

The Carbon Budget

Alignment, Transformation and
Hope in the Climate Crisis

The Climate Crisis

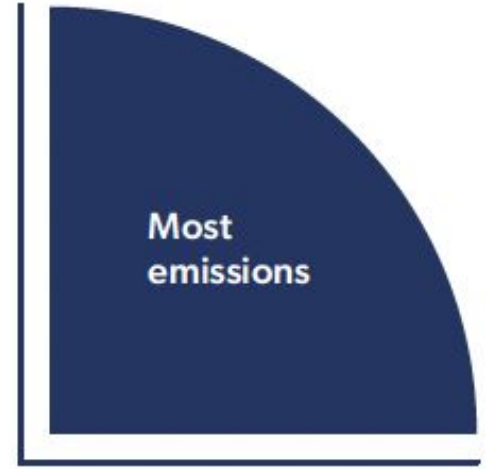
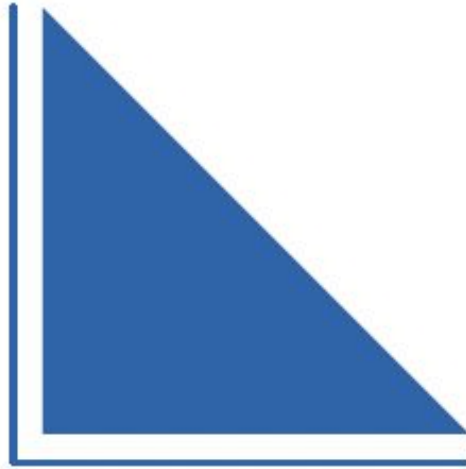
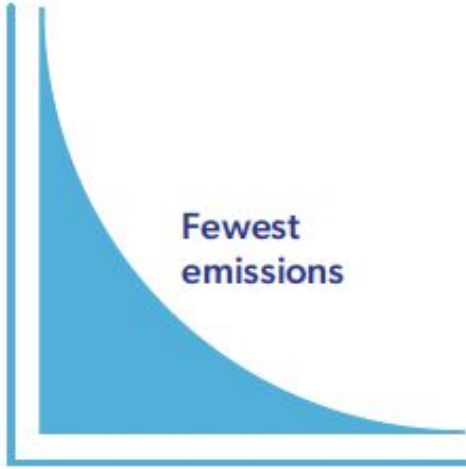


Communications
Nova Scotia

EVERY TONNE MATTERS

The Right Targets (sort of)

The Wrong Strategy

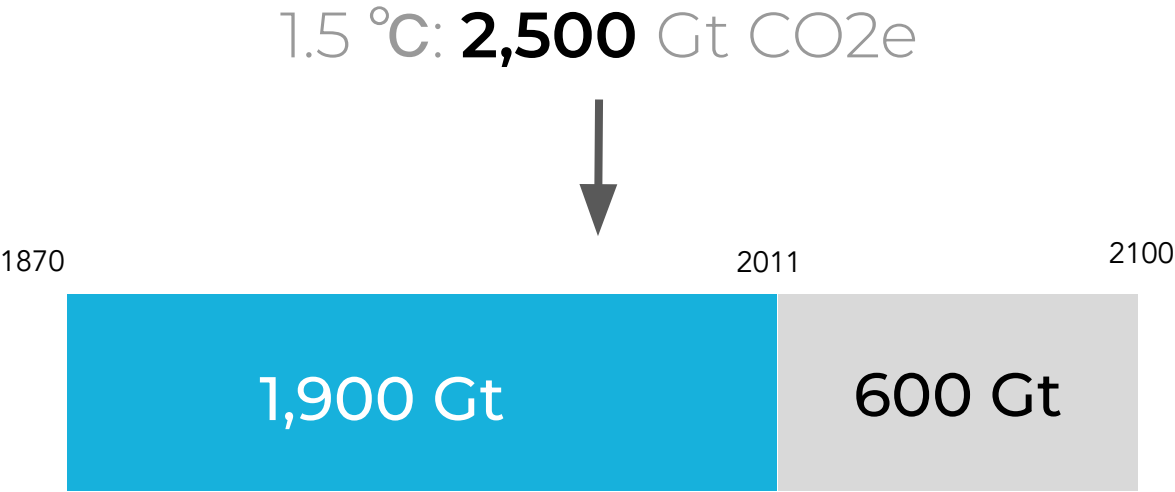


How much do we have?

Carbon budget as a **target**

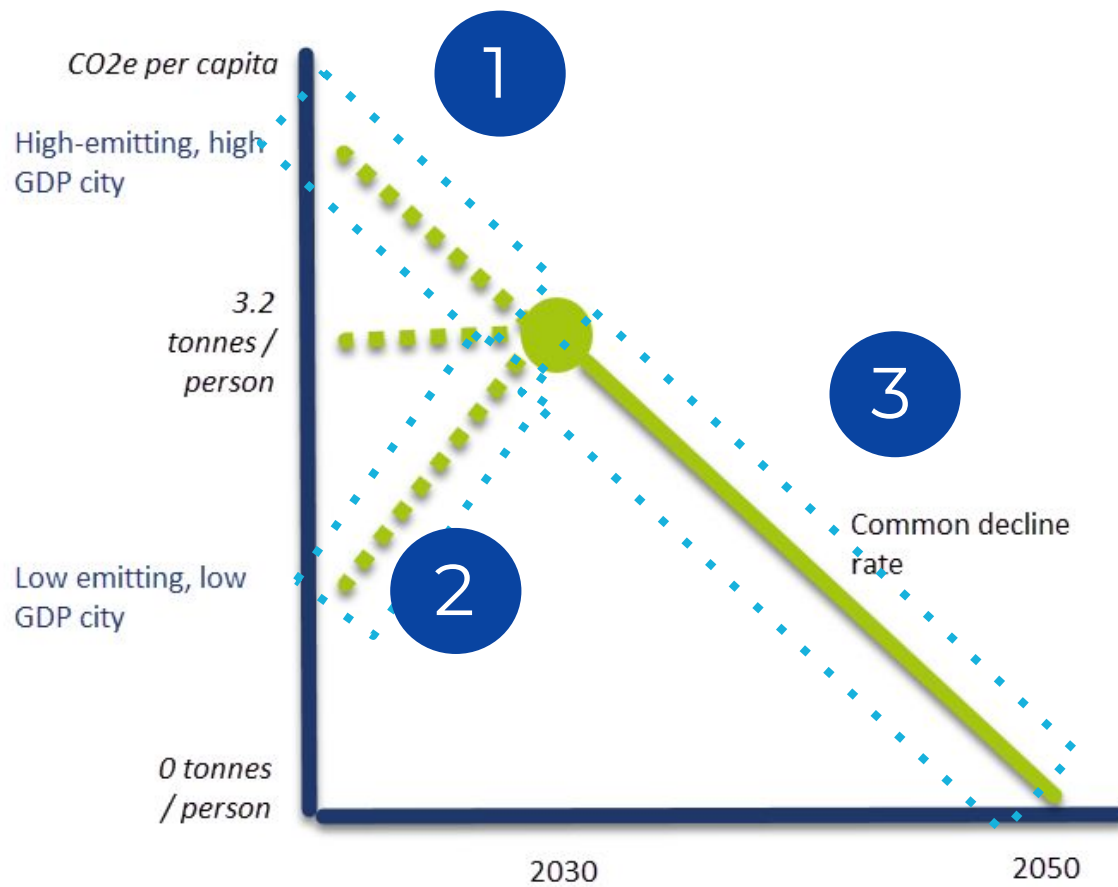


Science-Based



How can this total be downscaled to a city?

> It's not just math, it's an **ethical decision**



1.5 °C: **2,500** Gt CO₂e



1870

2011

2100

1,900 Gt

600 Gt

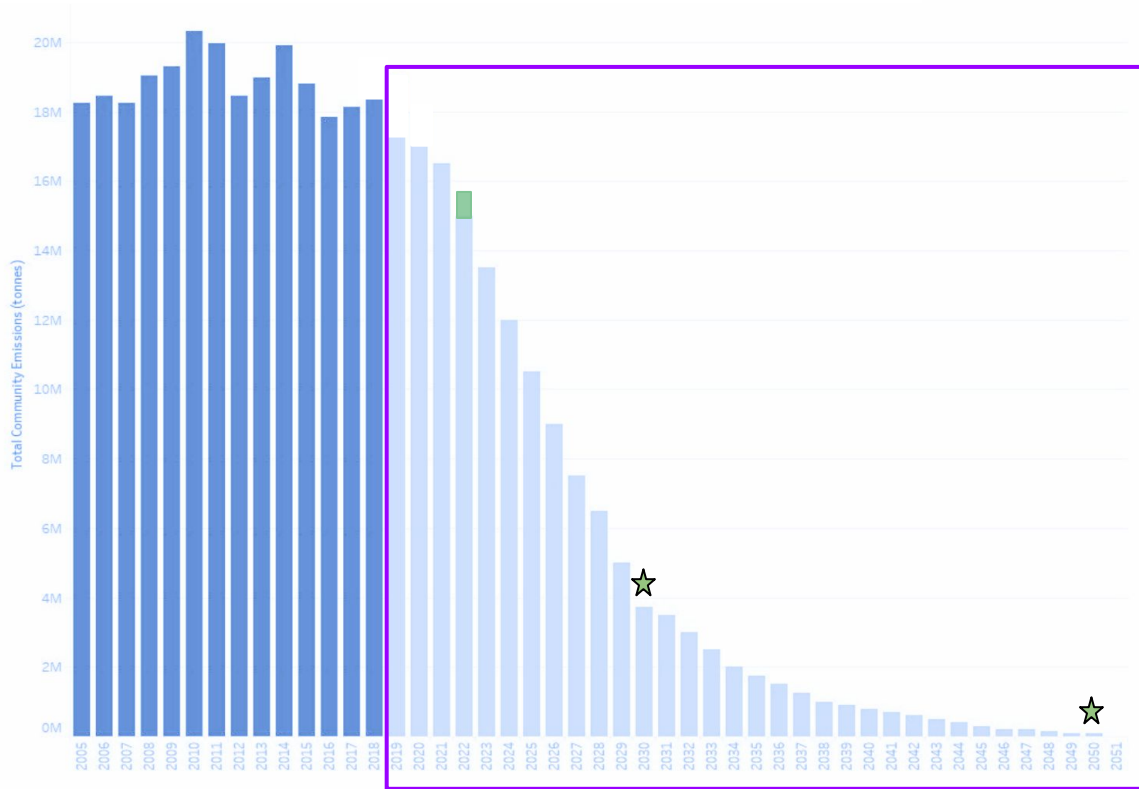
Shanghai

London

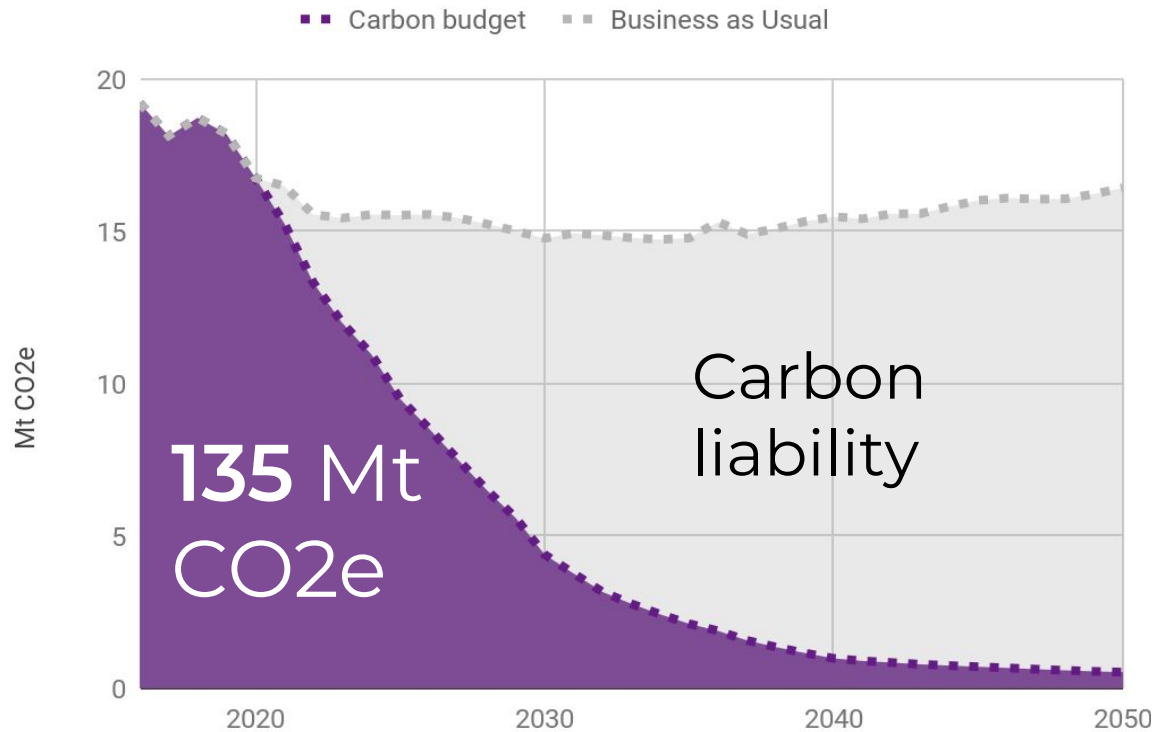
Mexico
City

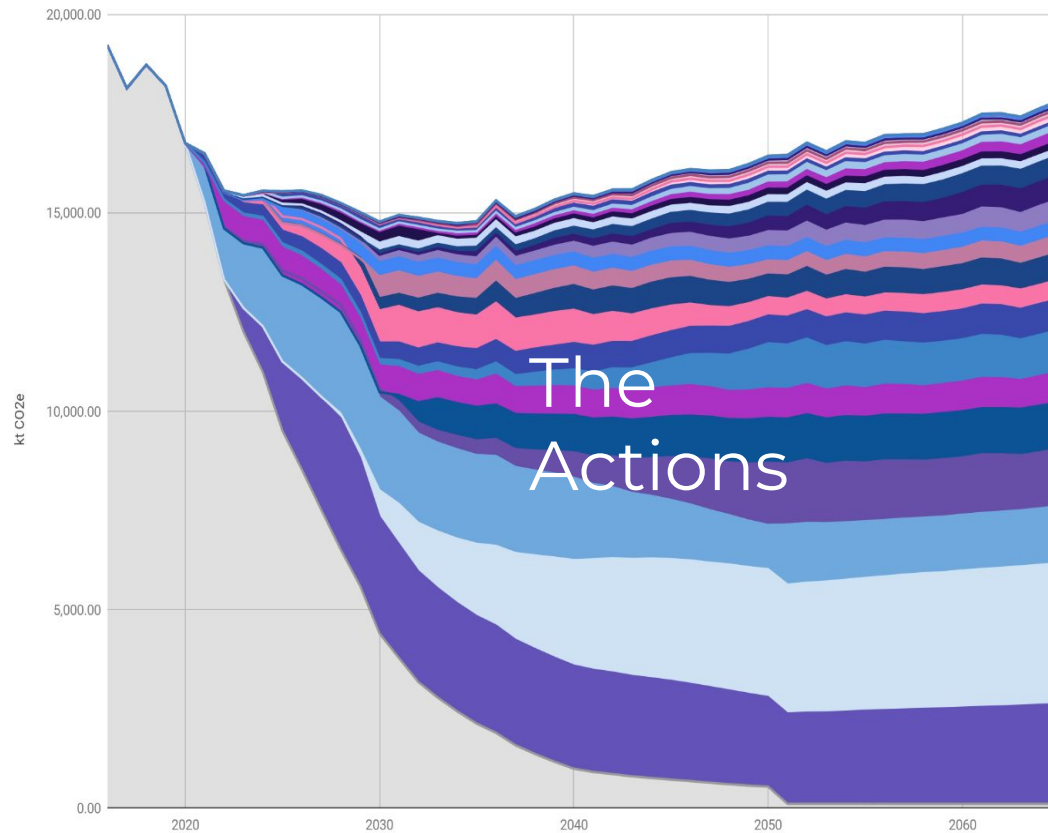
Edmonton 2020-2050:
135 Megatonnes

Edmonton 2020-2050:
135 Megatonnes



★ 2030 & 2050 align with “convergence and contraction” model.





- Increase, preserve and restore natural carbon sinks
- Decrease waste
- Car sharing
- Energy storage
- Electrify transit
- Transition to electric and hydrogen municipal vehicles
- Renewable natural gas
- Wind
- Customized transportation mktg & increase/ improve
- Industrial energy efficiency
- Car free zones and Enhanced Transit
- Decarbonize water heating
- Building use intensity
- New residential buildings
- Carbon capture and sequestration
- Introduce Hydrogen to buildings & switch university DE to
- Heat pumps
- Renewable district energy
- Solar PV on rooftops
- Retrofit homes
- New non-residential buildings
- Transition to electric and hydrogen commercial vehicles
- Retrofit non-residential buildings
- Purchase offsets

3 more

TRANSFORMATION

Hagmann Estate Industrial

Proposed
Noise Wall

Prince Charles

Shared-use path

127 STREET

The Disconnect

Sidewalk

Proposed
Noise Wall

Sherbrooke

YELLOWHEAD TRAIL

Shared-use path

A black and white photograph of a gravestone, shaped like a cross, partially obscured by tall, dry grass. The stone is dark and stands out against the lighter, textured grass. The overall mood is somber and reflective.

I'll be
dead
before
2050.

An aerial photograph of a suburban residential area. The image shows a grid of streets with numerous houses, mostly with dark roofs. There are green lawns and some trees scattered throughout. The overall layout is typical of a planned suburban development.

Lock-In

ALIGNMENT

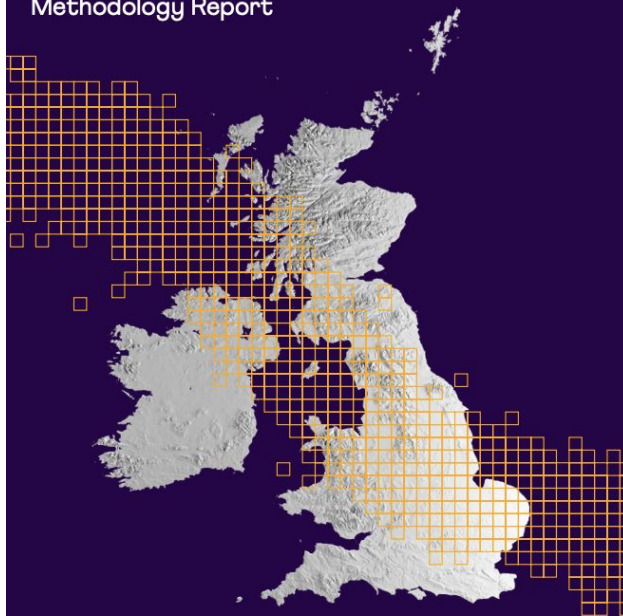
How are we going to spend it?

Carbon budget as a
management system

December 2020

The Sixth Carbon Budget

Methodology Report





Oslo

Climate budget 2020

Chapter 2, Oslo City Government's
budget proposal 2020 with
appendices



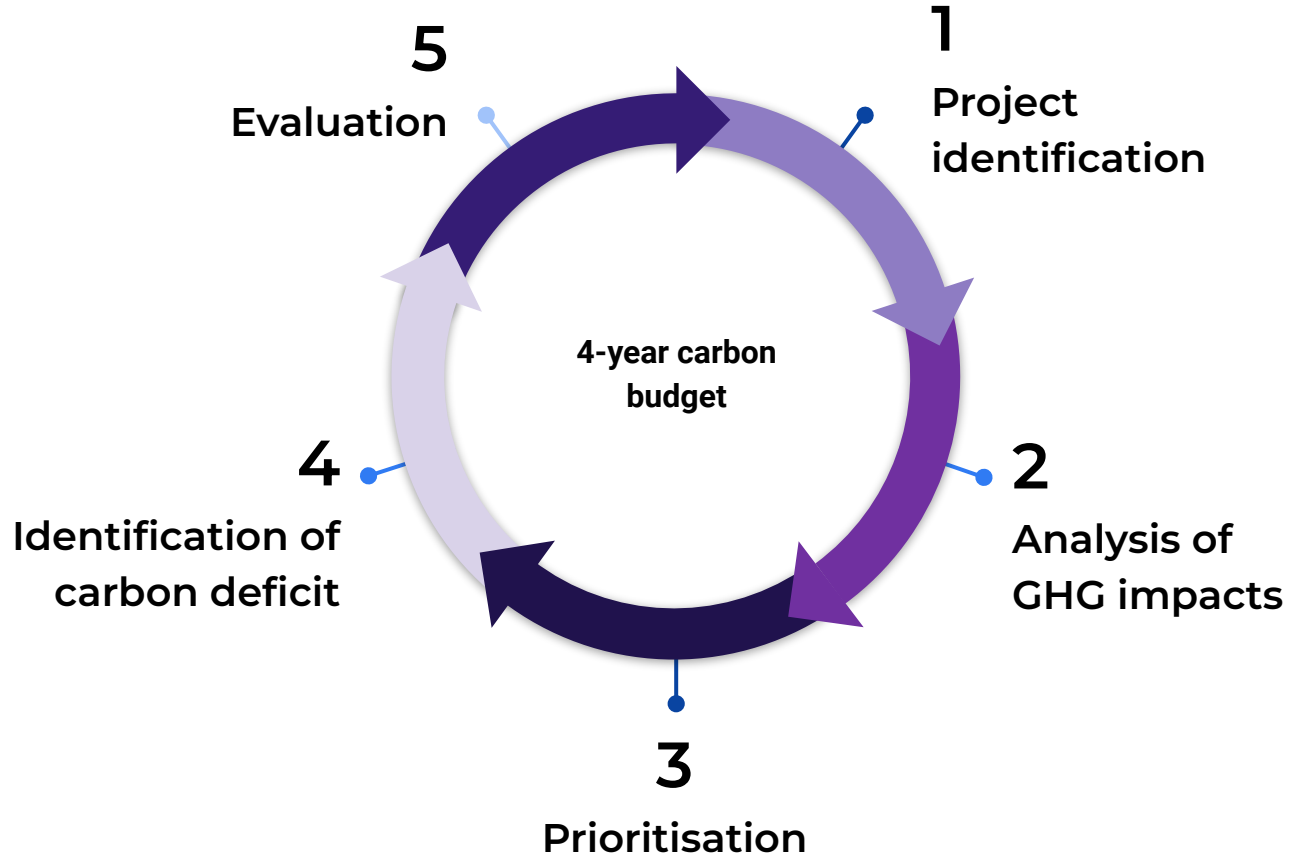
Oslo

Oslo Climate Strategy and budget towards 2030 – the story

Heidi Sørensen
Head of the Agency for Climate

Ingredient #1

Alignment with financial systems



1

Capital forecasts,
asset management



**What the City was
going to do anyways**



Minimise or eliminate
emissions

2

Climate action plan



**What the City needs to
do reduce emissions**

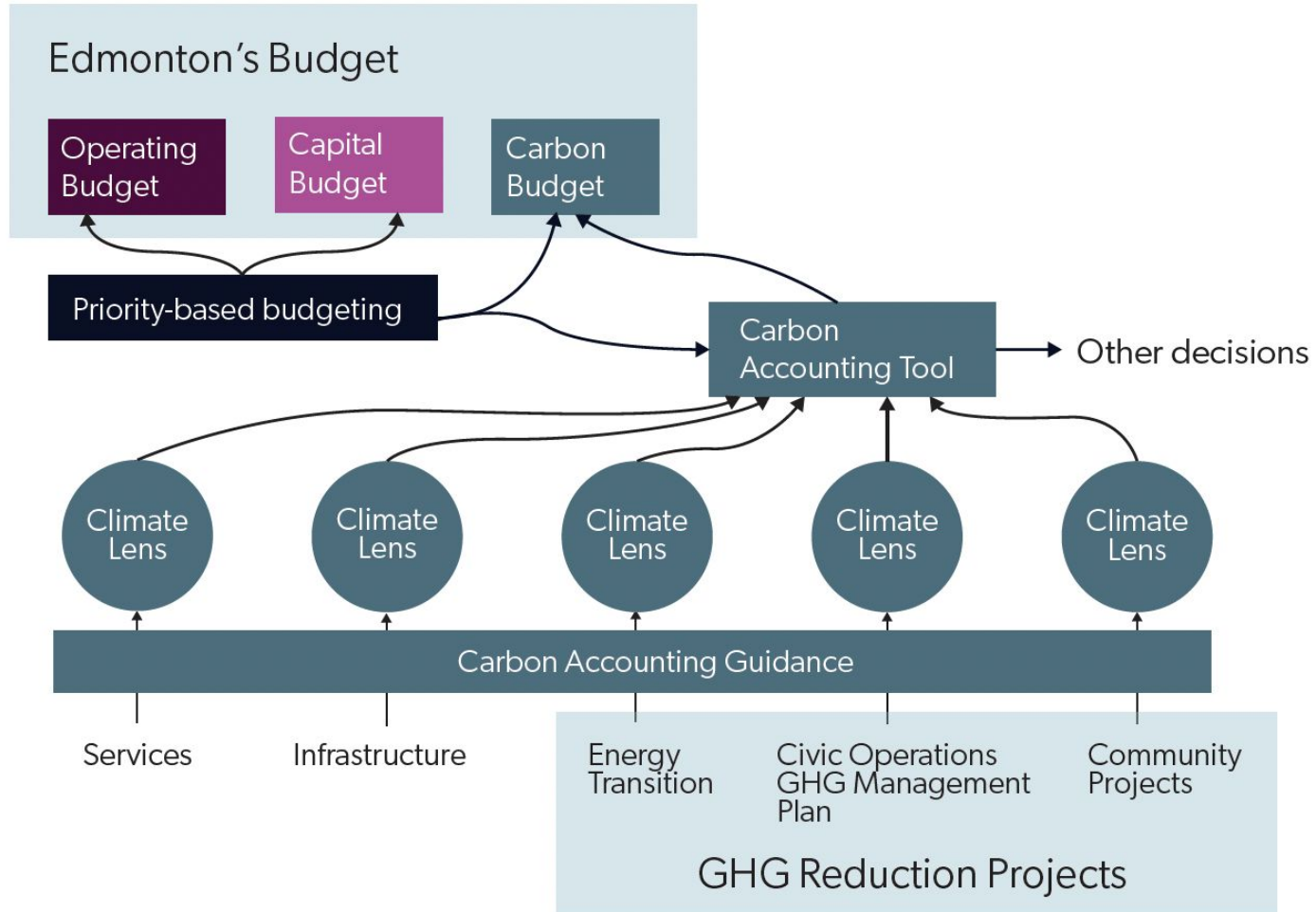


Reduce emissions



Ingredient #2

Policies and tools



Branch - Urban Planning & Environment

Branch - Urban Planning & Environment
Program – INPUT PROGRAM TYPE HERE - See #1
Title – INPUT SERVICE PACKAGE TITLE HERE

Unfunded
Service Package Type
INPUT SERVICE PACKAGE
TYPE HERE - See #2

CLT Category - INPUT CLT CATEGORY HERE

Short Description (399 character maximum)

Results to be Achieved

State what result(s) the initiative is trying to achieve. How does it align to the results (Council goals) and result definitions? Address how the service package impacts the Outcomes. State what success looks like. State how success is measured. Where appropriate, state the current resources in terms of FTEs and dollars.

Climate Change

GHG impact: Reduction/Increase

Project achieves x% of the corporate target to retrofit the buildings.

Project saves/increases 1 MtCO₂ (0.4%) of the remaining gap of 265 MtCO₂e between 2020-2050.

Project saves/increases \$156 for each tonne of GHG reduced between 2020-2050.

The GHG impact is included as information for each action. GHG actions for some actions may not be able to be quantified.



GHG Calculator

Version: 1.1.2

Neighbourhood Retrofit Project Summary									
Generated by the GHG Calculator - https://ghg-calculator.ssg.coop/									
Version: 1.1.2 (2023-07-10)									
Project Data		Project Contact Information							
Project Title	Neighbourhood Retrofit	Name	John Doe						
Organization	Neighbourhood Retrofit	Address	123 Main St						
Category	Neighbourhood Retrofit	City	Calgary, Alberta						
Project ID	123456	Province	Alberta						
Project Manager	John Doe	Phone	403-123-4567						
BAU Emissions Summary									
Category	Neighbourhood Retrofit	Subcategory	Category	2020	2021	2022	2023	2024	2025
Buildings	Neighbourhood Retrofit	Neighbourhood Retrofit	Buildings	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Transportation	Neighbourhood Retrofit	Neighbourhood Retrofit	Transportation	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Waste	Neighbourhood Retrofit	Neighbourhood Retrofit	Waste	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Energy	Neighbourhood Retrofit	Neighbourhood Retrofit	Energy	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Water	Neighbourhood Retrofit	Neighbourhood Retrofit	Water	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Other	Neighbourhood Retrofit	Neighbourhood Retrofit	Other	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Projected Emissions Summary									
Category	Neighbourhood Retrofit	Subcategory	Category	2020	2021	2022	2023	2024	2025
Buildings	Neighbourhood Retrofit	Neighbourhood Retrofit	Buildings	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Transportation	Neighbourhood Retrofit	Neighbourhood Retrofit	Transportation	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
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Other	Neighbourhood Retrofit	Neighbourhood Retrofit	Other	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Emissions Delta Summary									
Category	Neighbourhood Retrofit	Subcategory	Category	2020	2021	2022	2023	2024	2025
Buildings	Neighbourhood Retrofit	Neighbourhood Retrofit	Buildings	0.000	0.000	0.000	0.000	0.000	0.000
Transportation	Neighbourhood Retrofit	Neighbourhood Retrofit	Transportation	0.000	0.000	0.000	0.000	0.000	0.000
Waste	Neighbourhood Retrofit	Neighbourhood Retrofit	Waste	0.000	0.000	0.000	0.000	0.000	0.000
Energy	Neighbourhood Retrofit	Neighbourhood Retrofit	Energy	0.000	0.000	0.000	0.000	0.000	0.000
Water	Neighbourhood Retrofit	Neighbourhood Retrofit	Water	0.000	0.000	0.000	0.000	0.000	0.000
Other	Neighbourhood Retrofit	Neighbourhood Retrofit	Other	0.000	0.000	0.000	0.000	0.000	0.000
BAU Energy Summary									
Category	Neighbourhood Retrofit	Subcategory	Category	2020	2021	2022	2023	2024	2025
Buildings	Neighbourhood Retrofit	Neighbourhood Retrofit	Buildings	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Transportation	Neighbourhood Retrofit	Neighbourhood Retrofit	Transportation	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Waste	Neighbourhood Retrofit	Neighbourhood Retrofit	Waste	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Energy	Neighbourhood Retrofit	Neighbourhood Retrofit	Energy	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Water	Neighbourhood Retrofit	Neighbourhood Retrofit	Water	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
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Projected Energy Summary									
Category	Neighbourhood Retrofit	Subcategory	Category	2020	2021	2022	2023	2024	2025
Buildings	Neighbourhood Retrofit	Neighbourhood Retrofit	Buildings	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Transportation	Neighbourhood Retrofit	Neighbourhood Retrofit	Transportation	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
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Energy	Neighbourhood Retrofit	Neighbourhood Retrofit	Energy	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
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Other	Neighbourhood Retrofit	Neighbourhood Retrofit	Other	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000	100,000,000
Energy Delta Summary									
Category	Neighbourhood Retrofit	Subcategory	Category	2020	2021	2022	2023	2024	2025
Buildings	Neighbourhood Retrofit	Neighbourhood Retrofit	Buildings	0.000	0.000	0.000	0.000	0.000	0.000
Transportation	Neighbourhood Retrofit	Neighbourhood Retrofit	Transportation	0.000	0.000	0.000	0.000	0.000	0.000
Waste	Neighbourhood Retrofit	Neighbourhood Retrofit	Waste	0.000	0.000	0.000	0.000	0.000	0.000
Energy	Neighbourhood Retrofit	Neighbourhood Retrofit	Energy	0.000	0.000	0.000	0.000	0.000	0.000
Water	Neighbourhood Retrofit	Neighbourhood Retrofit	Water	0.000	0.000	0.000	0.000	0.000	0.000
Other	Neighbourhood Retrofit	Neighbourhood Retrofit	Other	0.000	0.000	0.000	0.000	0.000	0.000

The GHG Calculator is a Microsoft Office Add-In for Excel. It is intended to provide municipal decision-makers with a reasonable and accurate estimate of the energy consumption and GHG emissions impact associated with projects under consideration as part of municipal budgeting and capital planning processes.

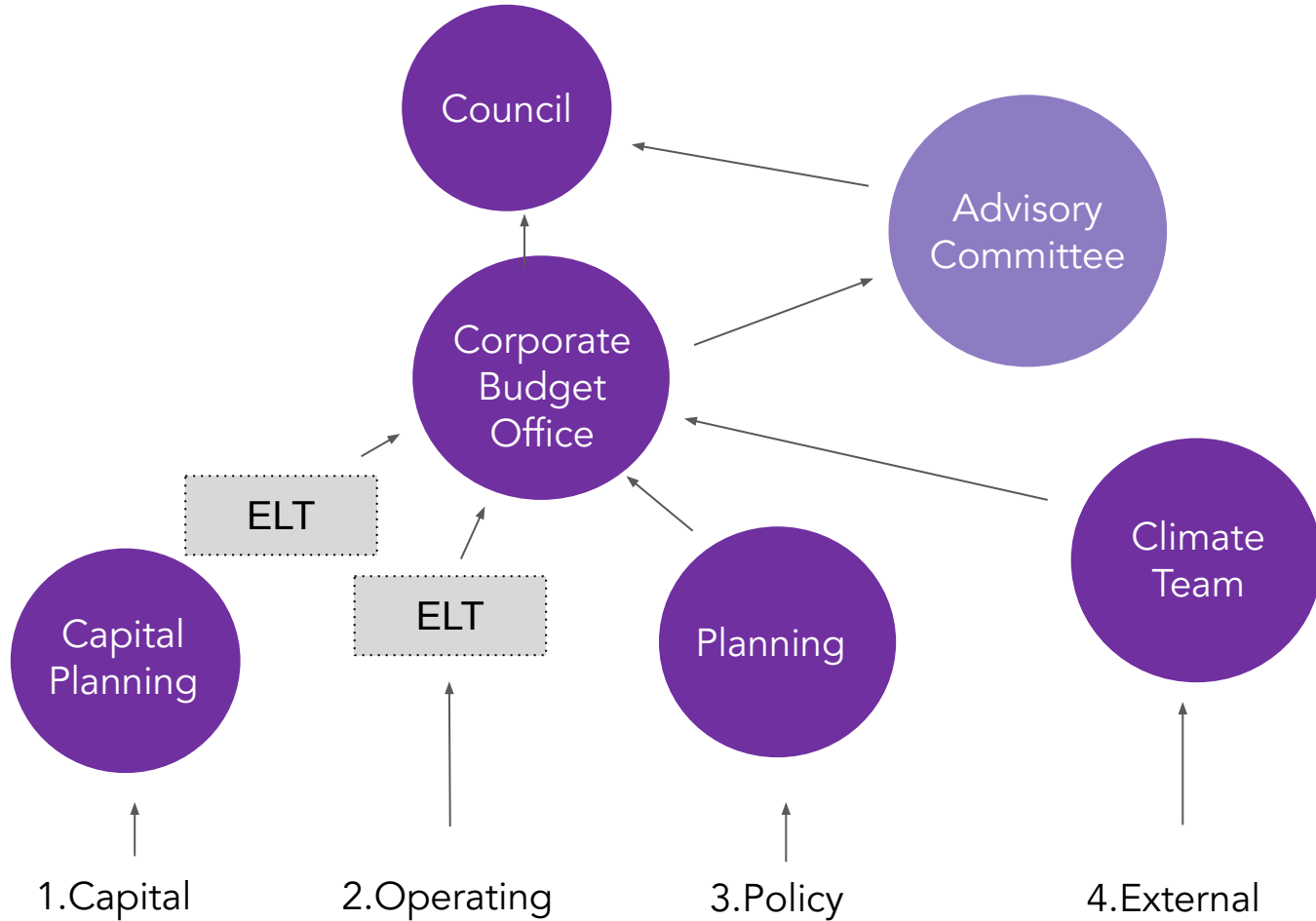
Model input assumptions, including energy sources and emissions factors are currently made available for projects in the City of Calgary, the Region of Durham, and the City of Ottawa.

<https://ghg-calculator.ssg.coop/>

Ingredient #3

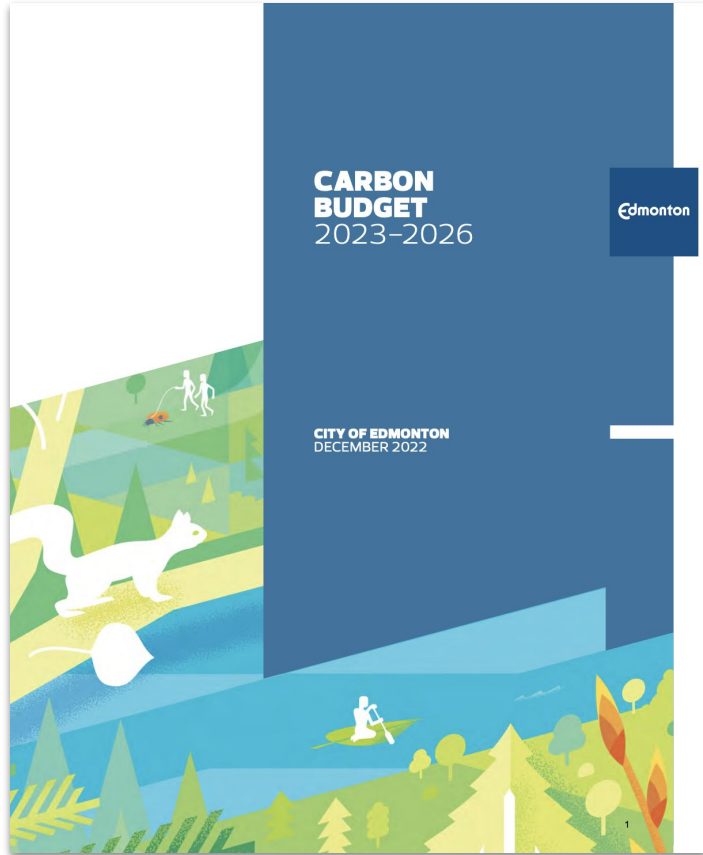
Governance structure

Carbon
Budget
Policy



Ingredient #4

Reporting mechanism



Edmonton · CBC Explains

Edmonton has its 1st carbon budget. It's expecting to blow it



City as a whole aims to be carbon neutral by 2050



[Stephen Cook](#) · CBC News · Posted: Nov 05, 2022 9:00 AM ADT | Last Updated: November 5, 2022



Every Tonne Matters

Alignment

Transformation

Paris, France



PRESIDENCE
DE LA COP

SECRETAIRE EXECUTIVE UNFCCC

PRESIDENT