



LOCAL CLIMATE CHANGE ACTION PLAN 2030



MUNICIPALITY OF THE DISTRICT OF LUNENBURG  
NOVA SCOTIA

The Local Climate Change Action Plan 2030 is a 10-year strategic action plan that will guide the Municipality of the District of Lunenburg toward achieving net-zero greenhouse gas emissions by 2050 and support a climate-resilient, healthier, and sustainable future.

This document meets the requirement of Partners for Climate Protection (PCP) Program's Milestone 2 and 3.

This document is final and was approved by Municipal Council on November 8, 2022.



**Municipality of the District of Lunenburg**

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# MESSAGE FROM MUNICIPAL COUNCIL

Dear Municipal Residents and Visitors,

The Municipal Council is pleased to present to you the 'Local Climate Change Action Plan 2030' (LCCAP2030). As the adverse social, economic, and public health effects of climate change continue to increase due to continuous warming of our planet owing to increasing greenhouse gas emissions into the atmosphere, Municipal Council acknowledges that humanity is in a climate emergency and recognizes the need to take leadership role in climate action. In 2019, the Municipality declared a climate emergency and developed this Local Climate Change Action Plan 2030 as part of its commitment to act on climate change. The goals, targets, and climate actions presented in this plan are both achievable and essential, to enable the Municipality to reduce its dependence on fossil fuels and the associated greenhouse gas emissions and become more resilient to the new challenges posed by changing weather patterns. The Municipal Council thanks the Sustainability Committee members for their tireless volunteer efforts and the community members who took part in the plan development process, attended virtual public open houses, completed a community engagement survey, and provided valuable feedback on the proposed climate actions. A climate-resilient and low-carbon community does not come from a plan, but through acting on it. The Municipal Council and its administration are committed to responding to the impacts of climate change and creating a safe, livable, and prosperous community for generations to come. As we embark on this journey of implementation of this plan, we hope to receive your continued support and collaboration.



**Front Row** (left to right): Councillor Wendy Oickle, Councillor Kacy DeLong, Mayor Carolyn Bolivar-Getson, Councillor Pam Hubley, Councillor Leitha Haysom

**Back row** (left to right): Councillor Martin Bell, CAO Tom MacEwan, Councillor Sandra Statton, Councillor Reid Whynot, Councillor Michelle Greek, Deputy Mayor Cathy Moore, Councillor Chasidy Veinotte

# ACKNOWLEDGMENTS

## **Indigenous Land Acknowledgement**

We would like to begin by respectfully acknowledging that the Municipality of the District of Lunenburg is in Mi'kma'ki, the ancestral territory of the Mi'kmaq people. We honour their original and current connection to the land, ecosystems, and water bodies that the residents of the Municipality interact with, enjoy, and rely on, and that this Local Climate Change Action Plan 2030 is working to protect.

## **Local Climate Change Action Planning Team**

Jeff Merrill, Director of Planning & Development Services

Abhimanyu Jain, Sustainability Planner

Sarah Kucharski, Manager, Corporate Services & Communications

Byung Jun Kang (former Planner)

Zachary Thompson (former Sustainability Planner)

## **Support Staff**

Tom MacEwan, Chief Administrative Officer

Alex Dumaresq, Deputy Chief Administrative Officer

April Whynot-Lohnes, Municipal Clerk

Amy Wamboldt, Grant Coordinator

David Waters, Director of Economic Development

Mark Strickland, Business Development Officer

Elana Wentzell, Director of Finance

Angela Veinot, Accounting Manager

Graham Hopkins, Inspection Services Manager

Stephen Pace, Director of Engineering & Public Works

Jamie Burgess, Municipal Engineer

Trudy Payne, Director of Recreation, Parks & Tourism

Angela Taylor, Regional Educator at Region 6 Solid Waste Management

Christine McClare, Regional Coordinator at Region 6 Solid Waste Management

Stephanie Smits, Outreach & Compliance Supervisor

Angela Henhoeffler, Regional Emergency Management Coordinator

Chris Kennedy, Fire Services Coordinator

## Sustainability Committee Members

Deputy Mayor Cathy Moore, Chairperson  
Councillor Leitha Haysom, Vice Chairperson  
Councillor Kacy DeLong  
Councillor Martin Bell  
Mayor Carolyn Bolivar-Getson, ex officio  
Elmer Garber, Member at Large  
Mathias Gebser, Member at Large  
Meghan Doucette, Member at Large  
Rebecca Macinnis, Member at Large  
Councillor Pam Hubley (former Committee Member)  
Councillor Reid Whynot (former Committee Member)  
Deborah Conner (former Member at Large)  
Karley Hewitt (former Member at Large)

## Supporting Organizations and Stakeholders



# EXECUTIVE SUMMARY

The Local Climate Change Action Plan 2030 (LCCAP2030) is the Municipality of the District of Lunenburg’s response to the global climate emergency. Our climate is changing and the global temperature is rising rapidly owing to the increasing concentration of greenhouse gases (GHGs) in the atmosphere. Moreover, Canada is warming twice as fast as rest of the world and the Canadian Arctic is warming at about three times faster than the global rate.<sup>1</sup> The detrimental impacts of climate change are widespread, intensifying, and require us to take an urgent action as a community.

The Municipality declared a climate emergency in 2019 and developed this LCCAP2030 as part of its commitment to act on climate change. The plan is a 10-year strategic action plan that provides the guiding framework for the Municipality to achieve net-zero GHG emissions by 2050 and support a climate-resilient, healthier, and sustainable future.

The LCCAP2030 is divided into the following two chapters:

**Chapter 1 – Community Climate Action Plan:** A plan that focuses on reducing GHG emissions within the boundaries of MODL (e.g., homes, offices, community vehicles), as well as building a climate-resilient community. The 10 main categories and 27 climate actions identified in this chapter will set forth a pathway for the Municipality to reduce its community GHG emissions and align itself with international efforts to limit global temperature rise to 1.5°C and build a climate-resilient and sustainable community.

The 10 main categories and 27 climate actions are as follows:

<b>Category 1 - Energy Efficient Homes and Buildings</b>			
1	Retrofit existing residential buildings		
2	Energy efficiency standards for new construction		
3	Retrofit existing commercial, institutional, & industrial buildings		
<b>Category 2 - Low Carbon Transportation</b>			
4	Electric vehicles charging infrastructure		
5	Electric vehicles promotion and education		
6	Anti-idling policy		
7	Carshare program		
8	Bikeshare program		
9	Public transit service		
10	Active transportation strategy		
<b>Category 3 - Waste Reduction, Recycling, and Composting</b>			
11	Waste management and educational programs		
12	Join in bring your own promotion and subsidy		
<b>Category 4 - Renewable Energy Generation</b>			
13	Community renewable energy project		
<b>Category 5 - Natural Environment Protection and Conservation</b>			
14	Tree planting program		
15	Land conservation		
16	Annual No Mow May event		
		<b>Category 6 - Sustainable Land Use Planning and Development</b>	
17	Municipal planning strategy & land use by-law: MODL2040		
		<b>Category 7 - Local Food Security</b>	
18	Community vegetable garden		
19	Food security programs		
		<b>Category 8 - Emergency Preparedness and Response</b>	
20	Dry hydrants		
21	Education on the impacts of climate change		
		<b>Category 9 - Community Engagement</b>	
22	Council-led advocacy		
23	Community pledges		
24	Youth engagement		
25	Region-wide climate working group		
26	MODL environmental and resilience champion award		
		<b>Category 10 - Research and Innovation</b>	
27	Advance research and innovation		

<sup>1</sup> Government of Canada. (n.d.). Climate change adaptation in Canada. <https://www.nrcan.gc.ca/climate-change-adapting-impacts-and-reducing-emissions/what-adaptation/10025>

For the community emissions reduction target: **“Municipal Council has set the target to reduce its community emissions by 30% below 2019 baseline emissions level by 2030, 65% below 2019 levels by 2040, and achieve net-zero community emissions by 2050.”**

**Chapter 2 – Corporate Climate Action Plan:** A plan that focuses on reducing GHG emissions that are directly controlled by MODL (e.g., municipal operations and fleets). The 4 main categories and 10 climate actions identified in this chapter will set forth a pathway for the Municipality to reduce its corporate GHG emissions to achieve net-zero emissions by 2050.

The 4 main categories and 10 climate actions are as follows:

<b>Category 1 - Solar Panels on Municipal Buildings</b>	
1	Install 100kW solar array at Municipal Services Building
2	Install 100kW solar array at New Germany WWTP
3	Install 100kW solar array at Cookville WWTP
4	Install 20kW solar array at Conquerall Bank WWTP
5	Install 20kW solar array at CES Building
<b>Category 2 - Retrofit Municipal Buildings</b>	
6	MARC facility energy assessment & renewal
<b>Category 3 - Electrify Municipal Fleet</b>	
7	Replace 8 Municipal vehicles with EVs
8	Install 3 EV charging stations at Municipal Services Building
9	Ensure waste hauling trucks in the new contract are EVs
<b>Category 4 - Solid Waste Management</b>	
10	Reduce corporate solid waste by 20% from 2019 levels

For the corporate emissions reduction target: **“Municipal Council has set the target to reduce its corporate emissions by 64% below 2019 baseline emissions by 2030 and achieve net-zero corporate emissions by 2050.”**

All the climate actions in the LCCAP2030 are accompanied by a recommended implementation timeline to ensure its timely implementation. Progress made towards the LCCAP2030 will be monitored using several indicators that have been identified in the plan. The Municipality will conduct emissions inventory every three years to evaluate the GHG emissions reduced against the 2019 baseline levels, through the implementation of these climate actions.

As part of the financial strategy, the LCCAP2030 outlines a five-year financial plan (2021-2025) that provides high-level cost estimates for implementing both community and corporate projects. The LCCAP2030 is a living document and as circumstances change at local, provincial or federal level, the Municipality will assess the emerging opportunities and make an informed decision.



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# LIST OF ACRONYMS

BAU	Business as usual
CEF	Clean Energy Financing
CES	Construction Engineering Flight
CO <sub>2</sub> e	Carbon dioxide equivalent
EV	Electric vehicle
FCM	Federation of Canadian Municipalities
GHG	Greenhouse gas
ICLEI	International Council for Local Environmental Initiatives
ktCO <sub>2</sub> e	Kilo tonnes of carbon dioxide equivalent
kWh	Kilowatt hour
LCCAP	Local Climate Change Action Plan
LCS	Low-carbon scenario
MARC	Municipal Activity & Recreation Complex
MJSB	Municipal Joint Services Board
MODL	Municipality of the District of Lunenburg
NECB	National Energy Code of Canada for Buildings
PCP	Partners for Climate Protection
PV	Photovoltaic
Q&A	Questions & Answers
Region 6 SWM	Region 6 Solid Waste Management
REMO	Regional Emergency Management Organization
tCO <sub>2</sub> e	Tonnes of carbon dioxide equivalent
WWTP	Wastewater treatment plant

# GLOSSARY

**Business as usual (BAU):** This is also called the "high carbon" future. In this scenario, the greenhouse gas (GHG) emissions continue to increase at current rates through the end of the century. This large amount of greenhouse gas emissions results in more severe global warming.

**Carbon dioxide equivalent (CO<sub>2</sub>e):** The number of metric tonnes of CO<sub>2</sub> emissions with the same global warming potential as one metric tonnes of another greenhouse gas.

**Climate-resilience:** Climate-resilience is the ability to anticipate, prepare for, and respond to hazardous events related to climate that are now unavoidable, such as coastal and inland flooding, intense droughts, heatwaves, stronger hurricanes, and wildfires.

**Community climate action plan:** A plan that focuses on reducing GHG emissions within the boundaries of MODL (e.g., homes, offices, community vehicles), as well as building a climate-resilient community.

**Corporate climate action plan:** A plan that focuses on reducing GHG emissions that are directly controlled by MODL (e.g., municipal operations and fleets).

**Dry hydrants:** A non-pressurized pipe permanently installed in existing lake or stream to provide a supply of water in areas where water is not readily accessible for firefighters to fight fires.

**Heat wave:** A heat wave occurs when at least three days in a row exceed or reach 30°C.

**Low-carbon scenario (LCS):** This is also called the "low carbon" future. In this scenario the greenhouse gas emissions increase and peak until about 2050 and then rapidly decline. This decline in emissions leads to less severe global warming than the alternative "business as usual".

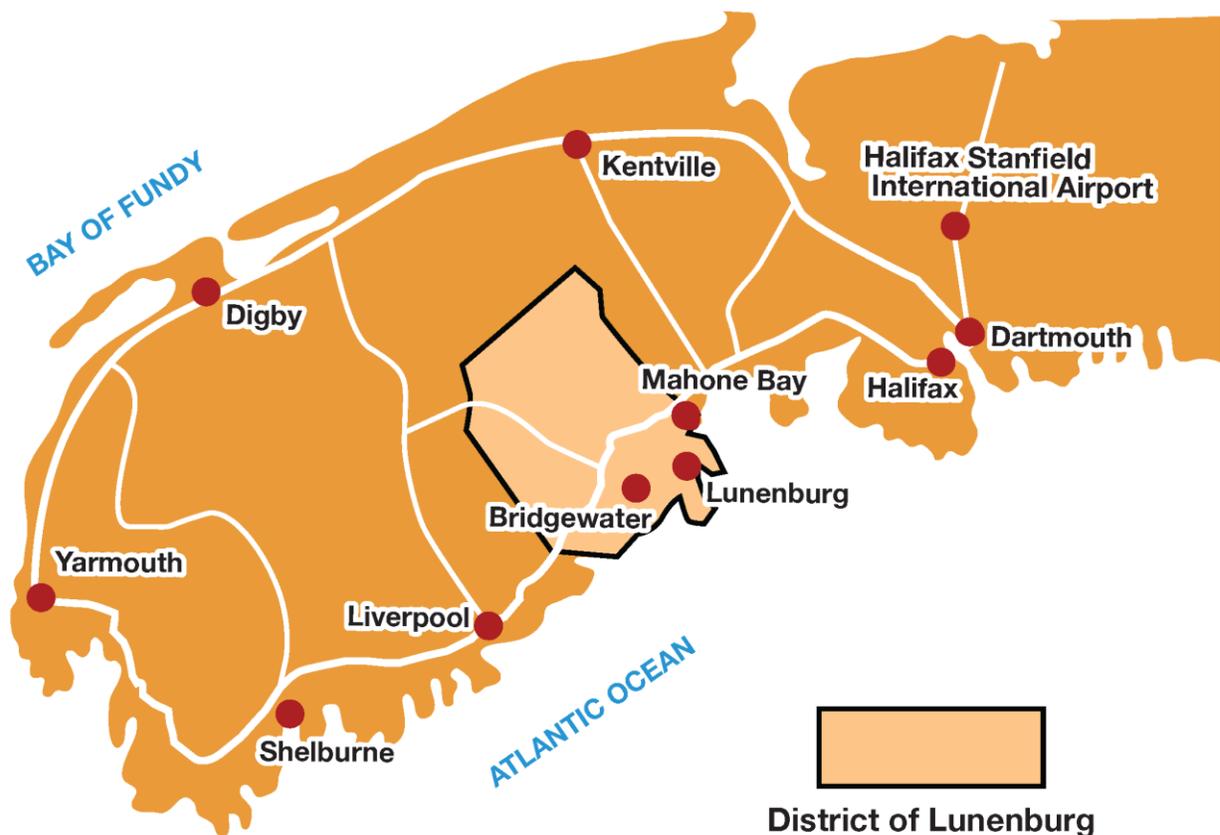
**Net-zero emissions:** When human-caused (or anthropogenic) GHG emissions are balanced by an equivalent removal of GHG emissions from the atmosphere over a specific period. Achieving a net-zero balance by 2050 will require significant reductions in GHG emissions, while the last small percentage can be achieved through carbon sinks (e.g., forests, soil) that absorb more carbon than they emit.

**Paris Agreement:** On December 12, 2015, Canada and 194 other countries signed onto the Paris Agreement to fight climate change by limiting the global average temperature rise to less than 2°C and to pursue efforts to limit the increase to 1.5°C. As part of this agreement, Canada agreed to reduce GHG emissions to 40-45% below 2005 levels by 2030 and achieve net-zero emissions by 2050.

**Sustainability:** The ability of our human society to exist and thrive without depleting the natural resources for the future generations.

# INTRODUCTION

The climate of the Municipality of the District of Lunenburg (MODL) is changing and the need to respond to climate change is urgent. Situated on Nova Scotia's South Shore, the MODL is the third largest municipality in the province occupying just over 1700 square kilometers. Largely rural in nature, the Municipality surrounds the Towns of Bridgewater, Mahone Bay, and Lunenburg. The Municipality is home to a population of approximately 25,000 which makes it the fifth largest municipality in terms of population in Nova Scotia. MODL, like many municipalities in Nova Scotia, is faced with the dual challenge of reducing our use of fossil fuels and associated greenhouse gas (GHG) emissions, and proactively adapting our community infrastructure and programs to reduce impacts from severe and changing weather patterns including hotter summers with prolonged heatwaves, drinking water shortage, higher intensity rainfall, increased flooding, and new types of pests and diseases.



In 2019, the Municipality declared a climate emergency and committed to act on climate change by joining the Partners for Climate Protection (PCP) program. The Partners for Climate Protection program is a network of over 500 Canadian municipalities which have committed to reducing GHG emissions and fight climate change.<sup>2</sup> The program is administered by the Federation of Canadian Municipalities (FCM) in association with the

<sup>2</sup> Partners for Climate Protection. <https://www.pcp-ppc.ca/>

International Council for Local Environmental Initiatives (ICLEI) that guide local governments through a 5-milestone framework towards reducing GHG emissions. The PCP program mandates the development of a Local Climate Change Action Plan to identify ways to reduce local GHG emissions. This LCCAP2030 is a 10-year strategic action plan that will set the direction for reducing local greenhouse gas emissions and supporting a climate-resilient, healthier, and lower-carbon future. The plan is divided into 2 chapters:

**Chapter 1 – Community Climate Action Plan:** A plan that focuses on reducing GHG emissions within the boundaries of MODL (e.g., homes, offices, community vehicles), as well as building a climate-resilient community. The 10 main categories and 27 climate actions identified in this chapter will set forth a pathway for the Municipality to reduce its community GHG emissions and align itself with international efforts to limit global temperature rise to 1.5°C and build a climate-resilient and sustainable community. For community emissions reduction target: **“Municipal Council has set the target to reduce its community emissions by 30% below 2019 baseline emissions level by 2030, 65% below 2019 levels by 2040, and achieve net-zero community emissions by 2050.”**

**Chapter 2 – Corporate Climate Action Plan:** A plan that focuses on reducing GHG emissions that are directly controlled by MODL (e.g., municipal operations and fleets). The 4 main categories and 10 climate actions identified in this chapter will set forth a pathway for the Municipality to reduce its corporate GHG emissions to net zero by 2050. For corporate emissions reduction target: **“Municipal Council has set the target to reduce its corporate emissions by 64% below 2019 baseline emissions by 2030 and achieve net-zero corporate emissions by 2050.”**

# CLIMATE CHANGE

## What is climate change?

Climate change is a long-term shift in temperatures and weather patterns over a long period of time.<sup>3</sup> Our planet is getting hotter. The average global temperature has risen more than 1°C since the industrial era, and that warming is causing the world’s weather patterns to change irreversibly. The impacts of climate change are expected to worsen as the global average surface temperature becomes warmer.

## How is MODL’s climate projected to change?

The Table 1 below shows the projected changes in MODL’s climate for two different scenarios: Business as usual and Low-carbon future. Business as usual is when we don’t act on climate change and the GHG emissions continue to increase at current rates. This large amount of greenhouse gas emissions results in more severe global warming. The low-carbon future scenario is where we take climate action and the GHG emissions drop. This decline in emissions leads to less severe global warming than the alternative business as usual scenario. Projections indicate that MODL will experience higher temperatures, more heat waves, rain, snow and an increasing number of severe storms, flooding, and wildfires.<sup>4</sup>

Change	Business as Usual			Low-Carbon Future		
	1976-2005	2021-2050	2051-2080	1976-2005	2021-2050	2051-2080
 Annual Mean Precipitation (mm)	1408	1488	1536	1408	1483	1512
 Annual Mean Temperature (°C)	7.1	9	10.9	7.1	8.9	9.7
 Annual Number of Very Hot Days (+30°C)	2	5	17	2	5	9
 Annual Number of Hot Days (+25°C)	27	51	77	26	49	60
 Annual Warmest Maximum Temperature (°C)	30.4	32.2	34.3	30.4	32.2	33.2
 Annual Number of Heat Waves	0	1	2.1	0	1	1
 Frost-Free Season (days)	160	183	208	160	180	190

Climate hazards pose risks for people, the built environment, natural systems and resources, economies, livelihoods, and safety. Examples of increased risks for MODL include damage to physical infrastructure such as buildings, roads, and WWTPs; stresses on agriculture and food systems; threats to biodiversity and ecosystem resilience; uncertainty for fisheries and forestry; physical adversity and mental health impacts; financial impacts on businesses; and diminished capacity of government to effectively provide public services.

<sup>3</sup> United Nations. Climate Action. <https://www.un.org/en/climatechange/what-is-climate-change>

<sup>4</sup> Climate Atlas of Canada. [https://climateatlas.ca/data/city/115/plus30\\_2030\\_85/line](https://climateatlas.ca/data/city/115/plus30_2030_85/line)

# PARTNERS FOR CLIMATE PROTECTION PROGRAM

In 2019, the Municipality declared a climate emergency and committed to act on climate change by joining the Partners for Climate Protection (PCP) program. The Partners for Climate Protection program is a network of over 500 Canadian municipalities which have committed to reducing GHG emissions and fight climate change.<sup>5</sup> The program is administered by the Federation of Canadian Municipalities (FCM) in association with the International Council for Local Environmental Initiatives (ICLEI) that guide local governments through a 5-milestone framework towards reducing GHG emissions.

The 5-milestones of the PCP framework as follows:



PCP framework Milestone 1 requires municipalities to conduct an inventory and establish a greenhouse gases (GHGs) emissions baseline. MODL achieved its Milestone 1 by creating a community and corporate baseline emissions inventory for the year 2019. A community inventory includes buildings (residential, institutional, commercial, industrial), transportation, and solid waste sectors. A corporate inventory includes municipal buildings, fleet, street lighting, water and wastewater treatment, and corporate solid waste. In 2019 emissions from MODL municipal operations and the community totaled 315,536 tCO<sub>2</sub>e.

Milestone 2 involves setting an emission reduction target. Milestone 3 is the development of a local climate change action plan to achieve emission reductions. Milestone 4 is the implementation of the plan and lastly, Milestone 5 is the ongoing monitoring of progress and results reporting. The 5-milestone framework is individually done for both the municipality's corporate emissions (i.e. municipally-owned operations) and for community-wide emissions.

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<sup>5</sup> Partners for Climate Protection. <https://www.pcp-ppc.ca/>



Chapter 1

# Community Climate Action Plan

# CHAPTER 1 – COMMUNITY CLIMATE ACTION PLAN

The Community Climate Action Plan focuses on reducing GHG emissions within the boundaries of MODL (e.g., homes, offices, community vehicles), as well as building a climate-resilient community. MODL has committed to achieve community emissions reduction of 30% from 2019 levels by 2030, 65% from 2019 levels by 2040 and achieve net zero emissions by 2050. Achieving this target will cap community emissions at 220 ktCO<sub>2</sub>e and lead to a total reduction of 94 ktCO<sub>2</sub>e. To achieve the set emissions reduction target and increase climate resilience of the community to adapt to the impacts of the changing climate, the plan has identified 10 main categories and 27 climate actions. The plan includes bold, forward-looking climate actions to help stimulate, support, and allow MODL to lay a foundation for a carbon-neutral future and achieve 30% community emissions reduction from 2019 levels by 2030. Some of these actions are already being implemented while some will lay the groundwork to progress and evolve over time.

## 2019 COMMUNITY BASELINE EMISSIONS

Community emissions for MODL were first measured in 2020, using 2019 as the baseline year, as part of the PCP Milestone 1 requirements. Total emissions in 2019 were 314,346 tCO<sub>2</sub>e and came from a wide mix of energy sources. Figure 1 below shows total emissions by sector while Figure 2 shows emissions by energy source. The community emissions inventory covers all emissions produced within municipal boundaries by the following four sections: Residential buildings, Commercial, Institutional, and Industrial buildings, Community Waste, and Community Vehicles.

As shown in Figure 1, Residential buildings are the highest emitting sector of community inventory followed by community vehicles. Similarly, as seen in Figure 2 electricity is responsible for the majority of GHG emissions in the community sector.

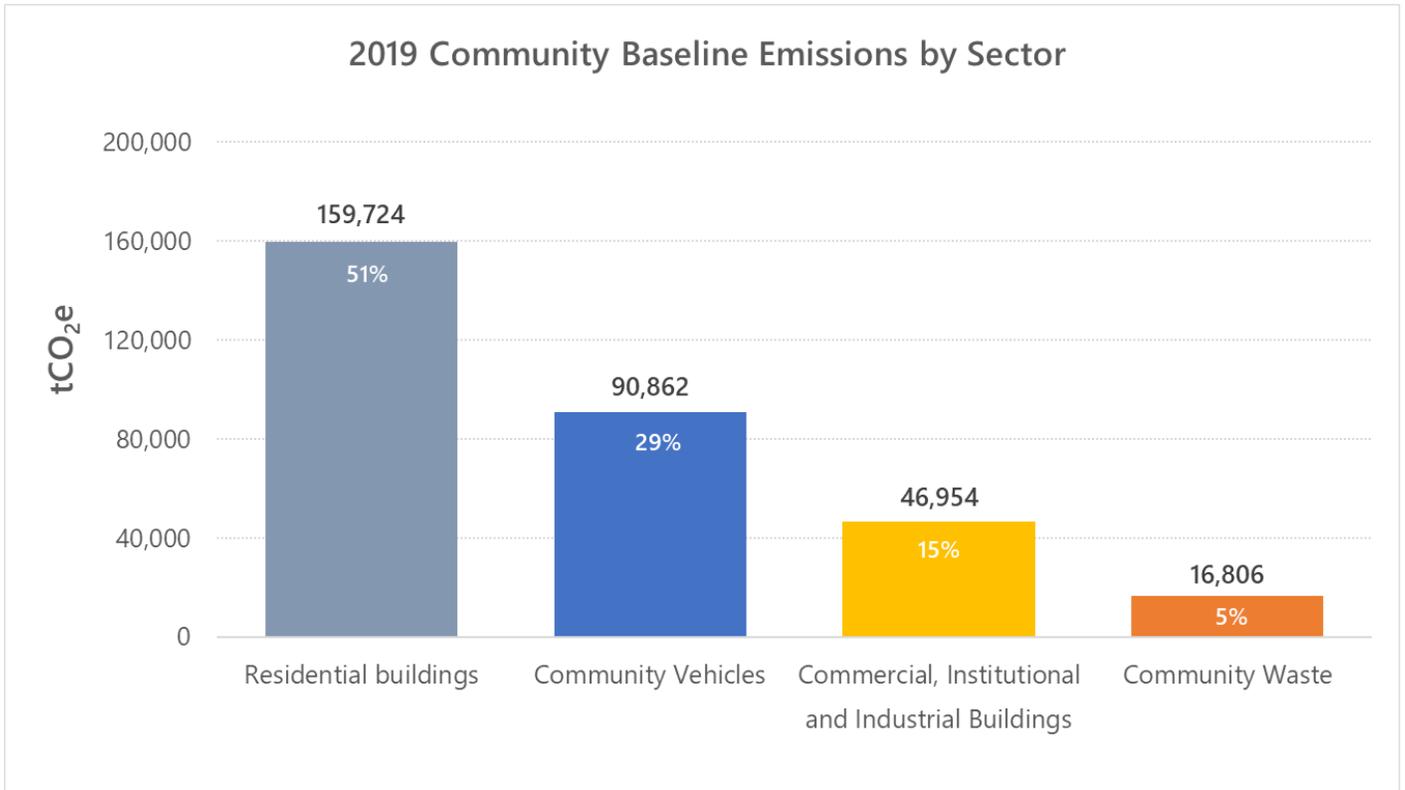


Figure 1 – Community Baseline Emissions by Sector

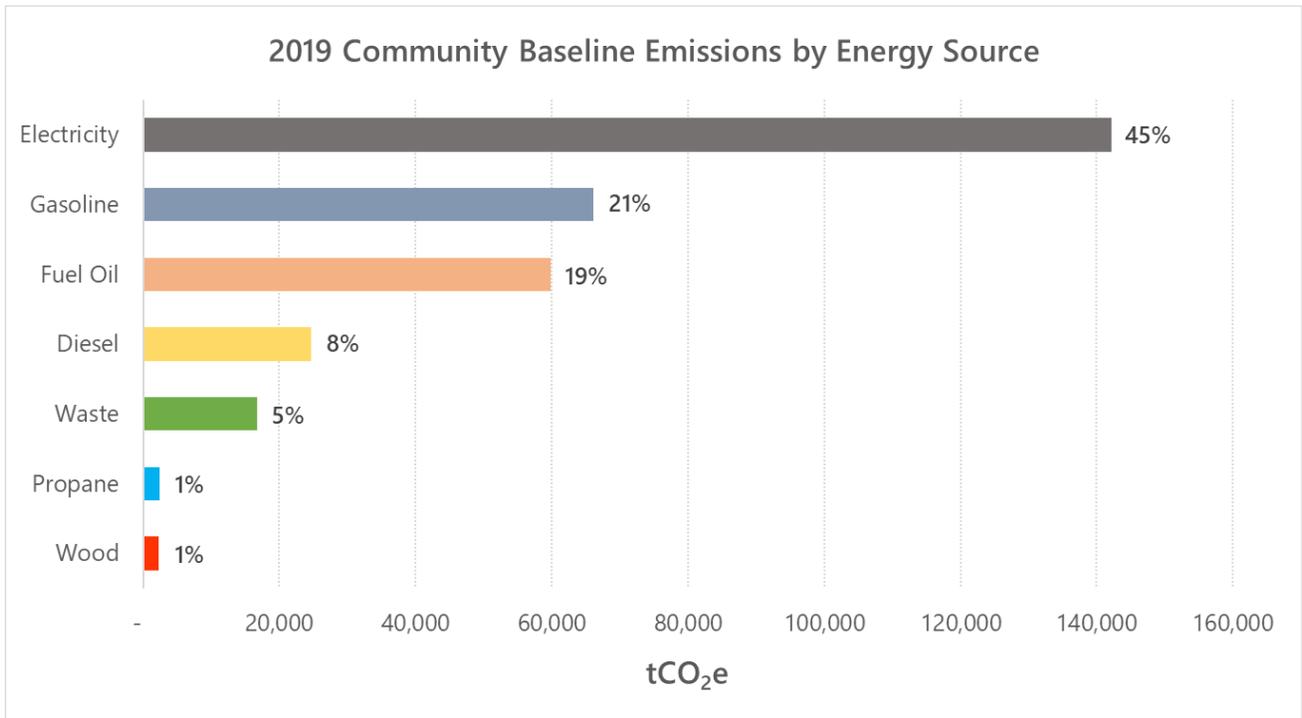


Figure 2 – Community Baseline Emissions by Energy Source

# COMMUNITY EMISSIONS REDUCTION TARGETS AND LOW-CARBON SCENARIO

There are two primary methods of setting GHG targets, top-down and bottom-up, referring to the order in which the target and actions are developed. Top-down target setting implies that the target is chosen first and action planning and analysis occurs later. This method of target setting is sometimes referred to as aspirational or visionary. Top-down targets are usually based on targets established by other orders of government or recommended by other organizations. Bottom-up targets are selected after assessing the GHG reduction potential of various actions. Selected actions are analyzed to determine their impact on emissions by the target year. The level of analysis depends on the amount of detail, the scope of actions, and the available resources. The community sets its reduction target based on the actions it expects to implement.

MODL considered a combination of both the methods to set a community emissions reduction target that is aspirational but at the same time realistic and achievable.

## **Top-down considerations:**

At the Federal level, in 2015, Canada signed the Paris Agreement, a legally binding international treaty on climate change. The goal of the agreement is to limit global warming to well below 2°C compared to pre-industrial levels, and to pursue efforts to limit the increase to 1.5°C, recognizing that this will significantly reduce the risks and impacts of climate change. Canada has set an emissions reduction of 40-45% below 2005 levels by 2030 and achieve net-zero emissions by 2050.

At the Provincial level, Nova Scotia through its Environmental Goals and Climate Change Reduction Act, has set the target to reduce GHG emissions by 53% below 2005 levels by 2030 and achieve net-zero emissions in Nova Scotia by 2050.

## **Bottom-up considerations:**

MODL assessed the identified climate actions in LCCAP2030 for its GHG reduction potential and determined their impact on emissions reduction by 2030. Two modeling scenarios were created: 'Business as Usual' scenario and 'Low-Carbon Scenario'. 'Business As Usual' scenario assessed the impact on emissions reduction when Municipality does not act at all. It is estimated that the community GHG emissions will reduce by 18% below 2019 baseline levels by 2030. This is primarily achieved from Nova Scotia Power (NSP) grid becoming cleaner over time. It is projected that the NSP grid's intensity of 720 grams of CO<sub>2</sub>e per kWh in 2019 will reduce to 431 grams of CO<sub>2</sub>e per kWh by 2030.<sup>6</sup>

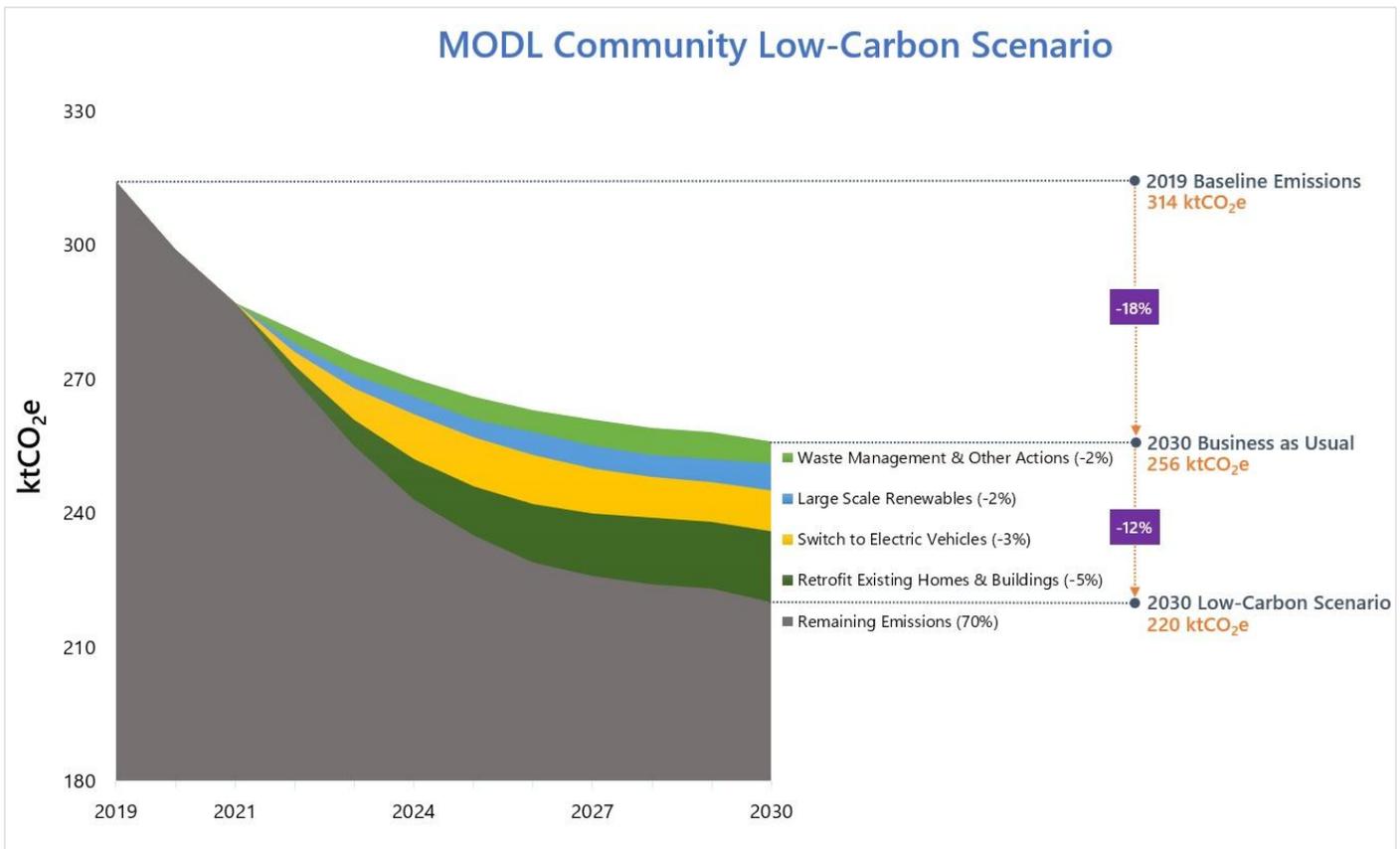
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<sup>6</sup> Electricity grid emissions intensities by province. Source: Environment and Climate Change Canada, Strategic Policy Branch, Economic Analysis Directorate, Analysis and Modelling Division

In 'Low-Carbon Scenario', it is estimated that by implementing key action items such as Clean Energy Financing (CEF) program expansion, large scale renewable energy projects, solid waste management, and community members switching to electric vehicles, the municipality can achieve additional 12% emissions reduction from BAU scenario by 2030, leading to a total reduction of 30% below 2019 levels by 2030.

Based on the assessment, MODL has set a community emissions reduction target of 30% below the 2019 baseline emissions level by 2030, 65% below the 2019 baseline emissions by 2040, and achieve net-zero greenhouse gas emissions by 2050.

The MODL Community Low-Carbon Scenario Graph 1 below shows the Baseline Emissions, projected Business as Usual, and Low-Carbon Scenario GHG emissions levels.



Graph 1 - MODL community low-carbon scenario

The Table 2 below provides MODL's community GHG emissions profile and the projected emissions.

Table 2 - Municipality of the District of Lunenburg Community GHG Emissions Profile		
Community Emissions		
<b>2019 Community Baseline Emissions</b> 314,346 tonnes CO <sub>2</sub> e per year	2030 Emissions Reduction Target	Expected Annual Emissions by 2030
	30%	220,042 tCO <sub>2</sub> e
	2040 Emissions Reduction Target	Expected Annual Emissions by 2040
	65%	110,021 tCO <sub>2</sub> e
	2050 Emissions Reduction Target	Expected Annual Emissions by 2050
	Net-zero	Net-zero tCO <sub>2</sub> e

# COMMUNITY ENGAGEMENT AND PLAN DEVELOPMENT

Engagement for the LCCAP2030 was conducted to gather community feedback on the identified main categories and proposed climate actions. Engagement activities for the LCCAP2030 were undertaken from December 2021 until March 2022 and consisted of an online survey, two virtual engagement sessions, a discussion forum on [engage.modl.ca](https://engage.modl.ca) project site, and internal and external stakeholder presentations.

The feedback received from all engagement activities was largely in support of the proposed climate actions, with the valuable input provided that shaped the LCCAP2030 development. The online community engagement survey was conducted through project's [engage.modl.ca](https://engage.modl.ca) website from the beginning of 14<sup>th</sup> December 2021 to 28<sup>th</sup> February 2022. Survey questions asked respondents to express their level of support for proposed climate actions and share comments about the proposed actions. The survey offered an opportunity for broader public participation, with 174 people responding. Most respondents (72%) were somewhat to extremely informed of the impacts of MODL's changing climate. Top ranked climate action was 'Purchase and/or accept land donations for the conservation of natural environment and protection of biodiversity', followed by 'Clean Energy Financing Program Expansion'. The climate action that received the most opposition was 'Create an anti-idling policy for the municipality'. The survey also collected 94 open-ended comments related to the proposed climate actions.

The Municipality hosted two virtual public engagement sessions on the proposed LCCAP2030 climate actions. The virtual engagement sessions featured a staff presentation on an overview of the project followed by a public Q&A with the project team. The engagement sessions were hosted via Microsoft Teams on 9<sup>th</sup> and 10<sup>th</sup> February 2022. Virtual engagement sessions were attended by 34 community members. The detailed feedback has been summarized in the What We Heard Report which can be assessed at [engage.modl.ca](https://engage.modl.ca) project site. Figure 3 below shows the LCCAP2030 timeline.



Figure 3 - LCCAP2030 timeline

# COMMUNITY CLIMATE ACTIONS

The Table 3 below provides an overview of all the 10 main categories and 27 climate actions of the Plan.

Table 3 - Community Climate Actions Overview						
Theme	Main Categories and Climate Actions		Key Areas	Lead Department	Cost	Timeline
Mitigation	<b>Category 1 - Energy Efficient Homes and Buildings</b>					
	1	Retrofit existing residential buildings	Financial	Planning	\$\$\$	Ongoing
	2	Energy efficiency standards for new construction	Bylaw/MODL2040	Planning	\$	Next
	3	Retrofit existing commercial, institutional, & industrial buildings	Education	Planning	\$	Later
	<b>Category 2 - Low Carbon Transportation</b>					
	4	Electric vehicles charging infrastructure	Financial	Planning & Economic	\$\$\$	Now
	5	Electric vehicles promotion and education	Education	Planning	\$\$	Now
	6	Anti-idling policy	Bylaw/MODL2040	Planning	\$	Now
	7	Carshare program	Program	Planning	\$\$	Later
	8	Bikeshare program	Program	Planning & Recreation	\$	Next
	9	Public transit service	Financial	Planning & Economic	\$\$\$	Now
	10	Active transportation strategy	Financial	Planning & Recreation	\$\$\$	Now
	<b>Category 3 - Waste Reduction, Recycling, and Composting</b>					
	11	Waste management and educational programs	Education	Region 6 & MJSB	\$	Next
12	Join in bring your own promotion and subsidy	Program	Region 6 & MJSB	\$	Now	
<b>Category 4 - Renewable Energy Generation</b>						
13	Community renewable energy project	Financial	Planning & Economic	\$\$\$	Now	
Adaptation	<b>Category 5 - Natural Environment Protection and Conservation</b>					
	14	Tree planting program	Program	Recreation	\$\$	Now
	15	Land conservation	Financial	Planning & Recreation	\$\$\$	Ongoing
	16	Annual No Mow May event	Advocacy	Planning & Recreation	\$	Ongoing
	<b>Category 6 - Sustainable Land Use Planning and Development</b>					
	17	Municipal planning strategy & land use by-law: MODL2040	Bylaw/MODL2040	Planning	\$	Now
	<b>Category 7 - Local Food Security</b>					
	18	Community vegetable garden	Program	Economic	\$	Next
	19	Food security programs	Program	Planning	\$	Next
	<b>Category 8 - Emergency Preparedness and Response</b>					
20	Dry hydrants	Financial	Fire	\$\$	Next	
21	Education on the impacts of climate change	Education	REMO	\$	Now	
Capacity Building	<b>Category 9 - Community Engagement</b>					
	22	Council-led advocacy	Advocacy	Municipal Council	\$	Now
	23	Community pledges	Advocacy	Planning & Recreation	\$	Now
	24	Youth engagement	Advocacy	Planning & Recreation	\$	Ongoing
	25	Region-wide climate working group	Advocacy	Planning & Recreation	\$	Now
26	MODL environmental and resilience champion award	Program	Planning	\$	Now	
Evolution	<b>Category 10 - Research and Innovation</b>					
	27	Advance research and innovation	Financial	Planning	\$\$	Now

Timeline Key	
Now	actions that will be initiated/implemented in 2022-2024
Next	actions that will be initiated/implemented in 2025-2027
Later	actions that will be initiated/implemented in 2028-2030
Ongoing	actions that have already been initiated and will continue through the LCCAP2030

Cost Key	
\$	less than \$10,000
\$\$	\$10,000 - \$100,000
\$\$\$	more than \$100,000

The Table 4 below describes the respective goals and targets set for the 27 climate actions of the Plan.

Table 4 - Goals and Targets for Community Climate Actions			
Main Categories and Actions		Priority	Goals and Targets
<b>Category 1 - Energy Efficient Homes and Buildings</b>			
1	Retrofit existing residential buildings	High	Retrofit up to 1,400 homes by 2030 through Municipal CEF program, EfficiencyNS HomeWarming, as well as other available programs
2	Energy efficiency standards for new construction	High	Adopt higher tiered efficiency standards from National Energy Code of Canada for Buildings 2020
3	Retrofit existing commercial, institutional, & industrial buildings	High	Promote EfficiencyNS's commercial retrofit programs
<b>Category 2 - Low Carbon Transportation</b>			
4	Electric vehicles charging infrastructure	Medium	Conduct feasibility study to install more electric vehicles public charging stations
5	Electric vehicles promotion and education	Low	Make educational programs available to support and promote the transition to electric vehicles
6	Anti-idling policy	Low	Create an anti-idling policy for the municipality
7	Carshare program	High	Conduct feasibility study for relevant carshare program options
8	Bikeshare program	High	Conduct feasibility study for relevant bikeshare program options
9	Public transit service	High	Expand MODL public transit services
10	Active transportation strategy	High	Support cycling and pedestrian friendly infrastructure
<b>Category 3 - Waste Reduction, Recycling, and Composting</b>			
11	Waste management and educational programs	High	Develop waste management and educational programs to reduce annual solid waste disposal rate to below 300kg/person from current 487kg/person by 2030
12	Join in bring your own promotion and subsidy	Medium	Launch 'Join In Bring Your Own' program to reduce single use plastics
<b>Category 4 - Renewable Energy Generation</b>			
13	Community renewable energy project	Medium	Conduct feasibility study to develop up to 5MW renewable energy generation project (wind, hydro or solar)
<b>Category 5 - Natural Environment Protection and Conservation</b>			
14	Tree planting program	Medium	Plant up to 10,000 trees by 2030
15	Land conservation	High	Purchase and/or accept land donations, as well as assess other mechanisms such as conservation easements, to protect and/or conserve up to 20% of the identified land and water mass in the Municipality by 2030
16	Annual No Mow May event	N/A	Launch the No Mow May event every year
<b>Category 6 - Sustainable Land Use Planning and Development</b>			
17	Municipal planning strategy & land use by-law: MODL2040	Low	Develop land use bylaws to support sustainable development by reducing sprawl & energy consumption
<b>Category 7 - Local Food Security</b>			
18	Community vegetable garden	High	Build community vegetable garden as part of Community Hub
19	Food security programs	High	Investigate and develop local food security programs or strategy to improve access to and increase production of local food to achieve 20% consumption of local food by 2030
<b>Category 8 - Emergency Preparedness and Response</b>			
20	Dry hydrants	Medium	Restore and install more dry hydrants in the Municipality to ensure availability of adequate water resources during fire related emergencies
21	Education on the impacts of climate change	High	Develop programs to provide education on emergency events preparedness and response
<b>Category 9 - Community Engagement</b>			
22	Council-led advocacy	N/A	Municipal Council advocate to persuade decision-makers and leaders in other levels of government to act in the best interests of MODL communities
23	Community pledges	Low	Initiate community pledges to enable community members to pledge to reduce emissions at individual level
24	Youth engagement	N/A	Partner with local schools, institutions, or organizations to support youth engagement for climate action
25	Region-wide climate working group	N/A	Form a region-wide climate working group
26	MODL environmental and resilience champion award	Low	Launch the award to honor individual, businesses, and community groups for their contribution towards climate action
<b>Category 10 - Research and Innovation</b>			
27	Advance research and innovation	N/A	Support research & technological innovations to address climate change

Priority Key	
High	Action is supported by more than 75% of the survey respondents
Medium	Action is supported by 60% to up to 75% of the survey respondents
Low	Action is supported by less than 60% of the survey respondents
N/A	Public support unknown

## Category 1 - Energy Efficient Homes and Buildings

<b>Action 1 – Retrofit existing residential buildings</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Ongoing
<b>Goal</b> Retrofit up to 1,400 homes by 2030 through Municipal CEF program, EfficiencyNS HomeWarming, as well as other available programs	



### Way forward

MODL will support retrofitting of up to 1,400 existing residential homes to achieve deep energy savings, reduced GHG emissions, and build climate resilience. Financial barriers to undertaking energy efficiency upgrades in homes will be reduced through a range of support mechanisms including expansion of MODL's Clean Energy Financing (CEF) program and offering navigator services to help homeowners better assess the available different provincial and federal financing programs.

MODL will further investigate the opportunity to implement a municipality-wide home energy benchmarking and labelling program. This will enable the municipality to better assess the needs of existing housing stock and improve its current CEF program.

<b>Action 2 – Energy efficiency standards for new construction</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Next (2025-2027)
<b>Goal</b> Adopt higher tiered efficiency standards from National Energy Code of Canada for Buildings 2020	

<b>Energy Performance Tiers of National Energy Code of Canada for Buildings (NECB) 2020</b>	
Tier 4	60% More Energy Efficient
Tier 3	50% More Energy Efficient
Tier 2	25% More Energy Efficient
Tier 1 MINIMUM CODE	NECB 2020

### Way forward

In 2020, the National Research Council of Canada published the National Energy Code of Canada for Buildings (NECB) 2020 that was developed by the Canadian Commission on Building and Fire Codes.<sup>7</sup> The code introduced a new compliance path with 4 energy performance tiers to provide a framework for achieving higher levels of energy efficiency in buildings. The highest tier 4 is 60% more energy efficient than the minimum code tier 1. These energy standards can be adopted by the municipality to meet its emission reduction targets.

In 2021, Nova Scotia Government stated in its Environmental Goals and Climate Change Reduction Act, that the province will adopt the NECB 2020 within 18 months of it being published by the Federal government.<sup>8</sup> Following provincial adoption of new building codes, MODL will advance the regulations needed to support and enforce new codes in the region to ensure the new buildings are built to a certain energy efficiency standard.

<sup>7</sup> Government of Canada. (n.d.). National Energy Code of Canada for Buildings 2020. <https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-energy-code-canada-buildings-2020>

<sup>8</sup> Nova Scotia Environmental Goals and Climate Change Reduction Act. (2021). [https://nslegislature.ca/legc/bills/64th\\_1st/1st\\_read/b057.htm](https://nslegislature.ca/legc/bills/64th_1st/1st_read/b057.htm)

<b>Action 3 – Retrofit existing commercial, institutional, and industrial buildings</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Later (2028-2030)
<b>Goal</b> Promote EfficiencyNS’s commercial retrofit programs	



**Way forward**

The Federal government has added commercial building retrofits to the mandate of Canada Infrastructure Bank which provides financing for large scale energy retrofit projects through its Building Retrofits Initiative<sup>9</sup>. Under this initiative, both public sector and private sector large scale buildings including schools, universities, hospitals, retail chains, and corporations, are eligible to apply. At a provincial level, EfficiencyNS offers several programs and mechanisms tailored towards improving energy efficiency in the commercial, institutional, and industrial sector. These programs/mechanisms include a free energy assessment, rebates of up to 80% on upgrade projects and 24-months interest free financing for qualified businesses.<sup>10</sup> MODL recognizes that a successful transition to an energy efficient and net-zero built environment will require public awareness, education, and engagement every step of the way. MODL will develop educational campaigns to promote and create awareness amongst relevant stakeholders on the available energy efficiency programs/mechanisms at both federal and provincial level. MODL will also explore opportunities to provide incentives to the owners and operators of commercial, institutional, and industrial buildings to conduct energy audits, feasibility studies, and undertake energy efficiency improvement projects.

<sup>9</sup> Canada Infrastructure Bank. (n.d.). Green Infrastructure. <https://cib-bic.ca/en/sectors/green-infrastructure/>

<sup>10</sup> EfficiencyNS. (n.d.). Small Business. <https://www.energycyns.ca/business/business-types/small-business/>

## Category 2 – Low-Carbon Transportation

<b>Action 4 – Electric vehicles charging infrastructure</b>	
<b>Lead Department</b> Planning & Economic	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Conduct feasibility study to install more electric vehicle public charging stations	



### Way forward

MODL will conduct a feasibility study to expand its public electric vehicle (EV) charging infrastructure across the municipality to align with current and future EV demand. The key focus areas for the study would include a plan on number of public EV chargers needed in MODL, identify public-private partnership opportunities, provide policy recommendations to increase access to home charging, and recommend educational partnerships needed to position MODL as an EV-ready municipality.

<b>Action 5 – Electric vehicles promotion and education</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Make educational programs available to support and promote the transition to electric vehicles	



**Way forward**

In addition to an adequate public EV charging network, supportive policies, MODL can play an important role in increasing awareness and educating the public on the benefits of EVs. MODL will conduct public outreach campaigns to reach a wider audience and allow members of the public to interact with EVs and learn about evolving green technologies.

MODL will also partner with community colleges and relevant stakeholders to make courses on electric drive trains available to students enrolled in transportation related programs as well as to current automotive workforce members on servicing EVs, and to provide training options needed for first responders in handling incidents involving battery-powered vehicles.

<b>Action 6 – Anti-idling policy</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Create an anti-idling policy for the municipality	



**Way forward**

One of the ways to reduce emissions from our transportation sector is to adopt an anti-idling policy for the municipality. MODL will assess the sites and create no-idling zones to reduce the GHG emissions and the impacts of vehicle pollution.

<b>Action 7 – Carshare program</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Later (2028-2030)
<b>Goal</b> Conduct feasibility study for relevant carshare program options	



**Way forward**

MODL will conduct a feasibility study to assess different carshare programs that can be implemented in the region. Carsharing can be an affordable alternate mode of transportation and can be an effective way of reducing vehicle GHG emissions. However, in rural areas such as MODL, the potential success of carshare programs may face challenges. The feasibility study will allow the Municipality to undertake a review of emerging best practices examples from other rural municipalities around North America on carshare services. A carshare program successful in other municipalities may be unsuccessful in another due to differing municipal layouts, transit systems, and demographics. The study will focus on recommendations that are implementable in the MODL region. MODL will also explore opportunities to partner with neighbouring municipalities to assess the feasibility of a region-wide carshare program.

<b>Action 8 – Bikeshare program</b>	
<b>Lead Department</b> Planning & Recreation	<b>Timeline</b> Next (2025-2027)
<b>Goal</b> Conduct feasibility study for relevant bikeshare program options	



**Way forward**

Bikeshare programs can be effective in advancing healthy lifestyles through physical activity and fresh air while achieving emissions reduction by switching from a car. MODL will conduct feasibility study to assess different bikeshare programs including bike library, public use bicycles, bike cooperative, check-out bikes, and earn-a-bike programs, which can be implemented in the MODL region. MODL will also explore other opportunities to support and facilitate more bicycling in our community.

<b>Action 9 – Public transit service</b>	
<b>Lead Department</b> Planning & Economic	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Expand MODL public transit services	



**Way forward**

Presently MODL does not have any established public transit network. The Municipality is exploring opportunities to extend the existing Town of Bridgewater public transit services to serve nearby areas of MODL region. MODL’s Cookville community, being closest to the Town of Bridgewater, is growing quickly and is expected to experience high demand for public transit options. Lack of adequate transit options also poses the challenge of not being able to retain younger residents in the community. MODL recognizes the need to reconsider the conventional approaches to land use and infrastructure. As part of MODL2040, MODL is rebalancing the development patterns that are dispersed, very low density which makes it harder for public transit to thrive. Furthermore, MODL will continue to assess travel needs in its communities, explore viable public transit solutions, and how to bring them to reality.

<b>Action 10 – Active transportation strategy</b>	
<b>Lead Department</b> Planning & Recreation	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Support cycling and pedestrian friendly infrastructure	



**Way forward**

MODL developed its last Active Transportation (AT) Plan in 2010. The AT Plan included an inventory of existing active transportation infrastructure, mapping of proposed AT infrastructure improvements, 20-year phased approach for implementation, identifying priorities including cost estimates, an AT policy statement, proposed changes to the subdivision bylaw, and suggestions for funding. MODL will update its AT Plan over the next few years to further build upon the existing plan and pursue other avenues to increase the number of walking and cycling trips. AT is a non-polluting way to travel, and all the car trips displaced by AT trips lead towards emissions reduction. MODL will continue to develop a region-wide connected AT network of on-road and off-road facilities that are convenient, accommodate the needs of existing and future users, and promote an increase in non-motorized vehicle travel, particularly for short distance trips. This network will be supported by various programs, policies and strategies that will help and encourage AT year-round and improve the quality of life for both residents and visitors to the Municipality.

## Category 3 - Waste Reduction, Recycling, and Composting

<b>Action 11 – Waste management and educational programs</b>	
<b>Lead Department</b> Region 6 & Municipal Joint Services Board (MJSB)	<b>Timeline</b> Next (2025-2027)
<b>Goal</b> Develop waste management and educational programs to reduce annual solid waste disposal rate to below 300kg/person from current 487kg/person by 2030	



### Way forward

One of the effective ways to successfully manage waste is to increase public awareness and participation rate. MODL in collaboration with Region 6 Solid Waste Management (SWM) and MJSB will develop educational programs and public outreach campaigns to enable community members to better understand the issues associated with improper waste management and the environmental benefits of waste prevention, reuse, and recycling.

**Action 12 – Join in bring your own promotion and subsidy**

**Lead Department**

Region 6 & MJSB

**Timeline**

Now (2022-2024)

**Goal**

Launch 'Join in Bring Your Own' program to reduce single use plastics



**Way forward**

Region 6 SWM and MJSB run a campaign 'Join in Bring your Own' to encourage residents to reduce the use of single of plastics and bring their own things such as mug, bottle, bag, cutlery. MODL will build upon the ongoing JIBYO campaign to support its further expansion and create increased awareness of the impacts of plastic pollution on the environment and how everyday actions can lessen the problem.

## Category 4 - Renewable Energy Generation

<b>Action 13 – Community scale renewable energy project</b>	
<b>Lead Department</b> Planning & Economic	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Conduct feasibility study to develop up to 5MW renewable energy generation project (wind, hydro, or solar)	



### Way forward

Community scale renewable energy project offer multitude of benefits including economic benefits, reduced energy costs, reduced GHG emissions, reliable local energy supply supporting energy security, and community ownership and control, which permits energy autonomy and democracy. MODL will conduct a feasibility study to assess possible renewable energy sources and the location of such sources in the Municipality, and to explore the possibilities of future projects that can assist MODL in meeting its energy demands. The study will also conduct a detailed technical and economic analysis of potentially viable projects.

## Category 5 - Natural Environment Protection and Conservation

<b>Action 14 – Tree planting program</b>	
<b>Lead Department</b> Recreation	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Plant up to 10,000 trees by 2030	



### Way forward

Trees planting is one of the most engaging environmental activities that community members can take part in to better the environment. Trees provide many benefits including carbon sequestration, improving air quality, improving water retention, and reducing the risk of flooding. MODL will plant up to 10,000 trees by 2030 in collaboration with local community colleges and community champions.

<b>Action 15 – Land conservation</b>	
<b>Lead Department</b> Planning & Recreation	<b>Timeline</b> Ongoing
<b>Goal</b> Purchase and/or accept land donations, as well as assess other mechanisms such as conservation easements, to protect and/or conserve up to 20% of the identified land and water mass in the Municipality by 2030	



**Way forward**

In this climate crisis, it becomes even more pressing to protect and conserve our Municipality’s natural resources such as forests and wetlands to increase resilience against the impacts of changing climate. Most of the land in the Municipality is privately-owned including forests. These privately-owned forests are crucial potential carbon sinks and play a significant role in carbon sequestration and storage. MODL will assess policy tools and develop incentives program to influence the private woodlot owners to consider opportunities for forest stewardship. Beside carbon sequestration and storage, land conservation also provides a myriad of other benefits including reduced air and water pollution, preserved wildlife habitats, protected watersheds and wetlands, preserved scenic landscapes and recreational amenities, reduced soil erosion and enhanced soil quality, and reduced negative impacts of flooding. As part of its climate action, MODL will purchase and/or accept land donations, as well as assess other mechanisms such as conservation easements, to protect and/or conserve up to 20% of the identified land and water mass in the Municipality by 2030.

<b>Action 16 – Annual No Mow May event</b>	
<b>Lead Department</b> Planning & Recreation	<b>Timeline</b> Ongoing
<b>Goal</b> Launch the No Mow May event every year	

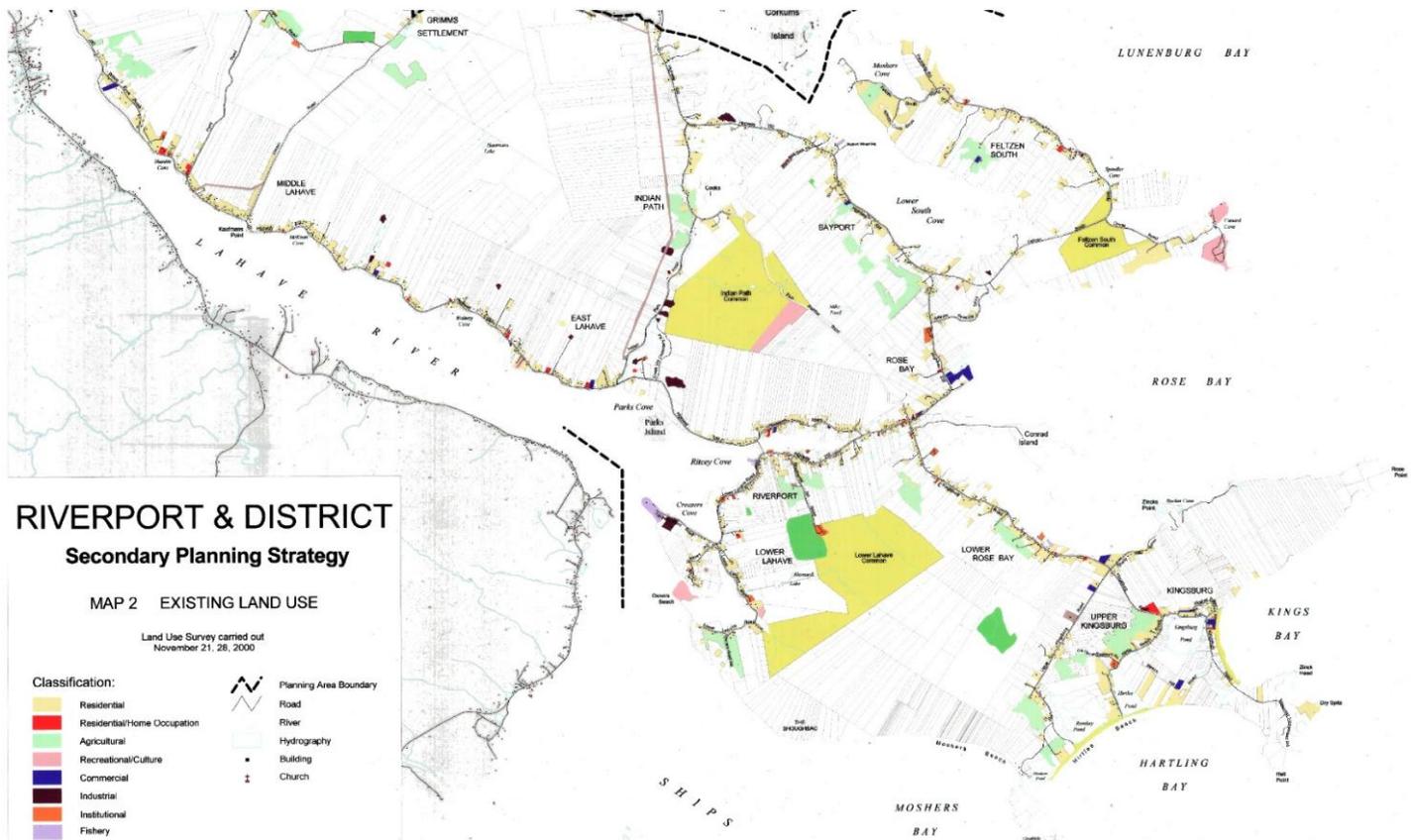


**Way forward**

In 2022, MODL launched 'No Mow May' event in the region to ask homeowners to pause mowing their lawns or greenspaces for the month of May to protect pollinators such as bees, butterflies, hummingbirds, and other wildlife in the greenspaces. Pollination is an essential part of our food production. Unmown lawns or greenspaces allow flowers, including dandelions, to bloom which provide pollinators and other wildlife with food and a much-needed home in spring. MODL will continue to host the event annually to protect biodiversity

# Category 6 – Sustainable Land Use Planning and Development

<b>Action 17 – Municipal Planning Strategy &amp; land use by-law: MODL2040</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Develop land use bylaws to support sustainable development by reducing sprawl & energy consumption	



## Way Forward

MODL aspires to create age-friendly inclusive communities that are connected, compact and powered with renewable energy. As part of MODL2040 project, the Municipality will also incorporate climate change adaptation planning into its land use planning. MODL recently undertook municipality-wide floodplain and flood-risk mapping to better implement land-use considerations in the region while incorporating ‘protect, accommodate, retreat or avoid’ planning into land-use zoning. In addition, MODL will continue to rebalance the development patterns to create more complete, walkable, and denser communities that offer mixed housing options, easy access to nearby shops, restaurants, schools, and parks.

## Category 7 – Local Food Security

<b>Action 18 – Community vegetable garden</b>	
<b>Lead Department</b> Economic	<b>Timeline</b> Next (2025-2027)
<b>Goal</b> Build a community vegetable garden as part of the Community Hub	



### Way forward

The Municipality is exploring the feasibility of developing a Community Hub building in the Osprey Village development. A Community Hub will provide shared indoor and outdoor spaces and amenities that can be used by community organizations, groups, and members. Additionally, the building will also offer spaces for a farmers' market, a community vegetable garden and kitchen.

<b>Action 19 – Food security programs</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Next (2025-2027)
<b>Goal</b> Investigate and develop local food security programs or strategies to improve access to and increase production of local food to achieve 20% consumption of local food by 2030	



### Way forward

Access to safe, nutritious, and sufficient food is a basic human right. The Municipality will draw a baseline for current levels of local food consumption in the region to better understand the current situation. MODL will develop food security programs or strategies accordingly to improve access to and increase production of local food to achieve 20% consumption of local food by 2030.

## Category 8 - Emergency Preparedness and Response

<b>Action 20 – Dry hydrants</b>	
<b>Lead Department</b> Fire Services Coordinator	<b>Timeline</b> Next (2025-2027)
<b>Goal</b> Restore and install more dry hydrants in the Municipality to ensure availability of adequate water resources during fire related emergencies	



### Way forward

With rising global temperatures, the threat of extreme fires also increases. In case of a fire, local dry hydrants play a critical role of providing adequate water in an effective and convenient way to fight the fire. Municipality will assess the current situation of dry hydrants and develop financing mechanism to support regional fire departments to install more dry hydrants across the region and repair the existing ones to ensure Municipal dry hydrant infrastructure is equipped for handling fire emergencies.

<b>Action 21 – Education on the impacts of climate change</b>	
<b>Lead Department</b> Regional Emergency Management Organization (REMO)	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Develop programs to provide education on emergency events preparedness and response	



**Way forward**

MODL in collaboration with REMO will develop educational programs integrating preparedness, disaster risk reduction and resilience into education programs to create awareness among community members and prepare them for escaping the harshest impacts of climate change.

## Category 9 - Community Engagement

<b>Action 22 – Council-led advocacy</b>	
<b>Lead Department</b> Municipal Council	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Municipal Council advocates to persuade decision-makers and leaders in other levels of government to act in the best interests of MODL communities	



### Way forward

Municipal Council's advocacy is central to driving change and working on behalf of the community residents to access and secure government funding or influence politicians or decision-makers at upper levels of government to act in the best interests of MODL residents. Council-led advocacy can play a vital role in shaping public policy and allocation of resources and ensuring the voices of the Municipal residents are heard.

<b>Action 23 – Community pledges</b>	
<b>Lead Department</b> Planning & Recreation	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Initiate community pledges to enable community members to pledge to reduce emissions at individual level	

**Climate Action Pledge**

I PLEDGE THAT I WILL:

- Install energy-efficient appliances
- Begin monitoring my energy consumption
- Begin monitoring my water usage
- Install a programmable thermostat
- Put in drought-resistant landscaping

**Way forward**

MODL will initiate community pledges to encourage community members to take individual action towards reducing GHG emissions and environmental sustainability. Community members have a major role in helping MODL reduce its carbon emissions and build sustainable communities. Community members can take simple actions such as recycling and composting, walking or biking to work, using an electric vehicle, upgrade windows, doors, and insulations at their homes. All these individual actions play a critical role in climate action.

<b>Action 24 – Youth engagement</b>	
<b>Lead Department</b> Planning & Recreation	<b>Timeline</b> Ongoing
<b>Goal</b> Partner with local schools, institutions, or organizations to support youth engagement for climate action	



**Way forward**

MODL acknowledges the need for more youth-inclusive climate responses and aims to place meaningful youth engagement at the heart of climate action. Climate change will disproportionately impact youth and future generations, and it is essential to work together with the youth and invest in youth leadership for a better present and future. MODL will seek youth participation in decision making, encourage them to share their vision of the future by sitting on a steering committee and further seek their collaboration in the implementation of the plan’s climate actions such as community wide tree planting.

<b>Action 25 – Region-wide climate working group</b>	
<b>Lead Department</b> Planning & Recreation	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Establish a region-wide climate working group	



**Way forward**

MODL does not presently have an established regional climate working network and municipalities are primarily working in isolation towards climate action. MODL will develop effective inter-municipal relations to improve municipal capacity to respond to climate emergency priorities. MODL will also host a Climate Emergency Summit in 2023 that will allow the Municipality to mobilize community climate champions and form a regional climate action network of elected officials, staff, and stakeholders with neighbouring municipalities. This will enable municipalities to leverage regional collaboration in joint applications for federal or provincial grants. The established network will further aid in creating new or enhancing existing regional municipal services, such as public electric vehicles charging infrastructure, regional public transit, and carshare services.

<b>Action 26 – MODL environmental and resilience champion award</b>	
<b>Lead Department</b> Planning	<b>Timeline</b> Now (2022-2024)
<b>Goal</b> Launch the award to honour individuals, businesses, and community groups for their contribution towards climate action	



**Way forward**

MODL will recognize environmental champions in our communities and honour these individuals, groups, or organizations for their contribution towards reducing GHG emissions and environmental sustainability.

## Category 10 – Research and Innovation

Action 27 – Advance research and innovation	
Lead Department Planning	Timeline Now (2022-2024)
Goal Support research & technological innovations to address climate change	



### Way forward

MODL will advance the research essential for discovering solutions to the problems that still need to be solved and foster the innovation necessary to achieve rapid decarbonization of our local economy. MODL is already excelling at using technologies to mitigate climate change such as solar Photovoltaic (PV) and electric cars. Over the years, MODL will also further its learning and expertise into technologies such as carbon capture and storage, electricity storage, and producing green hydrogen, which can play a role in not only reducing GHG emissions but also in increasing community resilience. Research and innovation efforts are also critical to improve the performance of climate actions and develop capacities for undertaking long-term ecological transformation to a low-emission and climate-resilient future.



Chapter 2

# Corporate Climate Action Plan

## CHAPTER 2 – CORPORATE CLIMATE ACTION PLAN

The Corporate Climate Action Plan focuses on reducing GHG emissions that are directly controlled by MODL (e.g., municipal operations and fleets). MODL has committed to achieving corporate emissions reduction of 64% from 2019 levels by 2030 and achieve net zero emissions by 2050. Achieving this target will cap corporate emissions at 428 tCO<sub>2</sub>e and lead to a total reduction of 762 tCO<sub>2</sub>e. To achieve the set target, the Plan has identified 4 main categories and 10 climate actions to reduce emissions in each of the five sectors: Buildings, Streetlights, Municipal Vehicles, Water and Wastewater, and Solid Waste.

### 2019 CORPORATE BASELINE EMISSIONS

Corporate emissions for MODL were first measured in 2020, using 2019 as the baseline year, as part of the PCP Milestone 1 requirements. Total emissions in 2019 were 1189.50 tCO<sub>2</sub>e from five sectors: Buildings, Streetlights, Municipal Vehicles, Water and Wastewater, and Solid Waste. Emissions were measured for all operations either owned directly by the municipality or contracted out by the municipality. Figure 4 shows total emissions by sector in tCO<sub>2</sub>e, while Figure 5 shows 2019 emissions by energy source.

As shown in Figure 4 the Water and Wastewater was responsible for the highest emissions levels, generating 481.82 tCO<sub>2</sub>e emissions, while waste from municipal operations accounted for the least at 35.75 tCO<sub>2</sub>e. Total emissions from the remaining sectors were Buildings 184.64 tCO<sub>2</sub>e, Streetlights 133.17 tCO<sub>2</sub>e, and Vehicles 354.10 tCO<sub>2</sub>e.

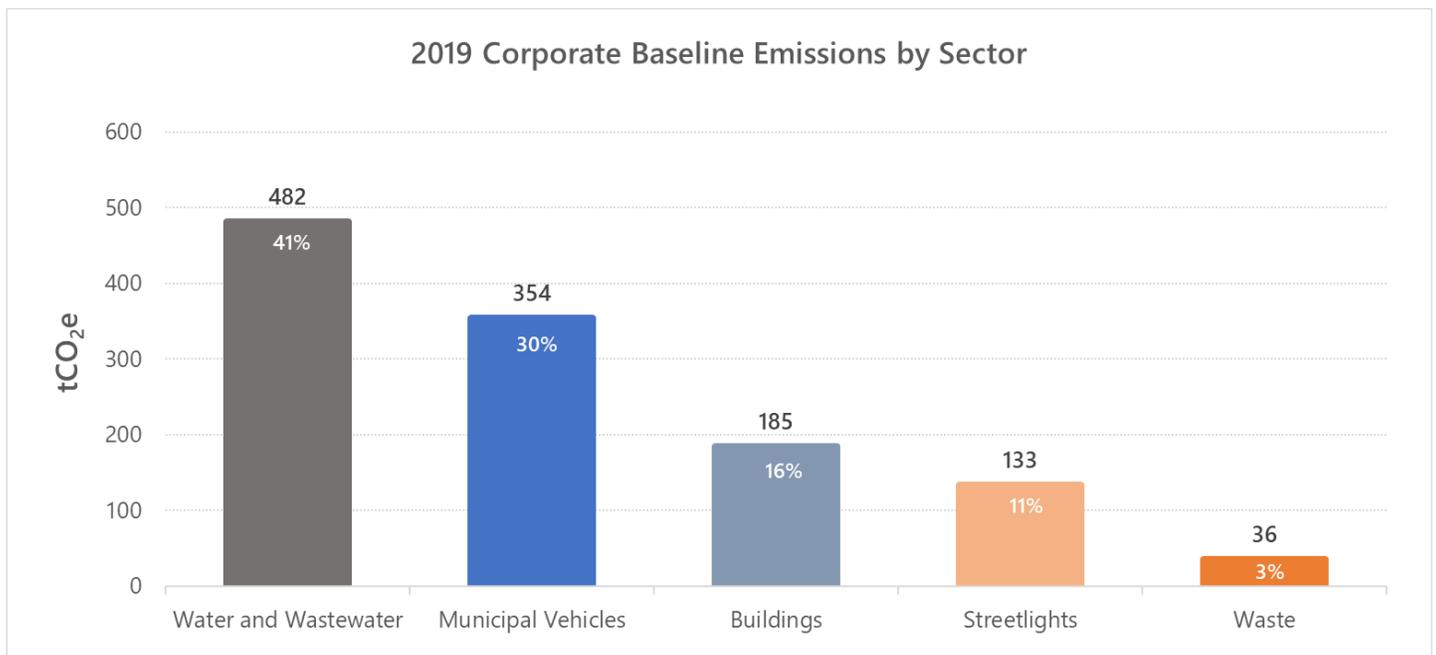


Figure 4 - Corporate Emissions by Sector

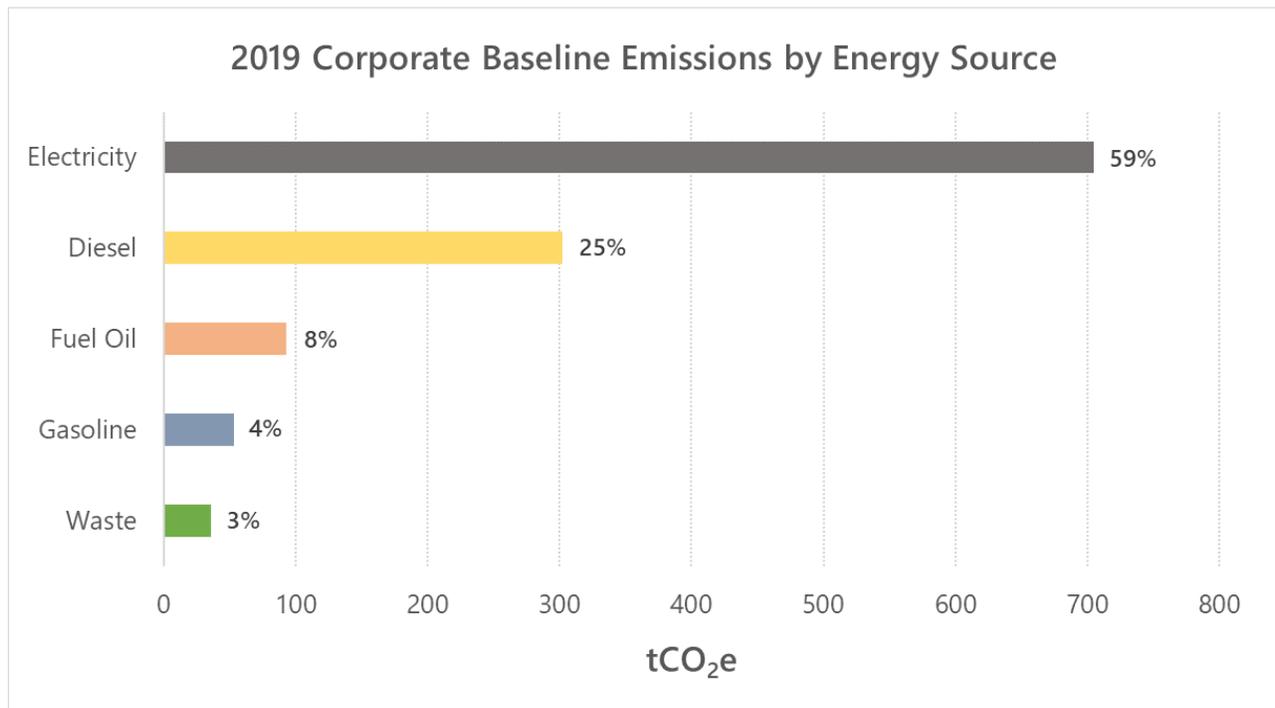


Figure 5 - Corporate Emissions by Energy Source

## CORPORATE EMISSIONS REDUCTION TARGET AND LOW-CARBON SCENARIO

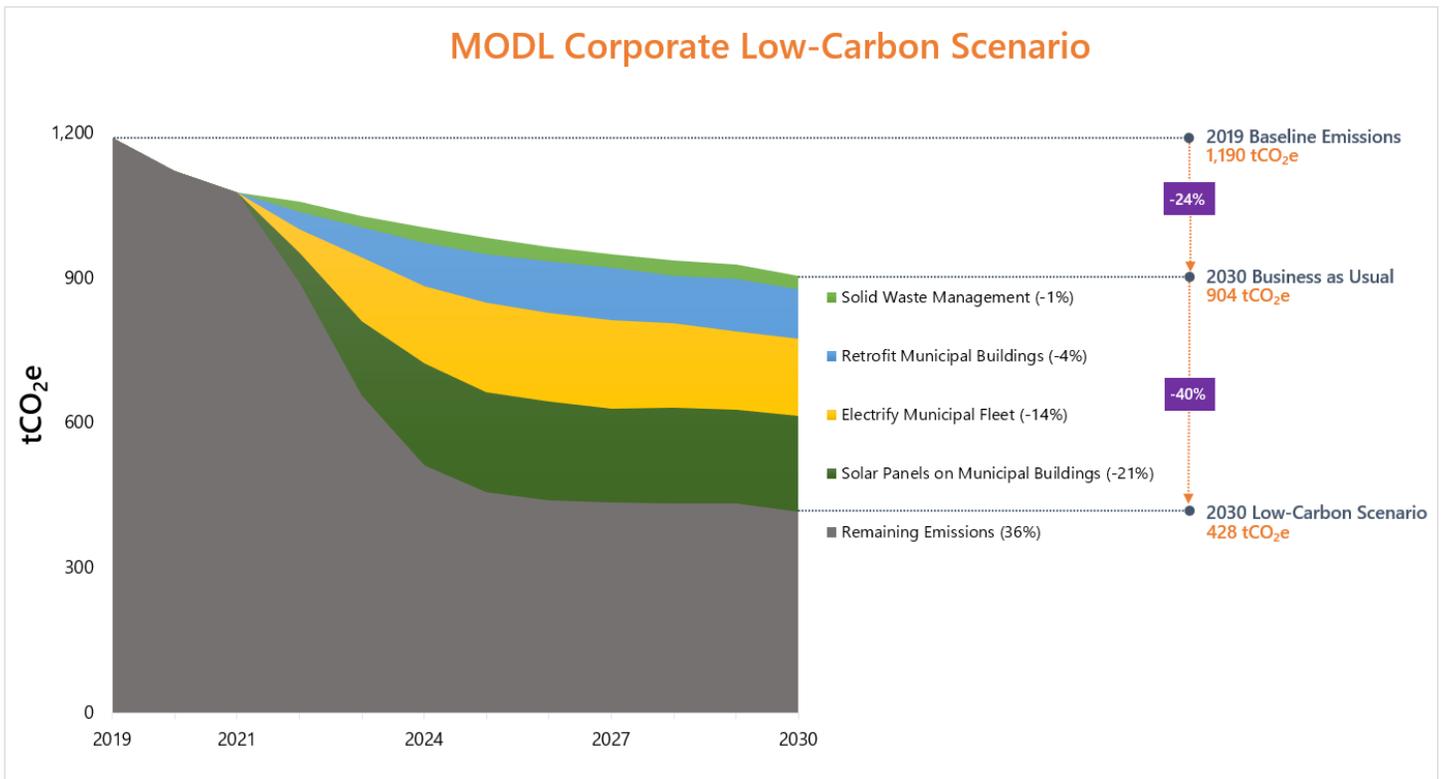
MODL assessed the identified corporate climate actions for its GHG reduction potential and determined their impact on emissions reduction by 2030. Two modeling scenarios were created: 'Business as Usual' scenario and 'Low-Carbon Scenario'. 'Business As Usual' scenario assessed the impact on emissions reduction when the Municipality does not act at all. It is estimated that the community GHG emissions will reduce by 24% below 2019 baseline levels by 2030. This is primarily achieved from Nova Scotia Power (NSP) grid becoming cleaner over time. It is projected that the NSP grid's intensity of 720 grams of CO<sub>2</sub>e per kWh in 2019 will reduce to 431 grams of CO<sub>2</sub>e per kWh by 2030.<sup>11</sup>

In 'Low-Carbon Scenario', it is estimated that by implementing key action items such as adding solar panels on Municipal buildings, electrifying Municipal fleet, retrofitting Municipal buildings, and solid waste management, the Municipality can achieve additional 40% emissions reduction from BAU scenario by 2030, leading to a total reduction of 64% below 2019 levels by 2030.

<sup>11</sup> Electricity grid emissions intensities by province. Source: Environment and Climate Change Canada, Strategic Policy Branch, Economic Analysis Directorate, Analysis and Modelling Division

Based on the assessment, MODL has set a corporate emissions reduction target of 64% below the 2019 baseline emissions level by 2030 and achieve net-zero greenhouse gas emissions by 2050.

The MODL Corporate Low-Carbon Scenario Graph 2 below shows the Baseline Emissions, projected Business as Usual, and Low-Carbon Scenario GHG emissions levels.



Graph 2 – MODL corporate low-carbon scenario

The Table 5 below provides MODL’s corporate GHG emissions profile and the projected emissions.

Table 5 - Municipality of the District of Lunenburg Corporate GHG Emissions Profile		
Corporate Emissions		
2019 Corporate Baseline Emissions 1,190 tonnes CO <sub>2</sub> e per year	2030 Emissions Reduction Target	Expected Annual Emissions by 2030
	64%	428 tCO <sub>2</sub> e
	2050 Emissions Reduction Target	Expected Annual Emissions by 2050
	Net-zero	Net-zero tCO <sub>2</sub> e

# CORPORATE CLIMATE ACTIONS

The Table 6 below provides an overview of all 4 main categories and 10 climate actions of the Plan.

Table 6 - Corporate Climate Actions Overview				
Main Categories and Actions		Lead Department	Cost	Timeline
<b>Category 1 - Solar Panels on Municipal Buildings</b>				
1	Install 100kW solar array at Municipal Services Building	Planning & Engineering	\$\$\$	Ongoing
2	Install 100kW solar array at New Germany WWTP	Planning & Engineering	\$\$\$	Now
3	Install 100kW solar array at Cookville WWTP	Planning & Engineering	\$\$\$	Now
4	Install 20kW solar array at Conquerall Bank WWTP	Planning & Engineering	\$\$\$	Now
5	Install 20kW solar array at CES Building	Planning & Engineering	\$\$\$	Now
<b>Category 2 - Retrofit Municipal Buildings</b>				
6	MARC facility energy assessment & renewal	Planning, Engineering & Recreation	\$\$\$	Next
<b>Category 3 - Electrify Municipal Fleet</b>				
7	Replace 8 Municipal vehicles with EVs	Planning, Engineering & Recreation	\$\$\$	Ongoing
8	Install 3 EV charging stations at Municipal Services Building	Planning & Engineering	\$\$\$	Now
9	Ensure waste hauling trucks in the new contract are EVs	Planning & MJSB	\$\$\$	Next
<b>Category 4 - Solid Waste Management</b>				
10	Reduce corporate solid waste by 20% from 2019 levels	Planning	\$	Now

Timeline Key	
Now	actions that will be initiated/implemented in 2022-2024
Next	actions that will be initiated/implemented in 2025-2027
Later	actions that will be initiated/implemented in 2028-2030
Ongoing	actions that have already been initiated and will continue through the LCCAP2030

Cost Key	
\$	less than \$10,000
\$\$	\$10,000 - \$100,000
\$\$\$	more than \$100,000

## Category 1 – Solar Panels on Municipal Buildings



### Action 1 – Install 100kW solar array at Municipal Services Building

Lead Department	Timeline
Planning and Engineering	Ongoing

#### Way forward

MODL will install a 100kW solar array on its Municipal Services Building in the 2022-23 fiscal year. The project will allow the Municipality to offset approximately 60% of the annual electricity consumption of the building and reduce GHG emissions by 78 tCO<sub>2</sub>e.

<b>Action 2 – Install 100kW solar array at New Germany WWTP</b>	
<b>Lead Department</b> Planning and Engineering	<b>Timeline</b> Now (2022-2024)

**Way forward**

MODL will install a 100kW solar array on the New Germany Wastewater Treatment Plan (WWTP) in the 2023-24 fiscal year. The project will allow the Municipality to offset approximately 90% of the annual electricity consumption of the facility and reduce GHG emissions by 78 tCO<sub>2</sub>e.

<b>Action 3 – Install 100kW solar array at Cookville WWTP</b>	
<b>Lead Department</b> Planning and Engineering	<b>Timeline</b> Now (2022-2024)

**Way forward**

MODL will install a 100kW solar array on the Cookville WWTP in the 2023-24 fiscal year. The project will allow the Municipality to offset approximately 35% of the annual electricity consumption of the facility and reduce GHG emissions by 78 tCO<sub>2</sub>e.

<b>Action 4 – Install 20kW solar array at Conquerall Bank WWTP</b>	
<b>Lead Department</b> Planning and Engineering	<b>Timeline</b> Now (2022-2024)

**Way forward**

MODL will install a 20kW solar array on the Conquerall WWTP in the 2023-24 fiscal year. The project will allow the Municipality to offset approximately 100% of the annual electricity consumption of the facility and reduce GHG emissions by 15 tCO<sub>2</sub>e.

<b>Action 5 – Install 20kW solar array at CES Building</b>	
<b>Lead Department</b> Planning and Engineering	<b>Timeline</b> Now (2022-2024)

**Way forward**

MODL will install a 20kW solar array on the Construction Engineering Flight (CES) Building in the 2024-25 fiscal year. The project will allow the Municipality to offset approximately 100% of the annual electricity consumption of the facility and reduce GHG emissions by 15 tCO<sub>2</sub>e. The CES Building is MODL owned and leased to a third party which may require the Municipality to negotiate new power payment terms in the lease.

## Category 2 – Retrofit Municipal Buildings



### Action 6 – MARC facility energy assessment & renewal

Lead Department	Timeline
Planning, Engineering & Recreation	Next (2025-2027)

#### Way forward

MODL will complete an energy assessment of the Municipal Activity & Recreation Complex (MARC) building to explore options to upgrade the building to achieve net-zero emissions. There may be an opportunity to install an 80kW solar array which can offset approximately 100% of the electricity consumption of the facility allowing the MARC to achieve net-zero emissions. This project will allow reduction of 52 tCO<sub>2</sub>e emissions from the corporate inventory. MODL will also explore opportunities to retrofit other Municipally owned buildings.

## Category 3 – Electrify Municipal Fleet



### Action 7 – Replace 8 Municipal vehicles with EVs

Lead Department	Timeline
Planning, Engineering & Recreation	Ongoing

#### Way forward

MODL currently operates a small fleet made up of 8 vehicles, two tractors, a zero-turn radius lawnmower, and two UTV's. MODL will replace 8 vehicles in its fleet with EVs by 2030. In 2021-22 fiscal year, MODL has already replaced 2 vehicles with EVs. The remaining 6 vehicles will be replaced during the 2023-2025 period. Replacing the Municipal fleet with EVs will reduce emissions by 20 tCO<sub>2</sub>e.

<b>Action 8 – Install 3 EV charging stations at Municipal Services Building</b>	
<b>Lead Department</b> Planning & Engineering	<b>Timeline</b> Now (2022-2024)

**Way forward**

As the Municipality replaces its vehicle fleet with EVs over the coming years, it also requires supporting EV charging infrastructure. MODL presently has 1 EV level-2 charger (with 2 charging ports) installed at the Municipal Services Building. With 6 new EVs expected to be added to the fleet, MODL will install 3 more EV level-2 charging stations with 6 charging ports, during the 2022-24 period.

<b>Action 9 – Ensure waste hauling trucks in the new contract are EVs</b>	
<b>Lead Department</b> Planning & MJSB	<b>Timeline</b> Next (2025-2027)

**Way forward**

MODL contracts out waste collection trucks which produced 299.58 tCO<sub>2</sub>e in 2019. Presently MODL has four waste trucks that it contracts out. MODL will ensure all waste trucks in the new contract are EVs by 2030, that will allow MODL to reduce emissions by 149 tCO<sub>2</sub>e.

## Category 4 - Solid Waste Management



### Action 10 – Reduce corporate solid waste by 20% from 2019 levels

**Lead Department**  
Planning

**Timeline**  
Now (2022-2024)

#### Way forward

Municipality will prepare a corporate waste management strategy to assess the type of waste that is being produced by facilities and plan mechanisms that will allow reduction of corporate solid waste by 20 percent from 2019 levels.

# FINANCIAL PLAN

The five-year financial plan (2021-2025) in Table 7 below provides high-level cost estimates for implementing the LCCAP2030's actions. The "Funded Actions" includes both community and corporate projects that are already included in the Municipal budget. The "Unfunded Proposed Actions" includes new funding requests that support the LCCAP2030's actions but are not currently included in the Municipal budget. Through the municipal budget process, business cases will be prepared for specific actions at the time of implementation, which will provide an opportunity to evaluate these actions with the most up-to-date costs, available grants, resource requirements, and other identified funding sources.

Table 7 - Five-year Financial Plan (2021-2025)								
Sector	Funded Actions (included in Municipal budget)	Budget Type		Budget Year				
		Operating	Capital	2021/22	2022/23	2023/24	2024/25	2025/26
Community	1 Green/climate change projects		✓		\$50,000	\$95,000	\$500,000	\$500,000
	2 Clean energy financing program		✓	\$100,000	\$200,000			
	3 Electric vehicles charging infrastructure study		✓		\$25,000			
	4 Tree planting	✓			\$7,000			
	5 Community pledges	✓			\$4,500			
	6 Environmental champion award	✓			\$5,500			
	7 Public transit projects		✓			\$125,000	\$100,000	
	8 Petite riviere watershed flood mitigation		✓	\$146,000	\$100,000	\$100,000		
Corporate	9 MARC facility & energy assessment		✓		\$75,000			
	10 MARC facility renewal		✓				\$50,000	\$800,000
	11 Engineering dept. vehicles replacement (EV)		✓	\$80,000		\$80,000		
	12 Building inspection vehicles replacement (EV) (4)		✓	\$155,100		\$100,000		\$100,000
	13 Recreational dept. vehicles replacement (EV) (2)		✓				\$80,000	\$80,000
	14 WWTP van & truck replacements (EV)		✓				\$80,000	\$80,000
	15 Solar panels - Municipal services building		✓	\$280,000	\$400,000			
	16 Solar panels - Conquerall Bank WWTP		✓			\$150,000		
	17 Solar panels - New Germany WWTP (incl. pumping stations)		✓			\$175,000		
	18 Solar panels - Cookville WWTP (incl. pumping stations)		✓			\$300,000		
	19 Solar panels - CES Building		✓				\$150,000	
<b>Total Funded Action Items:</b>				<b>\$761,100</b>	<b>\$867,000</b>	<b>\$1,125,000</b>	<b>\$960,000</b>	<b>\$1,560,000</b>
Change in Funding Requirement Over Prior Year:				-	\$105,900	\$258,000	-\$165,000	\$600,000
Sector	Unfunded Proposed Actions (not included in Municipal budget yet)	Budget Type		Budget Year				
		Operating	Capital	2021/22	2022/23	2023/24	2024/25	2025/26
Community	1 Clean energy financing program (expansion)	✓				\$500,000	\$1,000,000	\$1,000,000
	2 Carshare program feasibility study	✓				\$25,000		
	3 Land conservation study	✓						\$50,000
	4 Dry hydrants		✓				\$15,000	\$15,000
<b>Total Unfunded Proposed Action Items:</b>				<b>\$0</b>	<b>\$0</b>	<b>\$525,000</b>	<b>\$1,015,000</b>	<b>\$1,065,000</b>
Change in Funding Requirement Over Prior Year:				-	-	\$525,000	\$490,000	\$50,000

# IMPLEMENTATION AND MONITORING

## PERFORMANCE

The Municipality will monitor the indicators listed in the Table 8 below to measure the performance of the plan's climate actions. The Municipality will conduct emissions inventory every three years to evaluate the GHG emissions reduced through the implementation of these climate actions.

Table 8 - List of Performance Indicators	
Priority Areas	Performance Indicators (unit):
Homes retrofitted	Number of CEF program, HomeWarming program applicants per year (#)
Solid waste reduced	Total weight of waste landfilled/diverted per year (tonnes)
Natural land protected	Number of hectares protected per year (ha)
Trees planted	Number of trees planted per year (#)
Community pledges	Number of people participating in pledges per year (#)
No Mow May pledges	Number of people participating in pledges per year (#)
Public EV charging infrastructure	Number of EV chargers installed (#)
Community and corporate energy consumption (every 3 years)	Total annual electricity consumption (kWh)
	Total annual fuel (propane, diesel, gasoline, and fuel oil) consumption (liters)
Corporate renewable electricity produced (every year)	Total annual electricity production (kWh)
Community and corporate Emissions reduced (every 3 years)	Energy associated GHG emissions (tCO <sub>2</sub> e)

**Local Climate Change Action Plan 2030**  
**Municipality of the District of Lunenburg**

[www.modl.ca](http://www.modl.ca)