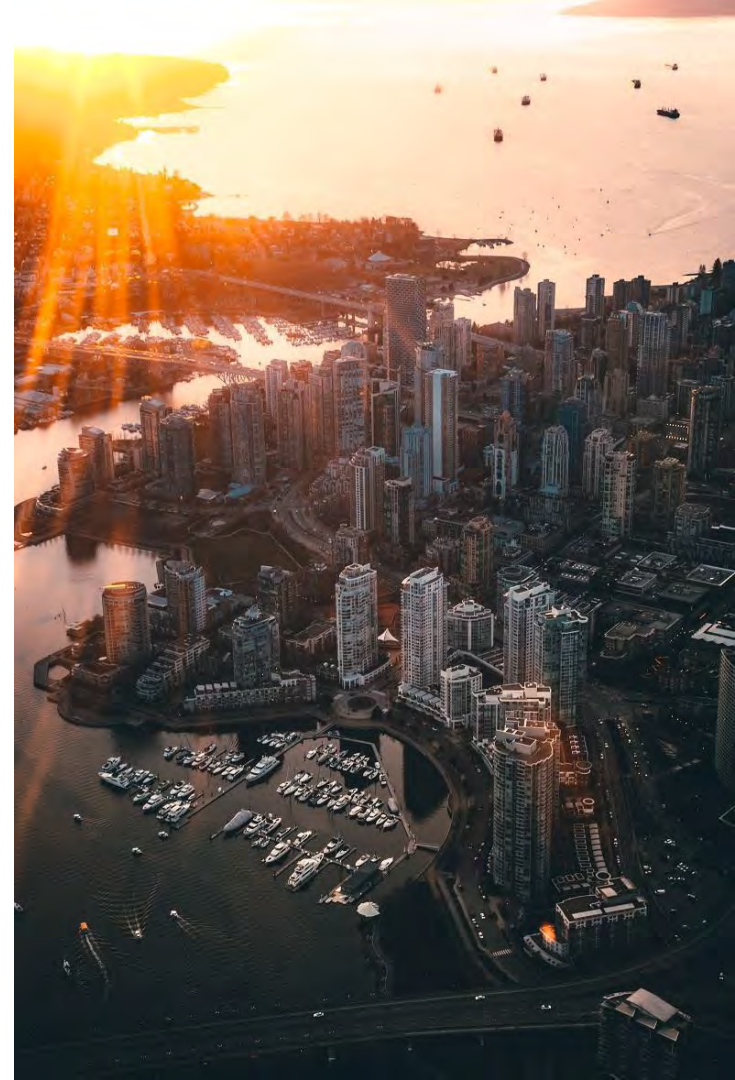


City of Vancouver Climate Emergency Action Plan Modelling



Game Changer Policies

Big Move

2. Active Transportation & Transit
3. Pollution Free Vehicles
4. Zero Emissions Space and Water Heating
5. Low-carbon Construction

Please note that the parameters selected for modelling purposes are not intended to indicate design decisions being made for those policies.

Game Changer Policy Investigated

- Transport Pricing in Metro Core
- Carbon pollution surcharge on parking permits
- Emissions Caps for Existing Buildings
- Low-carbon Construction Materials

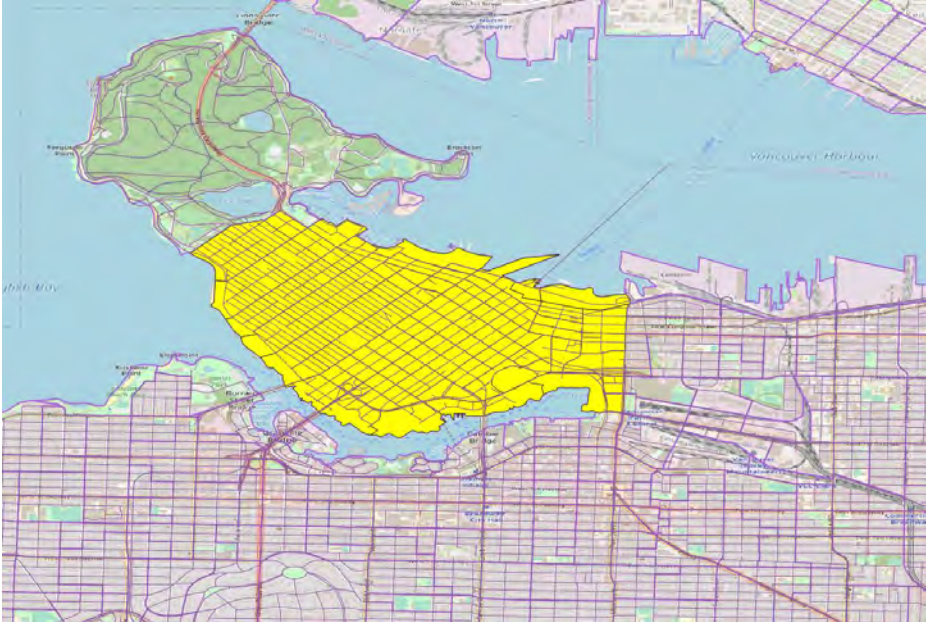
Big Move 2: Transport Pricing Policy

Model Variables

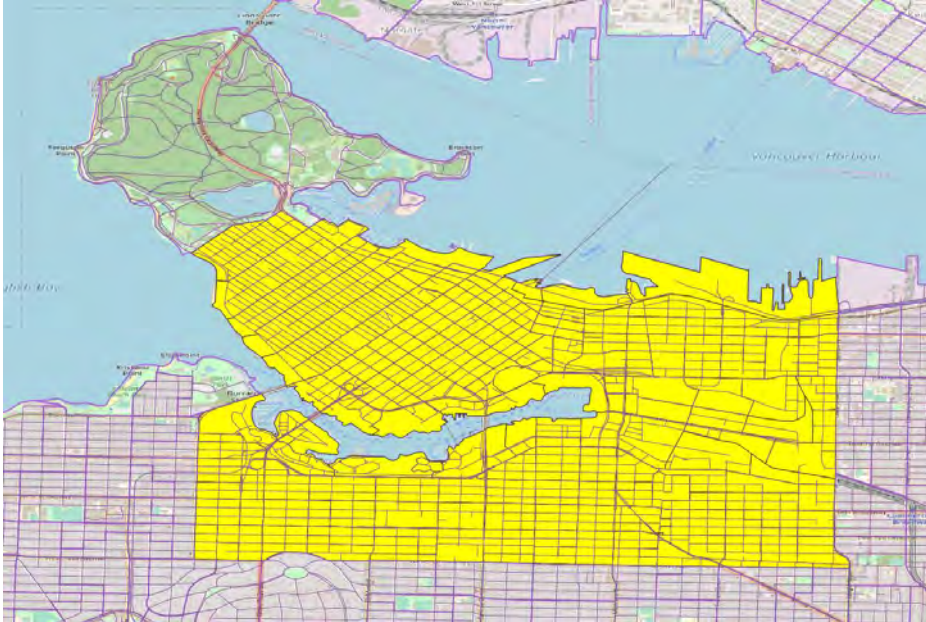
- Size of zone
 - Downtown
 - Metro-core
- Price category
 - Entering zone = \$9.50 charge
 - +3%/year escalation rate
 - Low income and in-zone residents exempt
- Mode shift
 - < 1 km = walk
 - 1-3 km = 50/50 walk/bike
 - 3-5 km = bike
 - 5-10 km = 50/50 bike/transit
 - > 10 km = transit



Big Move 2: Transport Pricing Policy



1. Downtown Core



2. Downtown Core + Broadway Corridor

Big Move 3: Carbon Pollution Surcharge on Parking permits

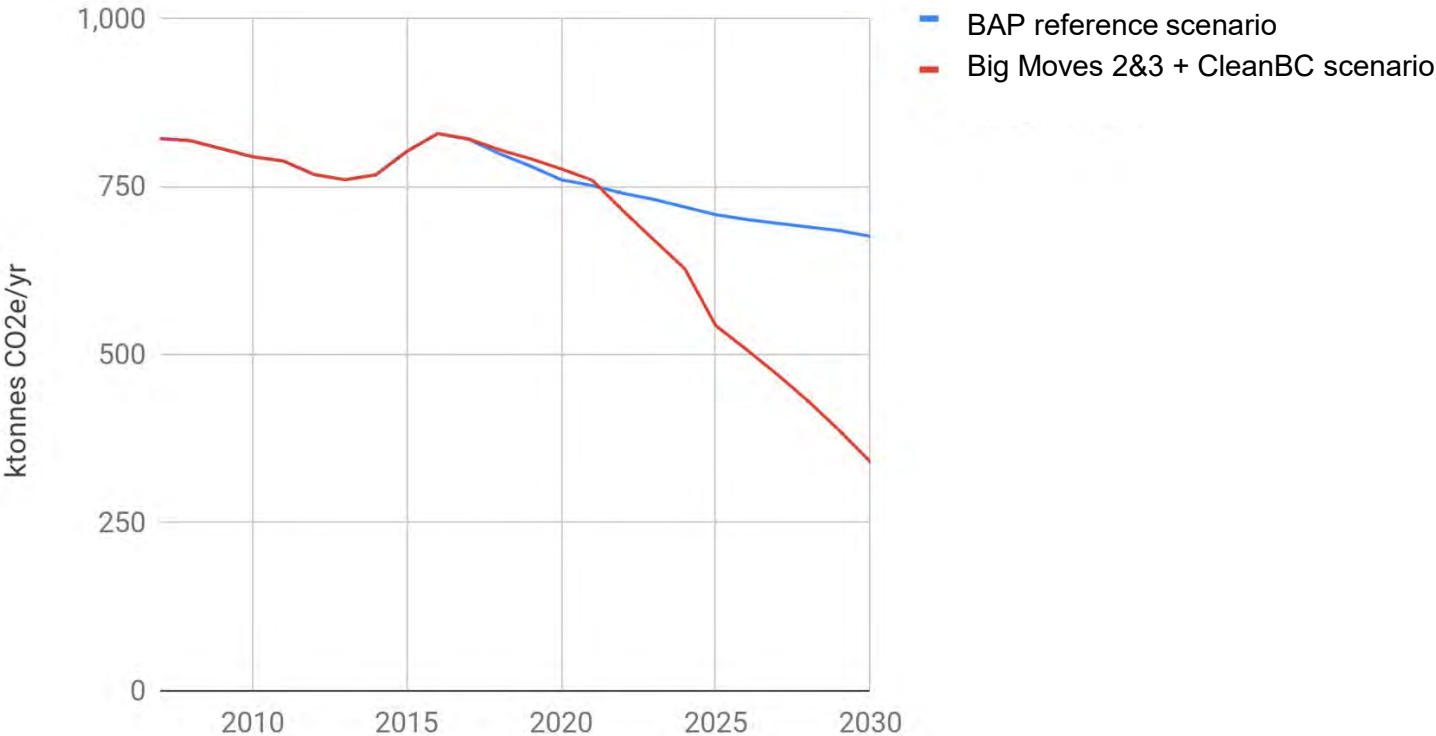
Model Parameters

- Parking type
 - Permit
 - Assume all parking is on-street
- Vehicle classification
 - All non-ZEV
 - All ages
 - All price points
- Price category
 - \$400/tCO₂e
 - 3%/year escalation rate
 - Consumer choice model predicts impact of surcharges on new sales



2&3: Transport Pricing & Carbon Pollution Surcharge on Parking Permits

Emissions Impact



Big Move 4: Existing Buildings Emissions Cap Policy

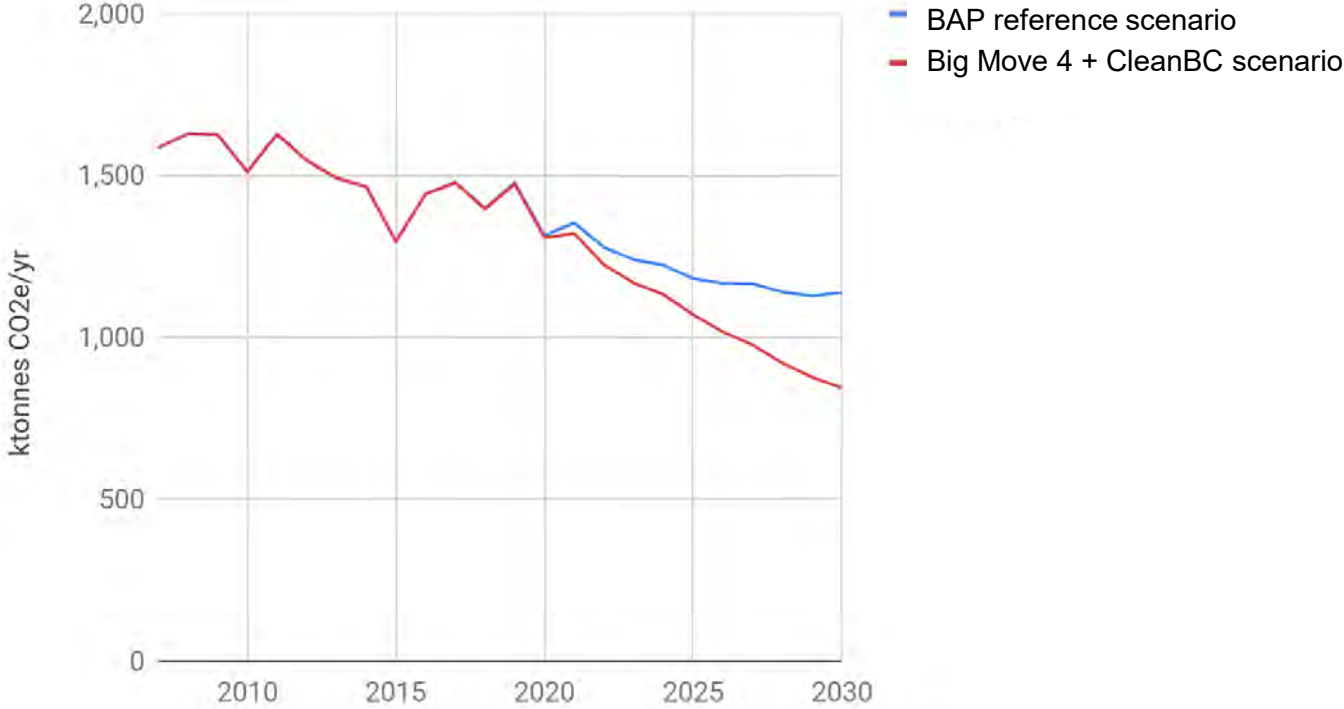
Model Variables

- Emissions cap
 - 30% cut in GHGI, +15% every 5 years
- Year applied, by archetype and building classification
 - Phase 1: large commercial & ground oriented residential, 2025
 - Phase 2: Remaining commercial and stratas, 2030
 - Phase 3: Purpose built rental buildings, 2035
- Non-compliance price
 - 250 \$/tonne CO₂e
 - Assume 5% non compliance rate



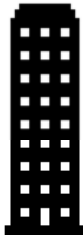
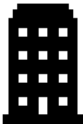
Big Move 4: Existing Buildings Emissions Cap Policy

Emissions impact



Big Move 5: Low-carbon Construction Materials Policy

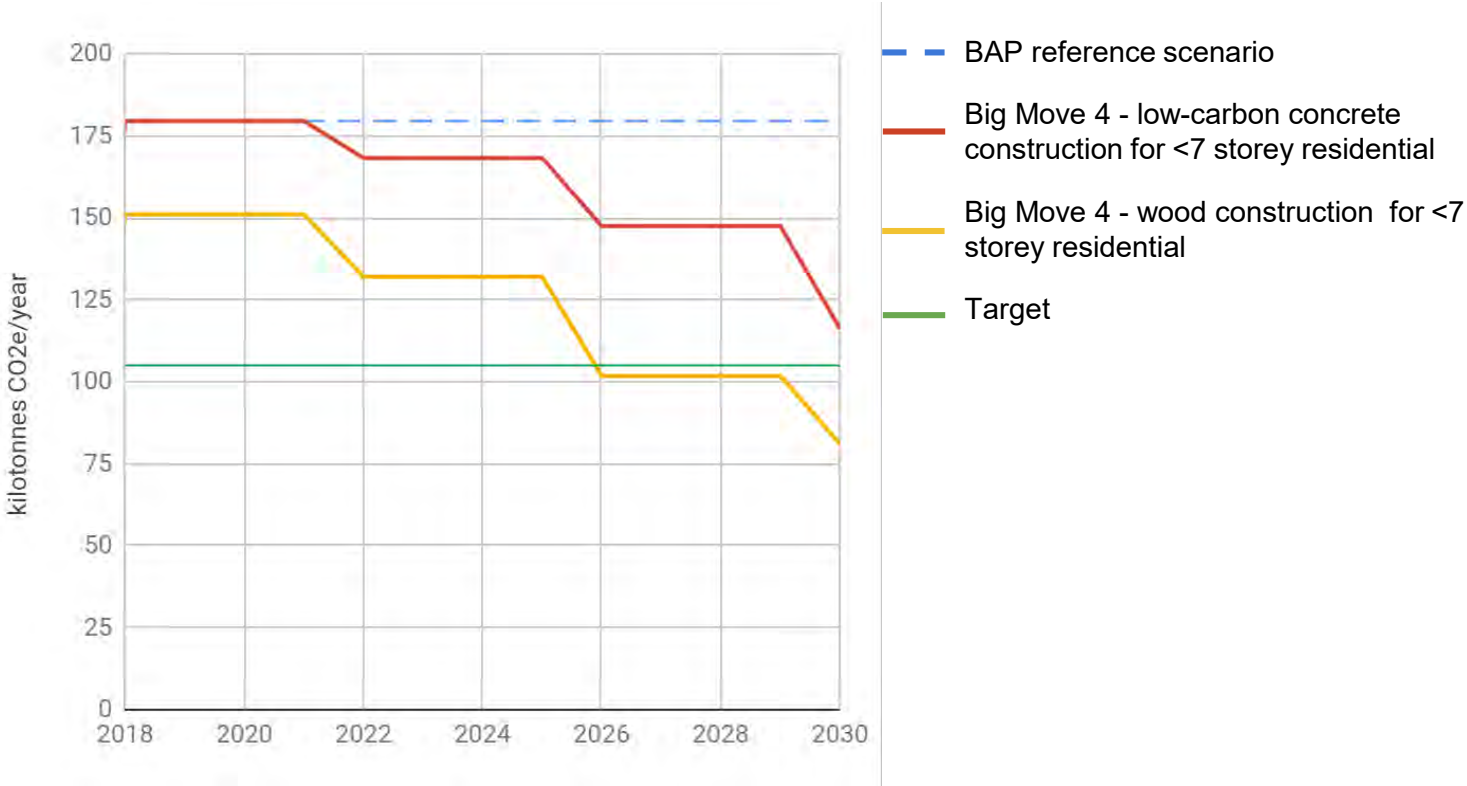
Low Carbon Materials Reductions by Building Archetypes



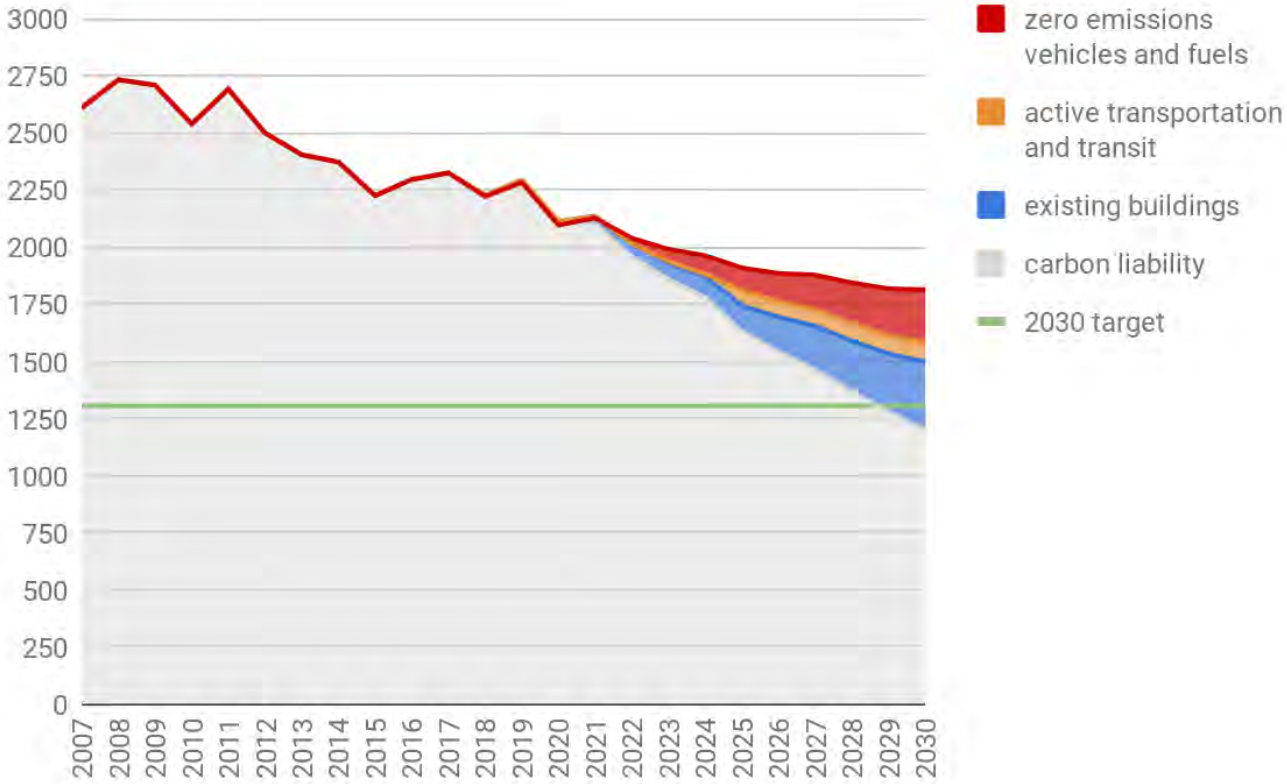
	Single Family	Residential < 7 storey		Residential ≥ 7 storey	Office	Commercial	Industrial
# new buildings by 2030	7,339	261		5,115	818	326	11
New buildings total areas (thousand sqm)	1,532	917		2,316	1,229	690	12
Scenario 1	wood		concrete	concrete	concrete	concrete	concrete
Scenario 2	wood	wood		concrete	concrete	concrete	concrete

Big Move 5: Low Carbon Construction Materials Policy

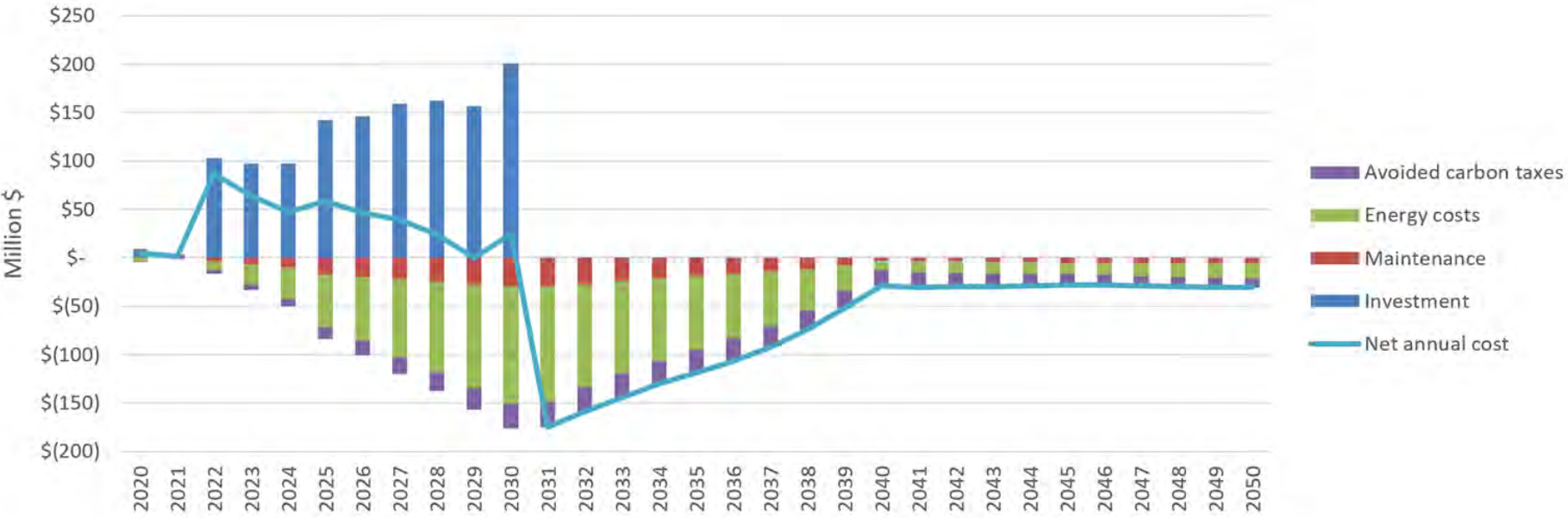
Emissions Impact



Summary of Emissions Reductions



Summary of Estimated Costs Results



The financial modelling of these policies currently includes buildings retrofit costs and the savings and avoided costs across all policies considered here. Investments for the transportation pricing policy and costs of low-carbon construction materials have not yet been fully modelled.

Discussion

