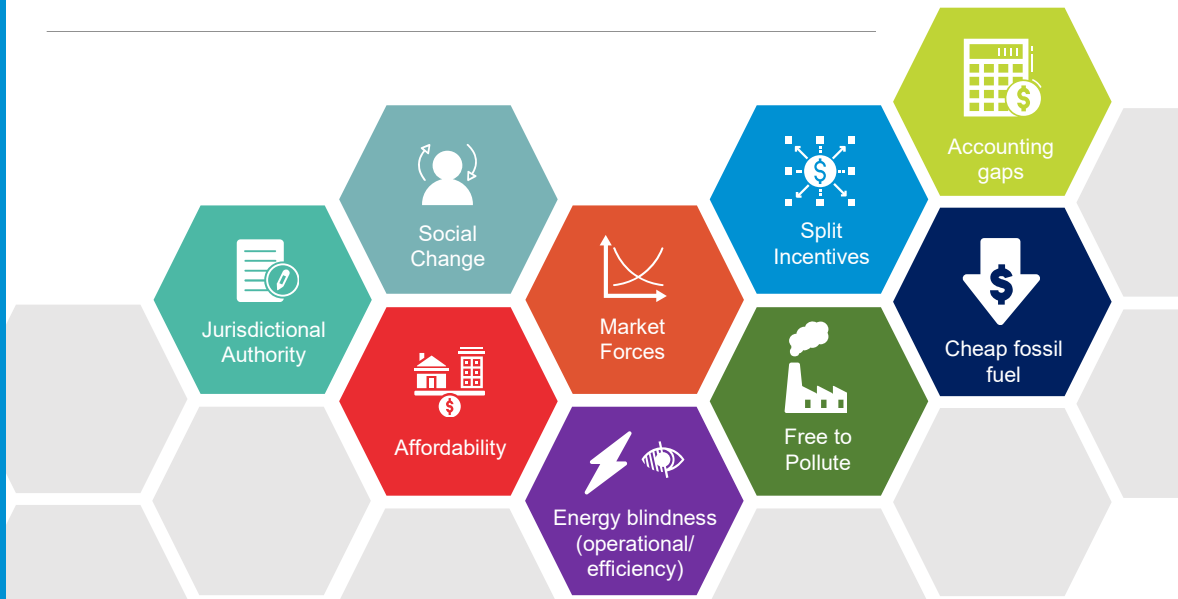
• Adaptation

- Adaptation strategy completed, continued investment in resilient underground infrastructure, coastal engineering studies completed, canopy cover targets established

• Buildings and Land Use

- Market Rental Revitalization pilot initiated, Capital Region Resilient 2030 District supported, Energy benchmarking program launched

Shared Climate Action Barriers



Climate Policy Directions – Accelerating Targets for a 1.5°C World

Complete, Compact, Low Carbon Communities

- Existing OCP and CLP target

Safe and Convenient Active Transportation and Transit

- Existing CLP target

Pollution Free Cars, Trucks and Buses

- Existing CLP target

Zero Emissions Building and Water Heating

- New, Exceeds current CLP target

Low Carbon Materials

- New, target to be established

Climate Resilient Ecosystems

- New, targets to be established



CLIMATE HIGH IMPACT INITIATIVES - Accelerating Actions for a 1.5°C World

1. OIL TO HEAT PUMP INCENTIVE PROGRAM
2. BUILDING RETROFIT PROGRAM
3. LOW CARBON STEP CODE
4. ACTIVE TRANSPORTATION INVESTMENTS
5. ZERO EMISSIONS MOBILITY INCENTIVES
6. SUPPORT FOR RAPID AND FREQUENT TRANSIT

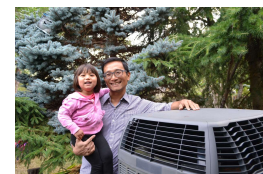
Oil to Heat Pump Incentive Program

Key Issues:

- ~1500 oil tanks in operation
- Trend = Oil switching to gas:
 - 116 switched to gas (2018)
 - 18 switched to heat pump with incentive (2018)
- Financial / Affordability:
 - Oil to heat pump: \$5K-\$10K
 - Oil to gas ~\$5000
- Current incentive program runs until 2022; falls short of financial gap

Priority Actions:

1. Improved incentives / rebates (up to \$6350 total)
 - a. Increase fuel-switching top-up **from \$350 to \$2000**
 - b. New electrical panel upgrade top-up of \$500
 - c. Top-up new equity incentive program (mid-2020 launch)
2. Accelerate oil removals through a variety of outreach strategies



Building Energy & Efficiency Retrofit Program



Key Issues:

- Aging building stock with poor energy performance,
- Lack of energy data,
- Complex planning obstacles,
- Competing costs and priorities,
- Low consumer awareness
- Lack of customer protections

Current Program Gaps:

- Energy Coach service is only guaranteed until fall 2022
- Full process support and bundled services required to realize benefits

Priority Actions:

1. Advocate for CRD priority or regional partnership program that provides basic and enhanced retrofit support services
 2. Develop program with essential program elements:
 - Regional
 - Impartial
 - Full service advisor, information and expert resource
 - Monitors and reports energy use and GHGs
- **Core Capabilities:** energy assessments, advisory/ coaching, retrofit subject matter experts, communications, market advisors, financial support programs.



Photo credit: HSPC



Low Carbon Step Code



Key Issues:

- BC Energy Step Code is a Building Code program for new buildings
 - defines mandatory energy efficiency targets that increase over time.
- Does not explicitly target GHG reductions; focuses on energy efficiency.

Low Carbon pathway

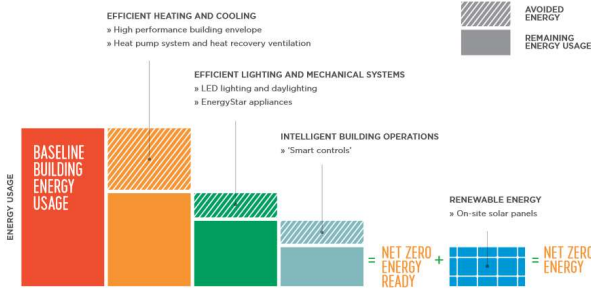
- Achieves lower carbon new builds, while still meeting Step Code requirements, at or before 2032.



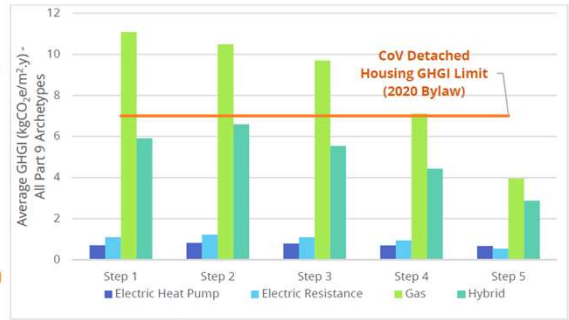
Stepwise Energy and GHG Improvements



EFFICIENCY FIRST BUT NEVER ALONE - THE STEPS TO NET ZERO ENERGY READY BUILDINGS



Adapted from Pena, R. (2014). Living Proof: The Built! Centre. <https://betterbricks.com/uploads/resources/living-proof-built-center-case-study.pdf>



Part 9 - GHGI Intensity by Mechanical System (average across all archetypes)



Low Carbon Step Code



CURRENT BUILDING BYLAW (with proposed Low Carbon Pathway in brackets)

SUBJECT TO FUTURE COUNCIL ADOPTION

	Building Permit applications filed on or after (with exception for in-stream applications)		Building Permit applications filed on or after	
	November 1, 2018	January 1, 2020	January 1, 2022	2025
Part 9 Residential				
Single-Detached, Duplex, a Townhomes	Step 1	Step 3 OR (Step 2 with Low Carbon Energy System)	Step 4 OR (Step 3 with Low Carbon Energy System)	Step 5 OR (Step 4 with Low Carbon Energy System)
Garden Suite	Step 1	Step 2	Step 3 OR (Step 2 with Low Carbon Energy System)	Step 4 OR (Step 3 with Low Carbon Energy System)



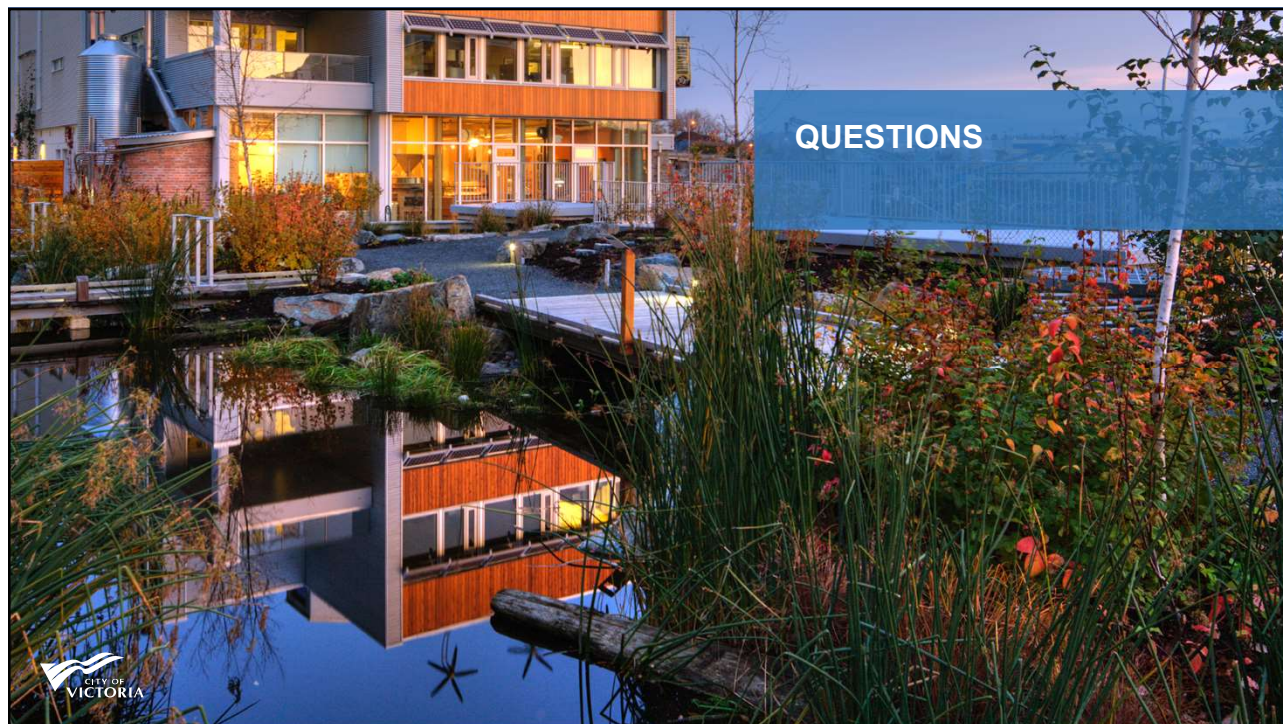
Summary

Highlights

- New BIG incentives to get off oil heating
- Accelerated step code adoption WITH a low-carbon pathway to avoid new build GHGs
- A new regional amenity to support home/building owners accelerate energy / emissions retrofits
- Continued, accelerated adoption of active transportation infrastructure
- Commitments and action-plans to deliver a new Bus Rapid Transit capability in the region to move more people, faster and cleaner
- Accelerated adoption of EVs for City vehicles
- Master plan for facilities and GHG reductions
- New incentives at the curb and in the roadway – more convenience and less cost for zero emissions mobility
- Increased charging infrastructure in public spaces
- New targets and strategies for low carbon materials, resilient ecosystems and future heating systems

Recommendations

As per the report



Recommendations

That Council:

1. Adopt the new accelerated climate action planning directions in the Policy Directions section of this report, and adopt the new climate targets that expand on the existing CLP directions, as follows:
 - a. Expand the CLP's target to include that after 2025, all new and replacement building heating and hot water systems are zero emissions, and report back in the fall of 2020 with additional strategies and considerations to achieve this target (Policy Direction #4);
 - b. Direct staff to develop a new city-wide, long-term target for 2030, related to the reduction of embodied-emissions from materials used by the municipality, and report back in the fall of 2020 with the initial targets and planning considerations (Policy Direction #5).
 - c. Direct staff to initiate planning for new targets related to municipal ecosystem performance to enhance the city's natural carbon sequestration and climate adaptation capabilities, and report back in 2020 with an update (Policy Direction #6)

Recommendations

That Council:

2. Adopt the strategies and directions contained within the *High Impact Initiatives* section of this report to meet the CLP and new policy direction objectives, which include the following:

- a. Oil to Heat Pump Incentive Program
- b. Building Energy and Efficiency Retrofit Program
- c. Low Carbon Step Code Program

And refer the responsibility to deliver Low Carbon Mobility High Impact Initiatives as part of the GoVictoria program in the following areas:

- d. Active Transportation Infrastructure
- e. Zero Emissions Mobility Incentives
- f. Zero Emissions Rapid and Frequent Transit Initiatives



Recommendations

That Council:

3. Consider allocating \$334,000 of ongoing operating funds in the 2020 financial planning process to support critical staff resources to deliver multi-year projects, as follows:

- a. Three full-time positions \$324,000
 - i. Community Energy and Emissions Specialist (EPW) (1FTE) transition to ongoing
 - ii. Fleet Energy and Emissions Specialist (EPW) (1FTE) new
 - iii. Building Energy and Emissions Specialist (SPCD) (1FTE) new
- b. Training and conference attendance (\$10,000)



Recommendations

4. Consider allocating \$1,025,000 in funding as part of the 2020 financial planning process, using available Climate Action Reserve Funds (CARF) \$460,000 and a \$565,000 2019 surplus allocation to fund non-CARF eligible initiatives. These funds support the High Impact Initiatives and financial impact section of this report, outlined as follows:

- a. **Oil to Heat Pump Incentive Program** (\$400,000 for fuel switching top up, electrical panel upgrades, equity top-ups and promotional materials, based on estimated uptake forecast):
- b. **Building Energy & Efficiency Retrofit Program** (\$35,000 for promotional work, minor top ups):
- c. **Low Carbon Step Code Program** (staff work only), and
- d. **Climate Action Program:** Priority investments to support the following work (\$590,000):
 - i. ICLEI Membership renewal (\$60,000/year - 3-year contract \$180,000 total)
 - ii. Climate action project management / administrative guidelines (\$50,000)
 - iii. Support to Market Rental Revitalization Program (\$30,000)
 - iv. Electric Vehicle (EV) chargers (Broad Street) - (\$50,000)
 - v. Parkade EV chargers (\$25,000)
 - vi. Village EV chargers (\$50,000)
 - vii. EV Infrastructure strategy development (\$25,000)
 - viii. Communication strategy development and implementation (\$60,000)
 - ix. Program matching funds – Zero Emissions Fed/Prov programs (\$75,000)
 - x. BOMA – Capital Region 2030 Resilient District year two grant (\$25,000)
 - xi. GHG Modelling and Consultant support (\$20,000)



Recommendations

That Council:

5. Direct staff to:
 - a. Complete the necessary administration to extend the current ICLEI partnership agreement, which houses the western Canada ICLEI representatives in the City, for another 3-year period, to the satisfaction of the City Clerk,
 - b. Bring forward a bylaw to apply an initial per-hour City EV charging fee of \$1.00 per hour, or as required, to ensure adequate parking turnover and availability for public use, and amend bylaw to the satisfaction of the Director of Engineering & Public Works.



Recommendations

And that Council:

6. Advocate to the Province, CRD, BC Hydro and other key stakeholders to designate Building Energy and Efficiency Retrofits as a regional infrastructure priority,
7. Advocate to the Capital Regional District for the immediate start-up of a regionally-led community energy/emissions retrofit program applying the principles and directions outlined in this report and drawing from international best-practice.
8. Advocate to the Province to amend the Community Charter to give BC municipalities the independent authority to manage issues of climate change, reflecting the importance and reality that these complex issues share environmental / social and economic dimensions that affect community well-being in an increasingly important and severe manner.
9. Advocate for a regional Climate Action Leadership Advisory Board with membership from industry, academia, community, government and business to drive shared and impactful investments in regional greenhouse gas mitigation and adaption.



**POLICY RECOMMENDATIONS -
Accelerating Actions for a 1.5°C World**

- COMPLETE, COMPACT, LOW CARBON COMMUNITIES
(Existing OCP and CLP target)
- SAFE AND CONVENIENT ACTIVE TRANSPORTATION
AND TRANSIT *(Existing CLP target)*
- POLLUTION FREE CARS, TRUCKS AND BUSES
(Existing CLP target)
- ZERO EMISSIONS BUILDING AND WATER HEATING
(Exceeds current CLP target)
- LOW CARBON MATERIALS *(New, target to be established)*
- CLIMATE RESILIENT ECOSYSTEMS *(New, targets to be established)*



Zero Emissions Building and Water Heating

All new and retrofitted heating and hot water systems are zero emissions after 2025 (exceeds current CLP target).

A photograph of a modern building with a wooden facade and solar panels on the roof. The building has a flat roof with several solar panels mounted on it. The facade is made of light-colored wood slats. There are large windows on the ground floor. The sky is blue with some clouds.

Low Carbon Materials

By 2030, Victorians use items and materials with substantially less embodied emissions than 2015. Target to be established

A photograph of a large pile of electronic waste (e-waste) including old computers, printers, and other devices. The waste is piled up in front of a blue corrugated metal wall. The items are mostly white and grey, and some are still in their original packaging. The ground is dirt and concrete.



Background

2016:

- Council votes to establish a long-term greenhouse gas (GHG) reduction target for both community and corporate emissions consistent with global reduction goals of **80% GHG reduction by 2050 and a shift to 100% renewable energy**

2017:

- Development of the draft Climate Leadership Plan

2018:

- Approval of Climate Leadership Plan

2019:

- CRD declares climate emergency, followed by the City of Victoria

Oil Heating – Background (cont'd)

Key Barriers:

- **Financial / Affordability:** Direct financial costs of oil to heat pump (\$10K average). System hazmat or associated costs could be significant.
- **Split incentives:** Landlord / tenant
- **Lack of Cost Awareness:**
 - Oil to Heat pump = 38% reduction in energy costs
 - Capital costs go down with energy efficiency upgrades
 - Efficiency upgrades paid for by energy savings

Key Opportunities / Benefits:

- Climate friendly heating and cooling
- Environmental / groundwater pollution risk reduction
- Fire risk reduction
- Avoid transition to fossil gas

Leadership in this space:

- Montreal: oil furnace ban by 2030
- Washington State and Seattle: 5 year implementation plan (outreach, incentive, and potential ban)



Market Transformation Approach



Definition: strategic process of intervening in a market to create lasting change in market behaviour by removing identified barriers or exploiting opportunities to accelerate the adoption of all cost-effective energy efficiency as a matter of standard practice (ACEEE, 2016)

Retrofits is a highly complex issue with multiple barriers that requires a holistic approach

Barriers:

- Lack of easy access to financing
- High up-front costs
- Low homeowner awareness/ interest
- Complicated process with low ROI
- Lack of coordination between contractors
- Industry training and accreditation
- Complexity of rebate process
- Low cost of fossil fuels (natural gas)
- Limited regulatory powers
- Split incentive issue



Low Carbon Mobility



The Vision: *By 2050, people, goods and services moving around Victoria will generate little to no GHG emissions. A seamless and integrated mobility system prioritizes low carbon transportation including walking, public transit and shared electric mobility options...*

The Challenge

- Single-occupancy and larger in-efficient vehicles
- Not enough people taking alternative transit

The Plan

- Reduce the number of vehicles, travel distance and trips
- Encourage uptake of EVs and other renewable fuels
- Redesign the way people move around the city

Actions

- Electrification; mode shift; low carbon fuels; partnerships/education

Community in Action

- Switch to EV and hybrid-electric
- Mode shift

GHG CONTRIBUTION BY VEHICLE TYPE



Figure 6: City of Victoria GPC Compliant Inventory, 2017



Low Carbon Waste Management



The Vision: *By 2050, waste-related emissions have been eliminated. Greenhouse gases produced by organic materials collected and treated in the region supply renewable energy to the community...*

The Challenge

- Organic materials breakdown in landfill and release methane
- Organic materials are still ending up in the landfill

The Plan

- Reduce organic materials entering the landfill
- Reduce the amount of waste generated
- Capture emissions and nutrients from organics

Actions

- Improve organics collection/processing; partnerships/education

Community in Action

- Food Rescue Project

LANDFILL WASTE GENERATING GHGS AT HARTLAND LANDFILL

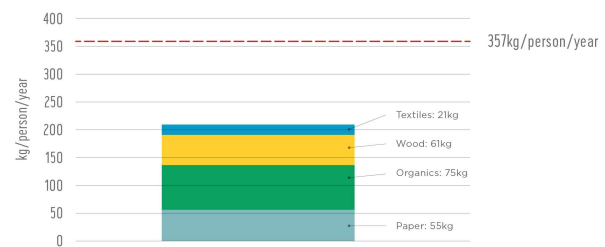


Figure 9: Landfill waste generating GHGs at Hartland Landfill. Numbers from 2016 CRD Waste Stream Composition Study.



Municipal Operations



The Vision: *By 2050, all of the City's operations, fleet and buildings will be renewably powered. The City has consistently demonstrated a track-record of successful GHG reduction programs...*

The Challenge

- Fossil fuels power buildings, vehicles and operations

The Plan

- Reduce energy use through energy efficiency
- Redesign services and infrastructure management
- Replace fossil fuels with renewable energy

Actions

- Electrification of fleet; transition facilities to renewable energy; operational energy improvements; develop strategies and plans

City in Action

- Victoria Conference Centre

GHGs FROM CITY OPERATIONS

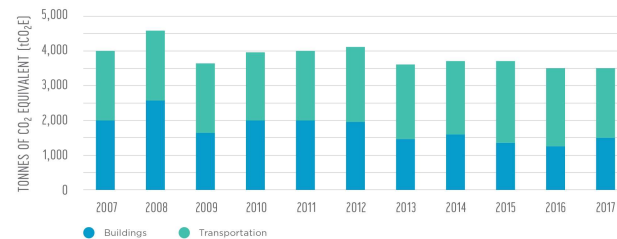


Figure 10: City of Victoria corporate GHG inventory, 2017



Adapting Early



The Vision: *In 2050, Victorians share sustainable community values... Innovative adaptation projects were completed early and affordably to manage an increase in severe and prolonged storms, heatwaves... Victoria municipal infrastructure is strong and supports a healthy, biodiverse and resilient natural environmental, a thriving economy, and a vibrant, active community.*

The Challenge

- Known and unknown risks to City and community assets
- Minimizing environmental, economic and social impacts

The Plan

- Continually monitor all climate risks
- Create resiliency in our physical and natural infrastructure
- Educate and empower the community to take action

Actions

- Strengthen natural and built infrastructure; partnerships; public education

Community in Action

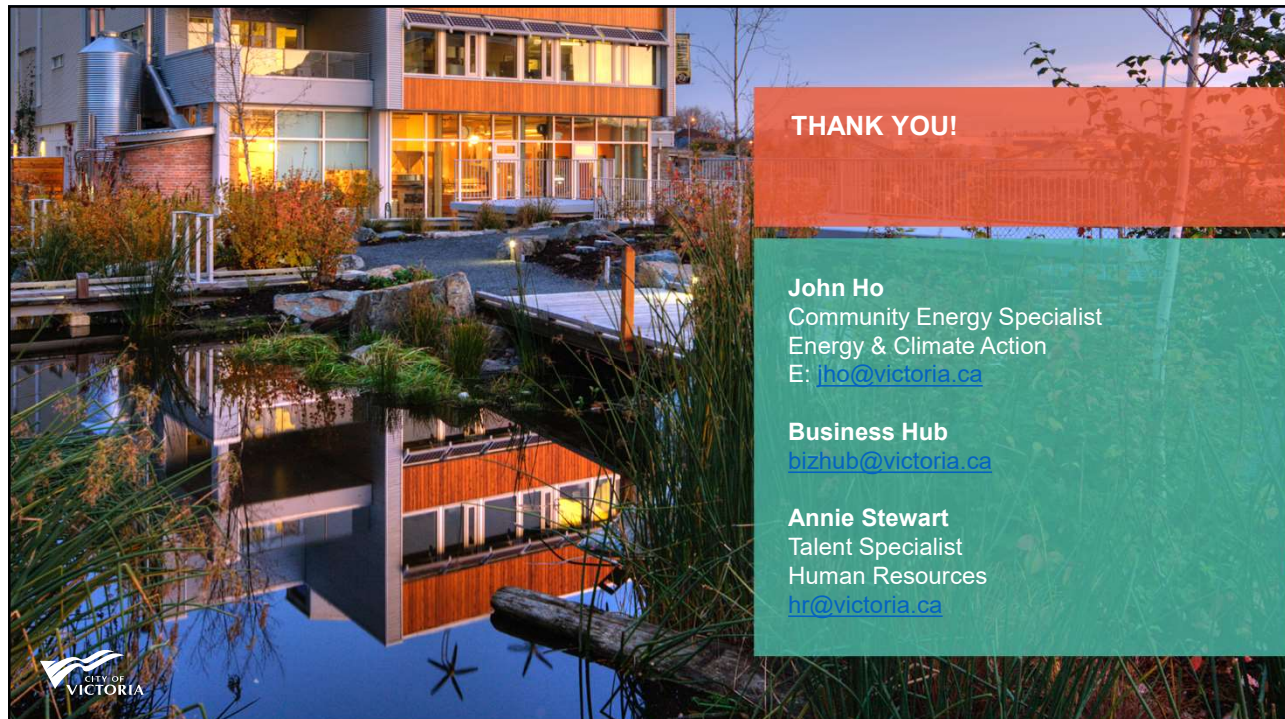
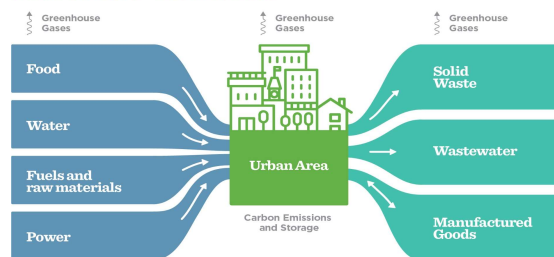
- Increasing home comfort and resilience



The Next Chapter: Embodied Emissions

- Embodied emissions are those GHGs generated beyond city limits to make and deliver the materials, products and services that we consume
- Cities may not have direct control over the embodied emissions of these goods, but they do have opportunities to design and promote sustainable consumption habits

CURRENT CITY FLOWS: "TAKE, MAKE, WASTE."



THANK YOU!

John Ho
Community Energy Specialist
Energy & Climate Action
E: jho@victoria.ca

Business Hub
bizhub@victoria.ca

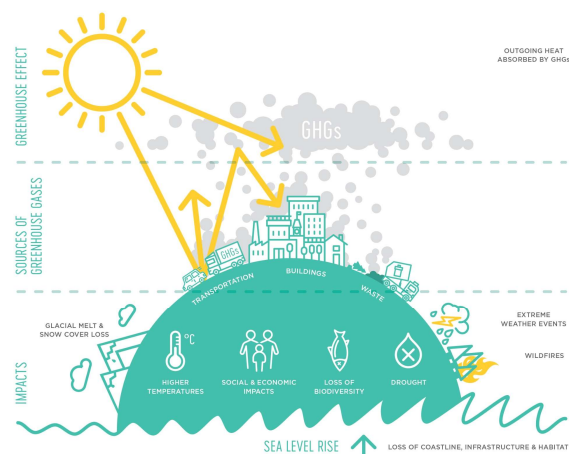
Annie Stewart
Talent Specialist
Human Resources
hr@victoria.ca

A Suite of Actions are Required



Climate Imperative

- Human activity has produced greenhouse gases (GHGs) at an intensity beyond what the earth's natural systems can absorb
- Experts project impacts could be catastrophic without deep cuts in future GHG emissions
- **Local climate risks:**
 - Increased seasonal precipitation
 - Rising sea levels
 - More frequent, longer heatwaves
 - Unavoidable impacts (including wildfires, drought, and increased infrastructure costs)



Victoria's Climate Challenge

2017 GHG EMISSIONS BY SECTOR (369,609 tCO₂e¹¹)

- 32% COMMERCIAL, INSTITUTIONAL, INDUSTRIAL, AND MULTI-UNIT RESIDENTIAL
- 19% SINGLE FAMILY HOMES
- 9% SOLID AND LIQUID WASTE
- 40% ON-ROAD TRANSPORTATION

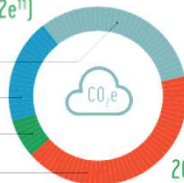


Figure 1: City of Victoria GPC Compliant Inventory, 2017

2017 GHG EMISSIONS BY FUEL TYPE

- 36% GASOLINE
- 3% ELECTRICITY
- 7% DIESEL
- 2% WOOD
- 2% PROPANE
- 12% HEATING OIL
- 38% NATURAL GAS

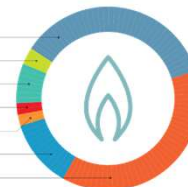


Figure 2: City of Victoria GPC Compliant Inventory, 2017

2017 RENEWABLE AND NON-RENEWABLE ENERGY MIX

- 35% RENEWABLE ELECTRICITY
- 8% HEATING OIL AND PROPANE
- 3% WOOD
- <1% RENEWABLE NATURAL GAS
- 2% BIODIESEL AND ETHANOL
- 23% GASOLINE AND DIESEL
- 29% NATURAL GAS

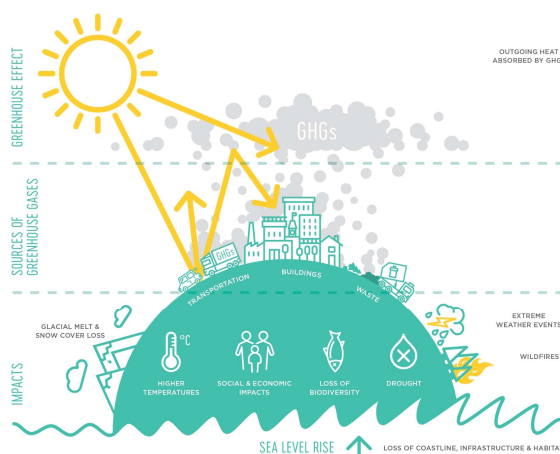


Figure 3: City of Victoria GPC Compliant Inventory, 2017



Climate Imperative

- Human activity has produced greenhouse gases (GHGs) at an intensity beyond what the earth's natural systems can absorb
- Warming of Earth's surface will unleash more extreme impacts. Additional 2 degrees of warming expected by the end of this century.
- Experts project impacts could be catastrophic without deep cuts in future GHG emissions
- Local climate risks include:
 - Increased seasonal precipitation
 - Rising sea levels
 - More frequent, longer heatwaves
 - Unavoidable impacts (including wildfires, drought, and increased infrastructure costs)



(CLP, pp. 11-12)



Low Carbon, High Performance Buildings (p. 24)



GOALS

- All buildings are highly energy efficient.
- All buildings are powered by renewable energy.



TARGETS

- *By 2030, all new buildings are 'net zero energy ready.'*
- *By 2050, all existing buildings meet new high efficiency standards.*
- *By 2030, heating oil is phased out.*
- *By 2050, all buildings exclusively use renewable energy.*



Low Carbon Mobility (p. 34)



GOALS

- All Victorians have access to low carbon, high performance and affordable multi-modal transportation.
- Vehicles in Victoria are powered by renewable energy.
- Smart land use minimizes transportation emissions.



TARGETS

- By 2030, 25 percent of all trips by Victoria residents are taken by public transportation.
- By 2030, 100 percent of BC Transit buses in Victoria are renewably powered.
- By 2030, Victoria residents choose walking and cycling for 55 percent of all trips.
- By 2030, renewable energy powers 30 percent of passenger vehicles registered in Victoria, and 100 percent of passenger vehicles are renewably powered by 2050
- By 2030, 30 percent of commercial vehicles operating in Victoria are renewably powered.
- By 2030, 100 percent of Victoria's neighbourhoods are "complete" by design with substantial transportation system diversity.

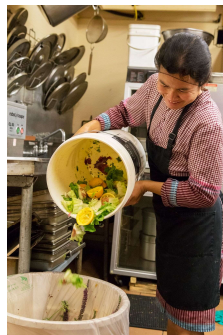


Low Carbon Waste Management (p. 42)



GOAL

- Organic materials are managed to avoid GHG emissions.



TARGETS

- Eliminate 100 percent of food and yard waste sent to the landfill by 2030.
- Eliminate 100 percent of other organic materials sent to the landfill by 2030.
- Capture methane from collected organic waste to provide renewable energy by 2025.

Municipal Operations (p. 48)



GOALS

- The City is a recognized leader in climate mitigation and adaptation.
- The City takes integrated and informed climate action.
- The City will provide timely and accurate data supporting strong climate mitigation and adaptation actions.



TARGETS

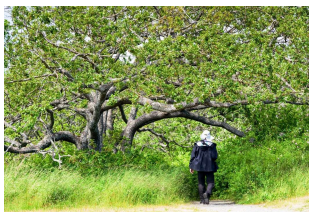
- By 2040, 80 percent of the City's fleet is electrified, or renewably powered.
- All new City facilities are renewably powered.
- By 2025, all City power tools and small engine-driven equipment are renewably powered.
- By 2040, 80 percent of the City's fleet is electrified, or renewably powered.
- By 2020, capital and operating plans are informed by climate data, carbon pricing, and the City's GHG reduction targets.
- By 2022, the City has developed a 'triple bottom line' accounting system that guides City business planning.
- By 2022, partner with other local governments and the region to develop a community-accessible Energy and GHG information management System (EGIMS).

Adapting Early (p. 54)



GOALS

- All climate-related risks to City infrastructure are minimized through early and wise planning and action.
- Victoria's natural environment flourishes in a changing climate.
- All Victorians are empowered and prepared for climate impacts and emergencies.



TARGETS

- Climate resilience is embedded into all City business.
- The City's infrastructure and services are ready to protect and respond to the risks associated with a changing climate.
- Natural habitats support healthy fish, wildlife, and plant populations and healthy ecosystem function
- The community is knowledgeable and prepared to address the impacts from a changing climate.
- The City incorporates best practices in risk communication (e.g. advanced warning systems, short videos) covering all climate hazards.
- Climate resilience enhances quality of life for all Victorians, especially the most vulnerable.

Oil to Heat Pump Incentive Program

One slide per initiative to describe with key pics / graphics