

May 2021

# Canada: The case for an urban green and just recovery

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**C40 Cities and the COVID-19 Mayoral Taskforce**

5 minutes

**Canada green recovery research**

10 minutes

**GHG sectoral findings**

5 minutes

**Jobs sectoral findings**

5 minutes

**Air quality sectoral findings**

5 minutes

**Q&A**

25 minutes

# C40 Cities in numbers



**97 cities**

**27% of global economy**

**800 million + people**

**50/50 split of Global South and North membership**

**AFRICA:** ABIDJAN – ACCRA – ADDIS ABABA – CAPE TOWN – DAKAR – DAR ES SALAAM – DURBAN (ETHEKWINI) – EKURHULENI – FREETOWN – JOHANNESBURG – LAGOS – NAIROBI – TSHWANE | **CENTRAL EAST ASIA:** BEIJING – CHENGDU – DALIAN – FUZHOU – GUANGZHOU – HANGZHOU – HONG KONG – NANJING – SHANGHAI – SHENZHEN – QINGDAO – WUHAN – ZHENJIANG | **EAST, SOUTHEAST ASIA & OCEANIA:** AUCKLAND – BANGKOK – HANOI – HO CHI MINH CITY – JAKARTA – KUALA LUMPUR – MELBOURNE – QUEZON CITY – SEOUL – SINGAPORE – SYDNEY – TOKYO – YOKOHAMA | **EUROPE:** AMSTERDAM – ATHENS – BARCELONA – BERLIN – COPENHAGEN – HEIDELBERG – ISTANBUL – LISBON – LONDON – MADRID – MILAN – MOSCOW – OSLO – PARIS – ROME – ROTTERDAM – STOCKHOLM – TEL AVIV – VIENNA – WARSAW | **LATIN AMERICA:** BOGOTÁ – BUENOS AIRES – CURITIBA – GUADALAJARA – LIMA – MEDELLÍN – MEXICO CITY – RIO DE JANEIRO – SALVADOR – SÃO PAULO – SANTIAGO – QUITO | **NORTH AMERICA:** AUSTIN – BOSTON – CHICAGO – HOUSTON – LOS ANGELES – MIAMI – MONTRÉAL – NEW ORLEANS – NEW YORK – PHILADELPHIA – PHOENIX – PORTLAND – SAN FRANCISCO – SEATTLE – TORONTO – VANCOUVER – WASHINGTON DC | **SOUTH & WEST ASIA:** AMMAN – BENGALURU – CHENNAI – DELHI – DHAKA – DUBAI – KARACHI – KOLKATA – MUMBAI



# Covid-19 Mayoral taskforce

**Mayor of Milan**, Giuseppe Sala (*Chair of the Task Force*)  
**Mayor of Freetown**, Yvonne Aki Sawyerr  
**Secretary for the Environment of Hong Kong**, KS Wong  
**Mayor of Lisbon**, Fernando Medina  
**Mayor of Medellín**, Daniel Quintero Calle  
**Lord Mayor of Melbourne**, Sally Capp  
**Mayor of Montréal**, Valérie Plante  
**Mayor of New Orleans**, LaToya Cantrell  
**Mayor of Rotterdam**, Ahmed Aboutaleb  
**Mayor of Seattle**, Jenny Durkan  
**Mayor of Seoul**, Won-soon Park

Link:

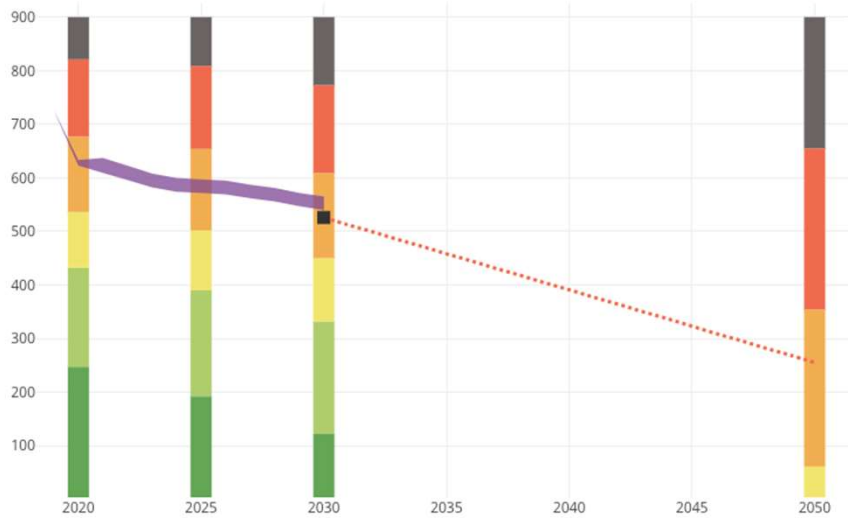
- [The Mayors' Agenda for a Green and Just recovery](#)
- [The Case for a Green and Just Recovery.](#)



# Facing unprecedented crises

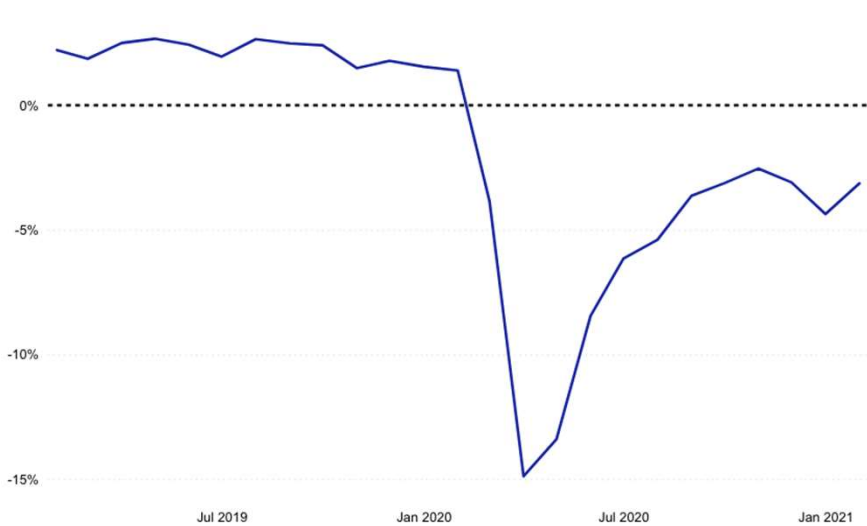
## Climate crisis

+3 degrees global heating



## Economic crisis

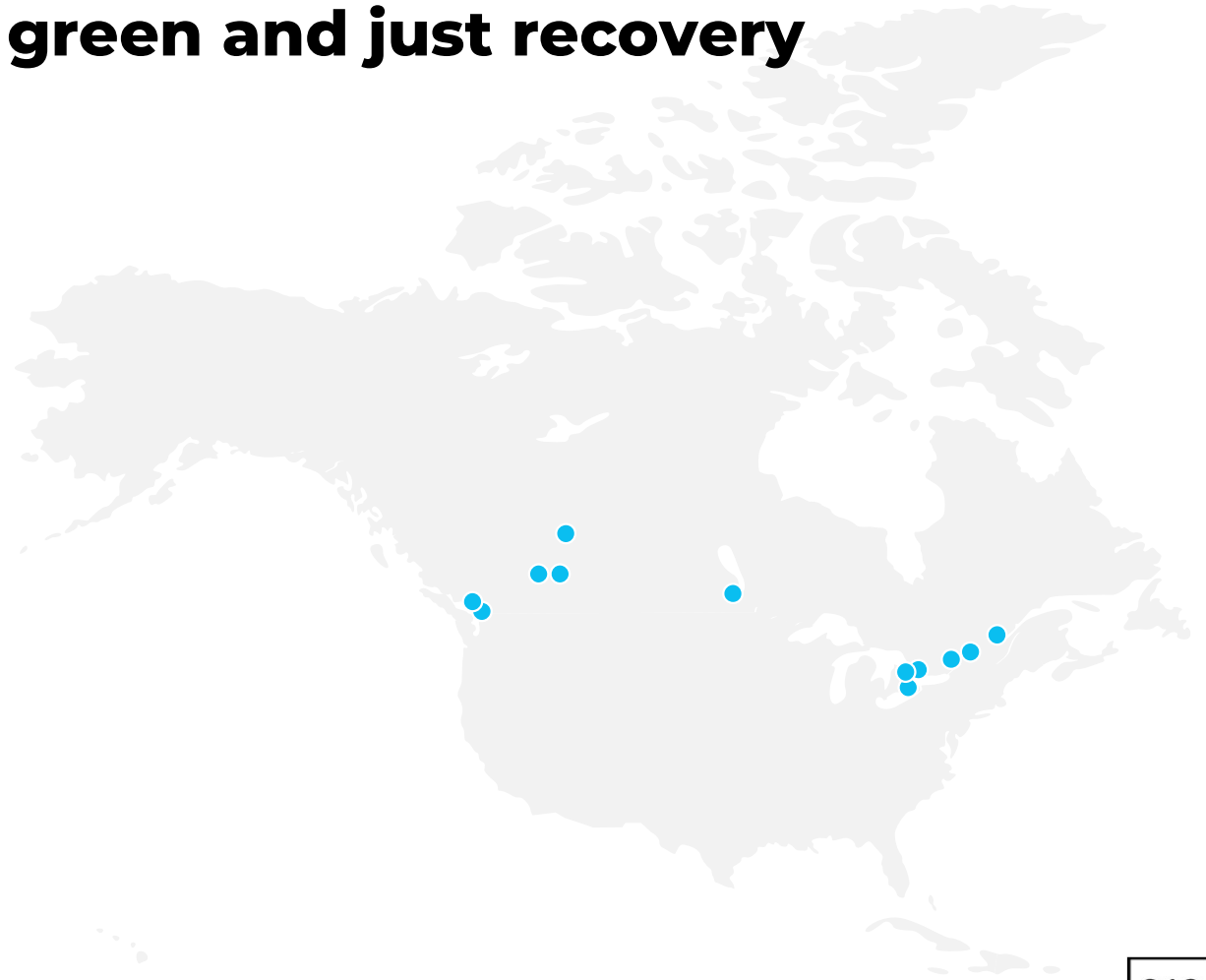
16.6% drop in GDP, 14.9% drop in employment



# Cities can deliver a green and just recovery

12 major cities can deliver 1.5°C compliant action and significant jobs boost for Canada

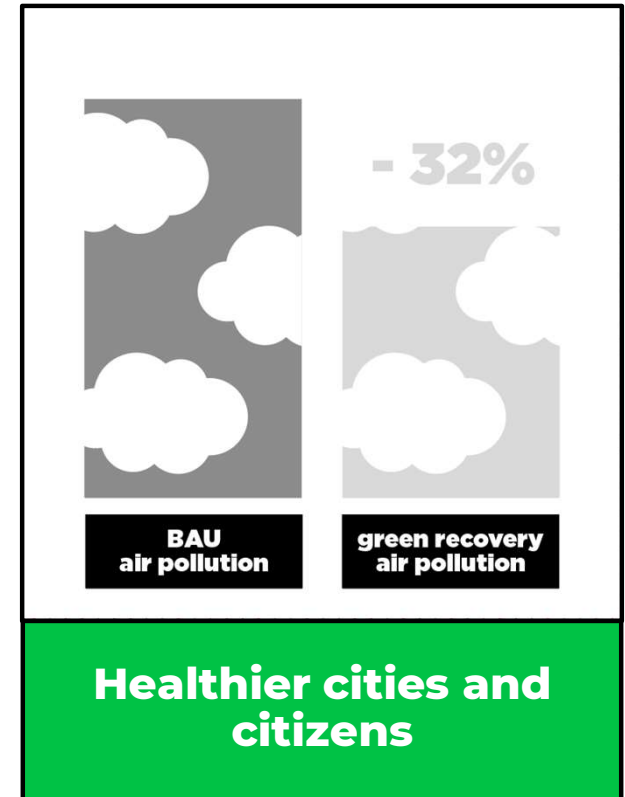
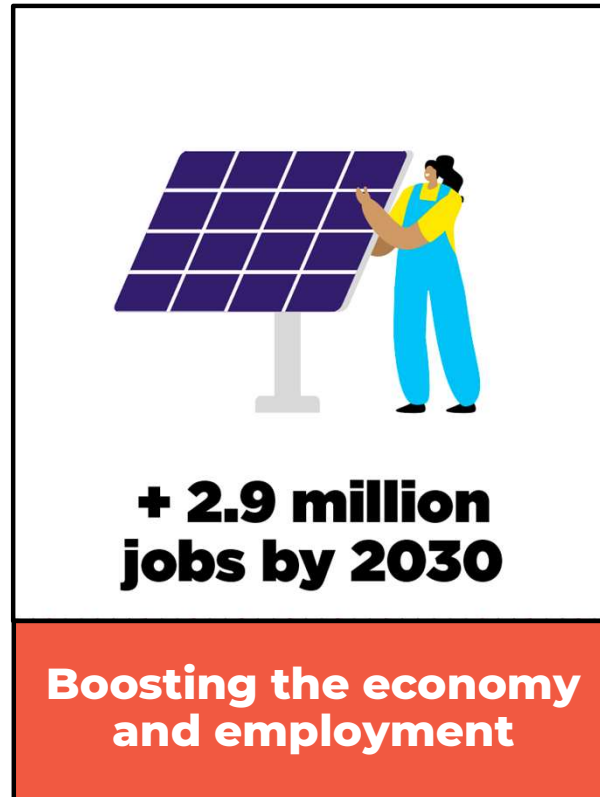
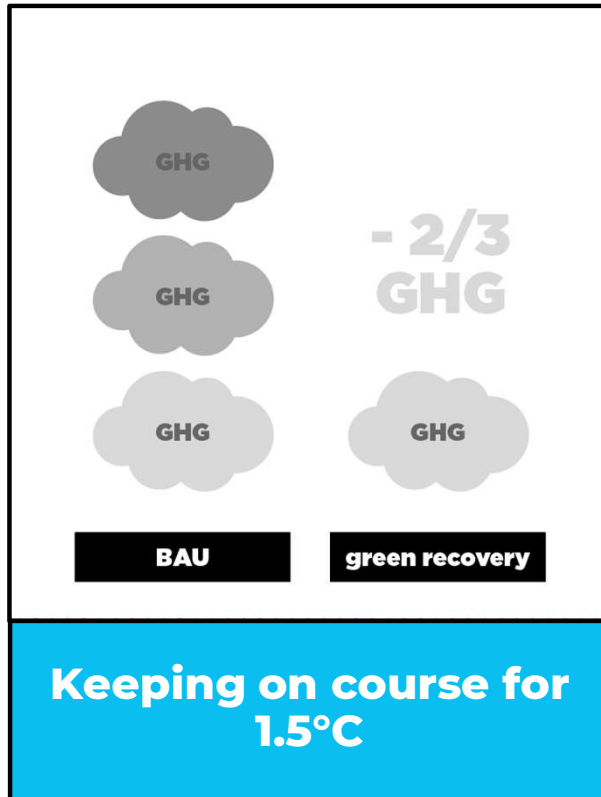
Health and economic benefits for their citizens, around 35% of the population



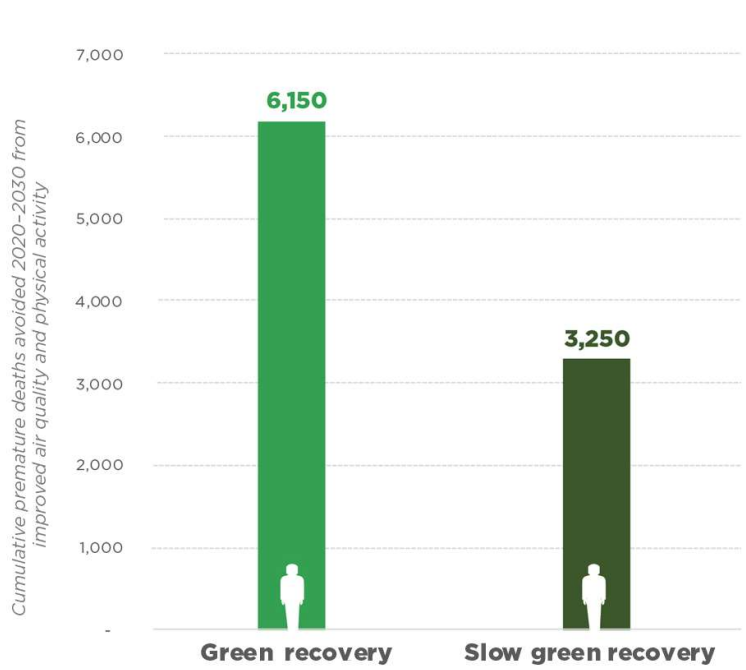
TORONTO - MONTREAL - VANCOUVER - CALGARY - EDMONTON - QUEBEC CITY - OTTAWA  
WINNIPEG - HAMILTON - MISSISSAUGA - BRAMPTON - SURREY



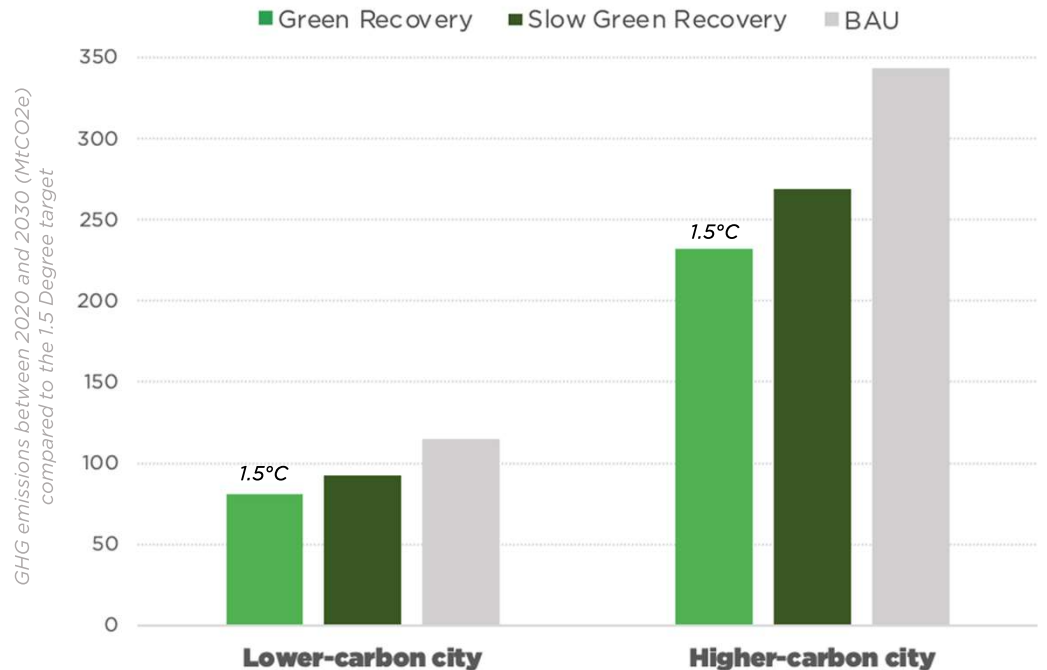
# The potential benefits are huge



# We must act now



**Delay costs lives**



**Delay makes climate targets unreachable**



# Priority actions

**Triple win**  
**1.7M jobs**  
**16-17% air**  
**pollution**  
**GHGs**

Building retrofits

**Climate**  
**critical**  
**2.5x GHG**  
**emissions**

Decarbonised grid

**Keep cities**  
**moving**  
**1.2M jobs**  
**2.1-3.6**  
**mths**

Sustainable transport

**Green jobs**  
**Resilient**  
**cities**

Urban nature-based  
solutions

# Priority actions

**Scale up  
from <1%  
to 6.5%  
retrofit/yr**

**Building retrofits**

**Coal to  
renewable  
Clean  
electricity  
and heat**

**Decarbonised grid**

**Embed  
smart  
mobility  
Fast-track  
ZEVs from  
0.5% to 5%**

**Sustainable transport**

**Invest in  
nature in  
cities**

**Urban nature-based  
solutions**

# **GHG Sectoral findings**



Credit: Olivia Bauso / Unsplash

# What level of climate action is needed to meet a 1.5°C trajectory by 2030?

## Buildings

- 100 % of new buildings are built to a high energy efficiency standard
- 65 % of households are retrofitted
- 35 % of households install heat pumps
- 4 % of households add rooftop solar PV

## Waste

- 72.5 % of organic waste is diverted for compost

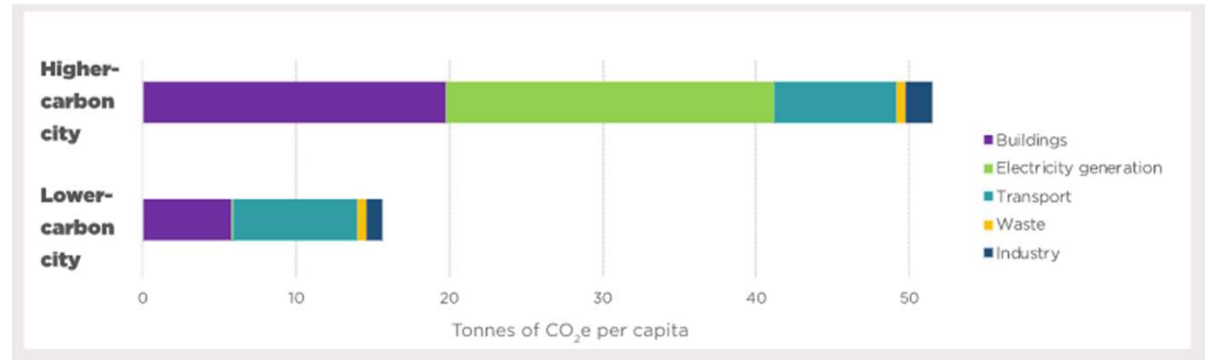
## Transport

- 75 % of passenger automobiles are BEVs
- 34 % mass transit mode share
- 20 % walking and cycling mode share

## Energy

- Lower-carbon city: 100 % renewable energy generation
- Higher-carbon city: 48 % renewable energy generation

# Which actions result in the biggest emission cuts?



## Buildings

- Lower-carbon city: 37.1% (building retrofits 32.5%)
- Higher-carbon city: 37.9% (building retrofits 33.1%)

## Transport

- Lower-carbon city: 51.9% (fuel efficiency/fuel switch 34.5% / mode shift to mass transit 10.8%)
- Higher-carbon city: 15.2% (fuel efficiency/fuel switch 10.1% / mode shift to mass transit 3%)

## Electricity generation

- Lower-carbon city: 0.3% (grid decarbonisation 0.3%)
- Higher-carbon city: 41.1% (grid decarbonisation 40%)

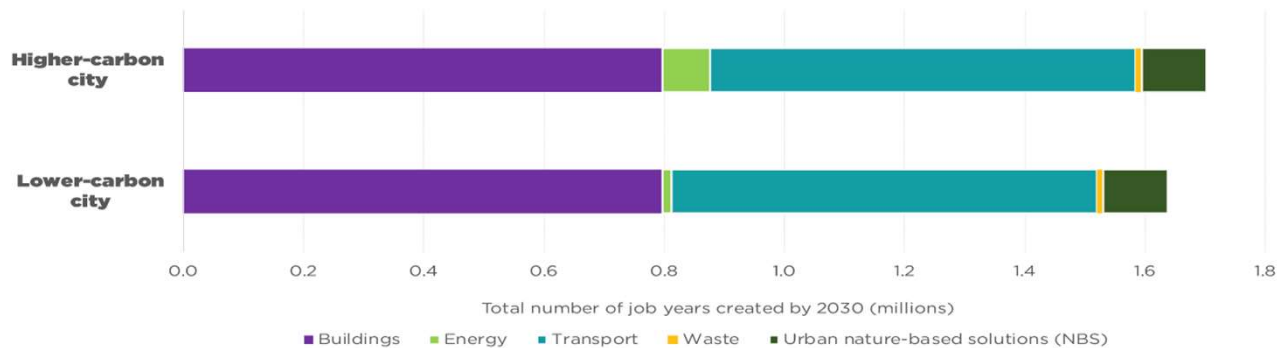
# Jobs Sectoral findings



Credits: Ricardo Gomez Angel / Unsplash

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# Which climate actions have a big impact on job creation?



*Figure 3.1: Job years created under a Green Recovery scenario, by sector, 2020-2030.*

- Residential and commercial **building deep retrofits and new energy-efficient construction** are the most significant job-creating actions in the two model cities, accounting for more than 45% of all jobs created in both the lower-carbon and higher-carbon cities.
- Expenditure in transport actions is also a key creator of job years in both the lower-carbon (43%) and higher-carbon (42%) model cities.
- The greatest number of transport job years stems from **replacing most of the current vehicle fleet with BEVs** between 2020 and 2030.

# Air Quality & Health Sectoral findings



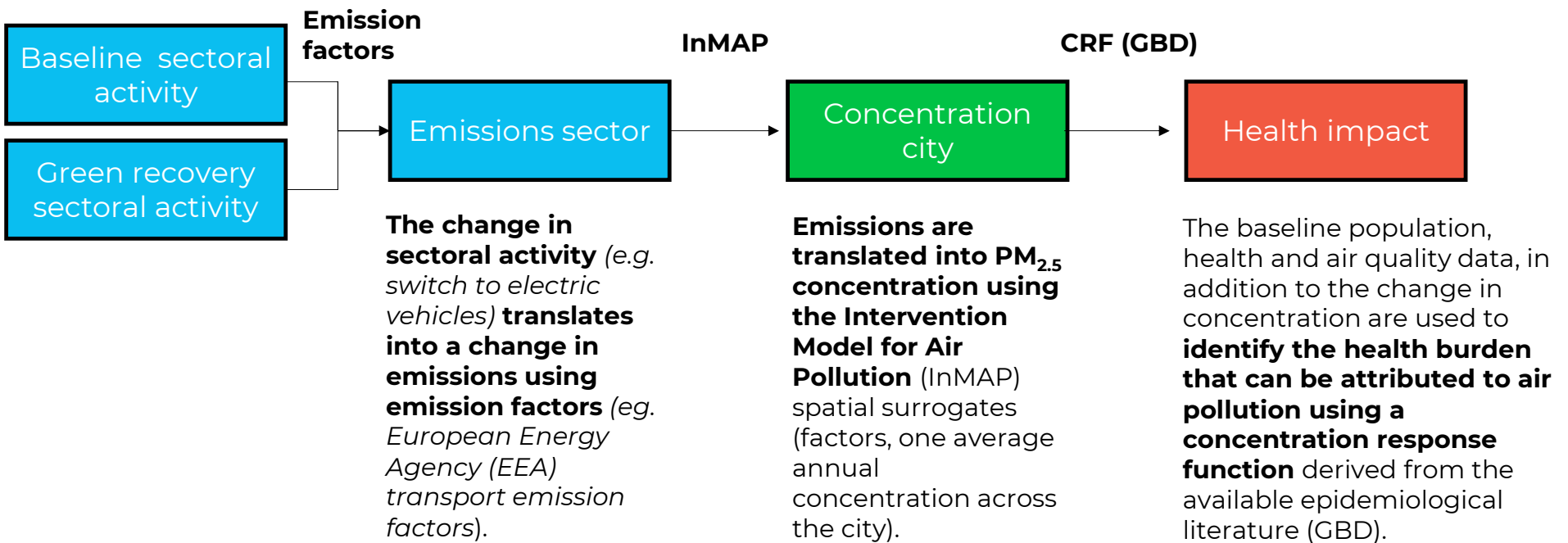
Credit: Etienne Delorieux / Unsplash

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# Methodology

The modelling was done for the **two model cities**, which both had a similar level of air pollution in 2019 ( $7-7.7 \mu\text{g}/\text{m}^3$ )

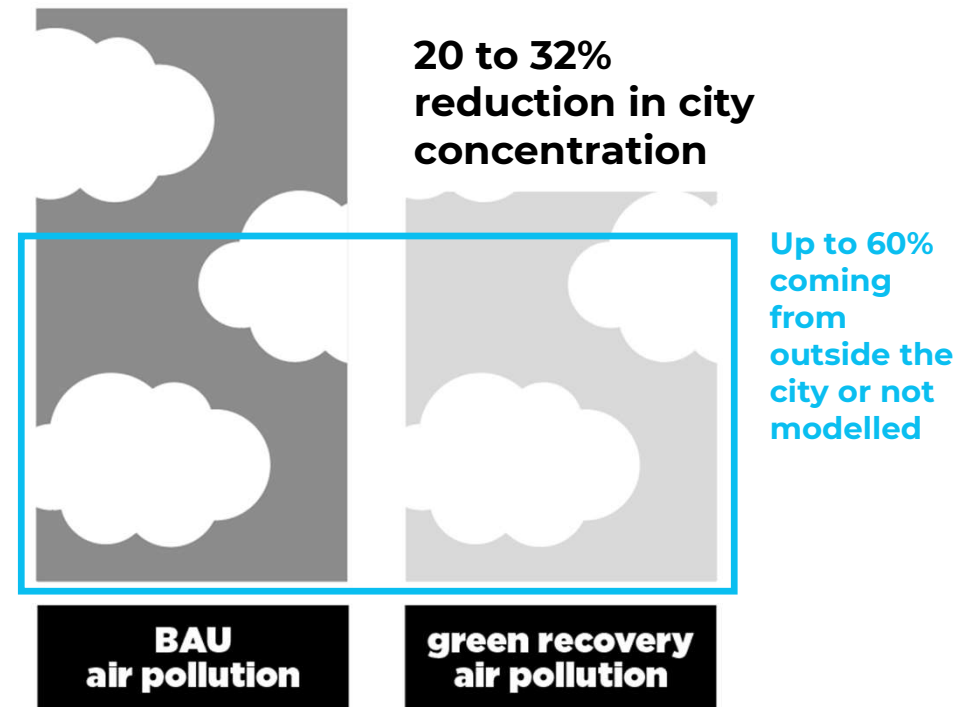


# Total reduction in air pollution

Around 60% of  $PM_{2.5}$  in cities comes from external sources, such as natural sources, neighbouring cities or provinces which are out of the city's direct power.

The two model cities suggest that a Green Recovery would reduce total  $PM_{2.5}$  concentration by **20% to 32% compared with the BAU in 2030.**

This reduces most sources of  $PM_{2.5}$  within the cities themselves.

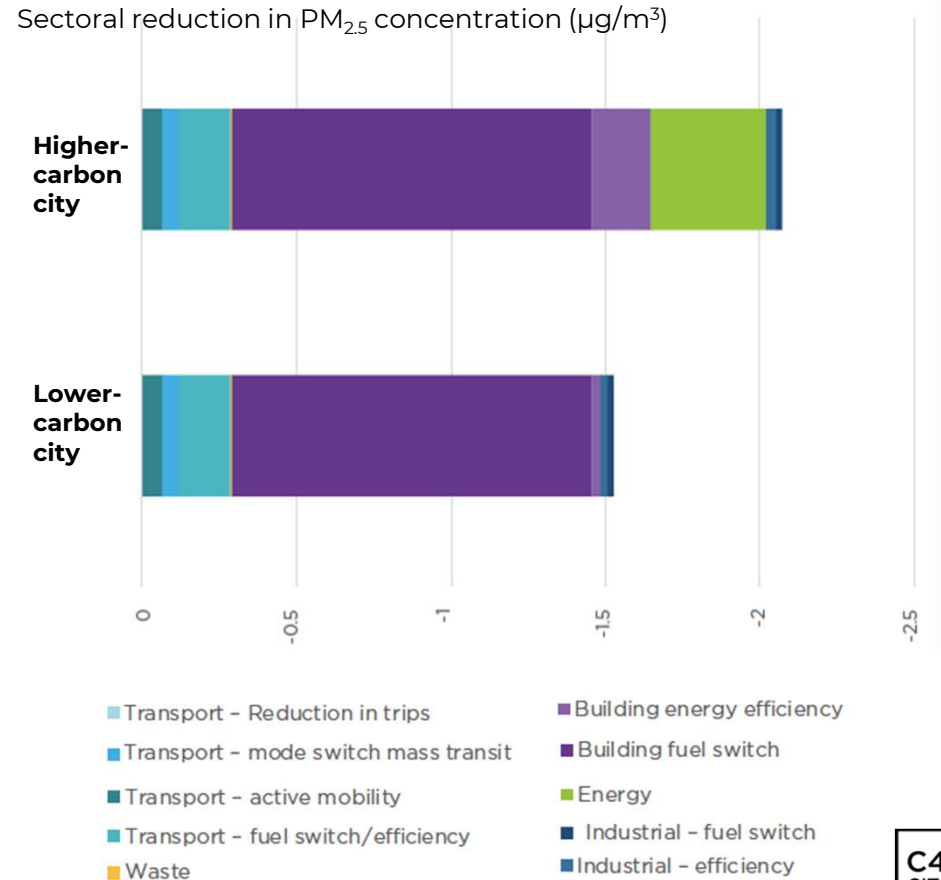


# Sectoral breakdown

The majority of the modelled reduction in  $PM_{2.5}$  concentration is achieved by **switching from fossil fuels to renewables** in the building, transport and energy sectors.

While **residual fuel oil** only accounts for a small share of building energy use, it accounted for the majority of sectoral  $PM_{2.5}$  emissions in the lower-carbon city, followed by **natural gas**.

A modelled reduction in energy use in buildings and improved industrial **efficiency**, as well as an increase in mass transit and active mode share, deliver smaller – though not negligible – reductions in  $PM_{2.5}$ .

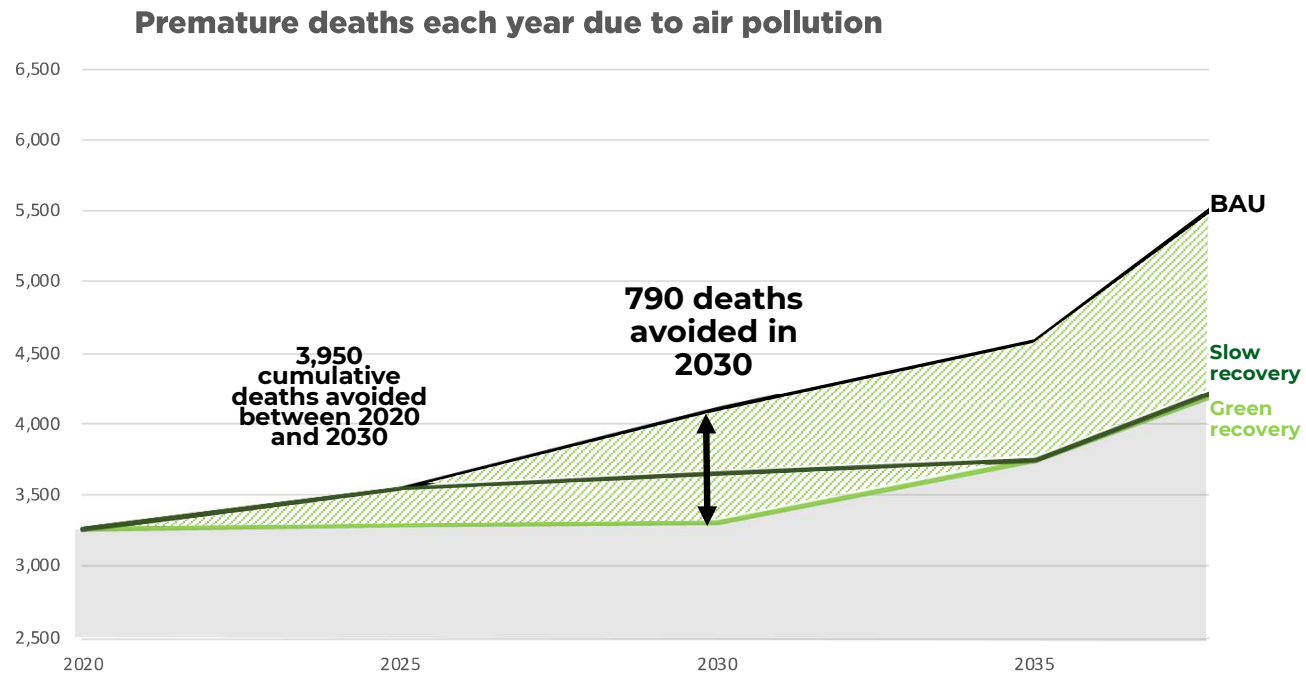


# Health impact

To measure the health impact, the same % reduction in city concentration (20 to 32%) was applied to the 12 cities, representing 13 million people in 2020 and nearly 15 million in 2030.

**A Green Recovery could prevent more than 3,950 premature deaths cumulatively between 2020 and 2030 (including 790 premature deaths in 2030 alone) compared with a BAU scenario across these 12 cities.**

Almost twice as many premature deaths are prevented under a Green Recovery than a Slow Green Recovery.



# Comparison with other studies

	<b>Global Burden of Diseases (IHME, 2017)</b>	<b>Health Impacts of Air Pollution in Canada (2021)</b>	<b>Canada Green Recovery for 12 cities (2021)</b>	<b>Toronto Public Health (2014)</b>	<b>Canada Green Recovery for Toronto (2021)</b>
<b>Population</b>	36 million	36 million	12 million	2.6 million	2.9 million
<b>Air pollution level measured (average)</b>	Not shared in the study	4.3 µg/m <sup>3</sup>	7.1 µg/m <sup>3</sup>	Not shared in the study	9 µg/m <sup>3</sup>
<b>CRF (concentration response function)</b>	Evolving CRF [GBD, 2019]	10% per 10 µg/m <sup>3</sup> [Crouse et al. 2012]	Two methods: - 6% per 10 µg/m <sup>3</sup> [COMEAP 2013] - an evolving CRF [GBD, 2019]	8.3% per 10 µg/m <sup>3</sup>	6% per 10 µg/m <sup>3</sup> [COMEAP 2013] and an evolving CRF [GBD, 2019]
<b>Modelled premature deaths</b>	4,380 [2,200-6,620]	10,000 (with 15,000 deaths on all pollutants)	- 3,100 with COMEAP - 3,250 with GBD	900 (69% of 1,300 deaths on all pollutants)	- 848 with COMEAP - 870 with GBD

# Increase in life expectancy due to active mobility

Just a few minutes walking to or from the station as part of a daily commute can bring about a significant increase in life expectancy and combat obesity, diabetes, stroke, cardiovascular diseases, breast and colon cancer, depression and dementia.

**Six-minute walks to and from transit stations as part of the daily commute (for a total of 24 minutes per day) could increase an average commuter's life expectancy by 2.1 months.**

Across the 12 Canadian cities, the increase in active mobility and public transport use could **reduce premature deaths by 2,200 from 2020 to 2030 (including 440 for 2030 alone).**

**This was modelled using C40 Benefits of Walking and Cycling tool.**



**2.1-month Increase in life expectancy for public transport commuters on the basis of six-minute walks to and from transit for weekday commuting (24 minutes in total).**



**3.6-month Increase in life expectancy for cyclists and pedestrians on a 20-minute commute to and from work every weekday (40 minutes in total).**

## Reduction in disease risk:

**Coronary heart disease & stroke by 10 to 15%**  
**Dementia by 4 to 7%**  
**Type 2 diabetes by 6 to 10%**  
**Depression by 6 to 9%**  
**Breast cancer by 5 to 8%**  
**Colon cancer by 3 to 5%**



**The science and numbers  
are clear**

**A green and just recovery is  
possible**

**Greatly increased ambition  
and investment are needed**

**Now is the time to act**

**“The most significant test of any  
government’s commitment to climate  
action right now is where it is directing  
COVID stimulus funding for recovery”**

C40 Global Mayors COVID-19 Recovery Task  
Force



Full details of the research are  
available on the COVID-19 portal of the  
C40 Knowledge Hub  
[www.c40knowledgehub.org](http://www.c40knowledgehub.org)



**Thank you**

