

From Ambition to Inaction: A Critical Assessment of TransformTO's Net-Zero Commitments
and Implementation

by

Emily Sakura Hardie

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of B.A. Joint Honours in Geography and Philosophy

Department of Geography and Philosophy

McGill University

Montréal (Québec) Canada

April 2025

© 2025 Emily Sakura Hardie

ACKNOWLEDGMENTS

Thank you to both of my supervisors, Professor Tim Elrick and Professor Iwao Hirose, for their time and commitment to supporting my project. I am in debt to their guidance in finding sources, and significantly narrowing the focus on the thesis. I have immense gratitude for all of the interesting discussions and meetings throughout the year. Thank you for helping me integrate the two disciplines of Geography and Philosophy in this unique combination.

The contents of this thesis are unsettling, but also may reaffirm why we are in a climate crisis. My hope with this thesis is to ensure covert language does not immobilize us or allow ourselves to be deceived as edge closer to the tipping point. After all, the strength of commitments derive from the implication and promise of material changes to well-being. Drastic changes are not an inconvenience, but rather, our fundamental responsibility to protect the world we have. Let us shed our fear by acknowledging where we fall short and take on the courage to address our new reality.

List of Abbreviations:

City of Toronto: CofT (abbreviated only for in-text citation)

Greenhouse Gases: GHG

Home Energy Loan Program: HELP

Net-Zero by 2040: NZ40

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION & METHODOLOGY.....	4
CHAPTER 2: LITERATURE REVIEW.....	8
2.1 Municipal Climate Policy.....	8
2.2 Environmental Justice Perspective.....	10
2.3. Regional Climate Action Context.....	12
2.3.1 Canada.....	12
2.3.2 Toronto - Jurisdictional Context.....	14
CHAPTER 3: ENVIRONMENTAL ASSESSMENT OF TARGETS.....	15
3.1 Comparison to IPCC Findings.....	15
3.2 Analysis on Progress of Proposed Actions.....	17
3.2.1 Flaws in the Policy’s Substance.....	18
3.2.2 Implementation of the Policy.....	20
CHAPTER 4: SOCIAL EQUITY ASSESSMENT.....	25
4.1 Survey Results & Incorporated Analysis.....	25
4.1.1 Community Consultations and Online survey 2015-16.....	26
4.1.2 Indigenous Climate Action Report.....	30
4.1.3 Climate Change Perceptions Research: Final Report 2022.....	32
CHAPTER 5: FEASIBILITY ASSESSMENT.....	34
5.1 Feasibility of the Policy.....	34
5.2 Analysis of the Current Stage of Implementation.....	36
CHAPTER 6: PHILOSOPHICAL ANALYSIS ON THE DEMANDINGNESS OF CLIMATE ACTION.....	39
6.1 Peter Singer.....	40
6.1.1 Singer on TransformTO.....	44
6.2 Liam Murphy.....	47
6.2.1 Murphy to TransformTO:.....	49
CHAPTER 7: CONCLUSION.....	51
WORKS CITED.....	53

ABSTRACT: Despite the rise in climate-related policies in the past decades, global emissions have paradoxically risen by approximately 50% from 2000 to 2023 (Ritchie & Roser, 2020). This unsettling trend accentuates the need to identify the progress of climate policies. The aim of this thesis is to assess the effectiveness of Toronto's focal climate policy, "TransformTO". Adopted unanimously by the City Council in 2021, TransformTO outlines sector-specific Net-Zero by 2040 targets to significantly reduce emissions. I analyze the adequacy of the TransformTO both in policy form and implementation through four main criterias: environmental performance, social equity, feasibility of implementation, and ethical conduct. In summary, TransformTO presents as a rhetorically ambitious but practically indifferent strategy. While the City has set relatively high targets, it has not yet allocated the necessary funding to achieve them. The paper explores this gap between stated ambitions and actual measures taken, questioning what constitutes genuine climate action.

CHAPTER 1: INTRODUCTION & METHODOLOGY

The actualization of transformational climate action serves as the impetus for this study. In this paper, the extent to which TransformTO has been successful in implementing measures to reach its proposed emissions targets will be evaluated. Given the building and energy sectors are among the largest contributors to emissions, these sectors are the primary focus of the assessment. In particular, I discuss inconsistencies between the City's well-intentioned objectives and real action, which ultimately illustrates a disingenuous portrait of a sustainable transition. This notable discrepancy raises concerns about the authenticity of the City's commitment to a Net-Zero transition. Implications of the City's commitments (or lack thereof) will subsequently face an ethical analysis, particularly weighing the degree of moral compliance required under non-ideal societal conditions. I will apply Peter Singer and Liam Murphy's distinct theories on moral obligation when it comes to addressing large scale social issues.

This thesis will address the following research questions:

- 1) Does TransformTO concern a shift towards a more environmentally just future (as defined in Chapter 2)? If so, to what extent is Toronto's climate strategy sufficient to address the climate crisis environmentally and socially speaking?
- 2) Is the policy attaining its goals and on track to meet Net-Zero by 2040?
- 3) Does TransformTO fulfill its moral obligations, as considered by Singer, and Murphy, towards confronting the climate crisis?

For background context, TransformTO Net-Zero strategy was initially unanimously approved by City Council in 2017 (CofT, n.d.a). The Net-Zero strategy adopted by Council in 2021 is based on this preliminary TransformTO plan. In 2019, the City accelerated Net-Zero by 2050 or sooner. Then in 2021, the Council adopted the updated strategy which proposed the 2040 pathway to carbon neutrality. This climate policy is not binding nor is the City accountable by governance frameworks, but rather, this is a plan which the City intends for. Soon after the policy was released, the American Planning Association (APA) (2022) accredited TransformTO for the

Environment, Climate, & Energy Award in the sustainable planning category for its aspirational targets in comparison to other cities in May 2022. A complete Net-Zero transition by 2040 is an ambitious target, comparable to the target of the top performing EU countries (such Denmark and Netherlands) in regards to their climate policy (CCPI, 2024).

To evaluate whether TransformTO shifts towards an environmentally just future, I analyze the effectiveness of the TransformTO based on four main dimensions: environmental performance, social equity, feasibility of implementation, and ethical conduct. Both the policy approach and degree of implementation are assessed qualitatively through these four themes to grasp the comprehensive performance of the policy. This independent criteria structure derives from an amalgamation of other evaluations of climate policies and thus, is easily deconstructable (Konidari et. al, 2007; Zheng et. al, 2024). The methods employed rely on a schema attentive not only to i) an equitable notion of environmental justice, but also ii) encapsulates the feasibility of implementing the policy, and iii) evaluates the ethical dimensions.

The first criteria of environmental performance examines the degree of emission reduction referenced and associated actions to reach the target. The second evaluation determines the social equity of the policy, analyzed through the inclusion of constituents and marginalized communities. During this analysis, I coded relevant consultation documents for key themes from the public consultations and feedback from constituents, accessed from the City of Toronto's public data sources. Qualitative coding of survey responses was conducted using the software Atlas.ti to code key emerging topics based on the direct comments from respondents. I adopted Grounded Theory approach, a qualitative research methodology which begins by examining the collected data and then identifying recursive themes that emerge (Charmaz & Thornberg, 2020). Without a prescribed theory in advance, the comments of the constituents during consultation sessions were actively identified and subsequently analyzed. The third criteria, feasibility of implementations, concentrates on the financial and political feasibility of the implementation by assessing the City's spending to implement the policy. All of these findings derive from TransformTO's archival materials and policy documents. Finally, in Chapter 6, I assess how two distinct non-ideal moral theorists would determine the ethical implications of the policy.

For the environmental analysis, I consulted the 6th assessment of the Intergovernmental Panel on Climate Change (IPCC) to compare the targets to, as opposed to applying quantitative analysis frameworks or Integrated Assessment Models (IAMS). IAMS generate assessments

based on inputs of environmental information, technical feasibility, and economic conditions. These models have received criticism in recent years due to the lack of sensitivity to the specific region, and simplified understanding of metrics, leading to vastly different results depending on the model employed (Pindyck, 2015). Pindyck proposes adopting simpler models to assess environmental outcomes based on policy implementations. First, he recommends determining the “plausible outcomes” of the climate crisis, then calculating the necessary emission reduction that would be required to avoid the disastrous effects. The analysis within this thesis adopts a simple framework, rather than a standardized modelling tool to determine the policy’s effectiveness.

Another issue with attributing quantitative values in these alternative models is the estimated benefit of the ecological domain. When environmental goods are attributed an economic valuation as ordinarily managed in these models (ie. a tree provides humanity with a benefit equivalent to \$X amount), it can be traded off for something with a higher price value. It is argued that the protection of the environment should rather be upheld as an ethical principle similar to that of abortion, euthanasia, or the right to life where no amount of money can substitute its existence (John O’Neill, 1997, p. 547). Frequently, pragmatic justifications for economic valuations enter the debate: it is argued that one must speak in the same economic language for the policy-making community to even consider the existence of an environmental policy. Based in neoclassical economic theory, if natural environs are unrecognized by the market, it is said to be treated as a common good that no entity is responsible for and will be vulnerable to immense exploitation (p. 549). This argument sounds rather self-conflicting considering that the commercialization of goods has, in large part, contributed to the very environmental crisis we are trying to solve as a society. A parallel is drawn from surrogacy to environmental rights is illustrated by O’Neills:

“It is neither a morally nor pragmatically adequate response to commercial surrogacy to work out good commercial rents for wombs, rather than resist commercialization... Protection of our environment is best served, not by bringing the environment into a surrogate version of the commercial world, but by its protection as a sphere outside the world of the commodity exchanges...” (p. 550).

Placing a monetary value to biodiversity may not result in the favourable policy response we would like to see. The article explains that environmental protection in policy not only can but must exist outside of our economic valuations.

These understandings collectively led to the adoption of the IPCC report for a straightforward analysis of TransformTO's emissions targets. The IPCC framework is utilized in this research as a foundational standard due to its comprehensive evaluation of the latest climate science (IPCC, 2018). The IPCC report emphasizes peer-reviewed studies and is widely recognized as a global benchmark for developing climate policies. It clearly informs one of the necessary emissions reductions required in order to stay below 1.5°C of warming above pre-industrial levels, an ecological tipping point that scientists have identified. Since its conception, only one other study has analyzed the TransformTO policy, which relied on an aggregation of standard frameworks tailored to municipal level climate policies (Slater et. al, 2022). These alternative frameworks tend to be overly generalized and can produce misleading conclusions due to a lack of rigour. For example, one of the frameworks used to track the progress was the Climate Disclosure Project–International Council for Local Environmental Initiatives (CDP-ICLEI) Unified Reporting System relied on the six key criterias: emissions disclosure, emissions reduction targets, published climate action plans, climate risk, climate adaptation, and demonstrate progress. According to these standards, TransformTO would ostensibly meet five of the six criterias. For example, the City fulfills the first criteria in that there is an emission disclosure available. However, these disclosures primarily address corporate emissions and community-wide emissions, excluding significant factors like household consumption and Scope 3 emissions, such as those related to aviation. Consequently, this framework is limited as it does not address nuances with each sub-criteria and does not integrate implementation progress throughout. Policy analysis that is a check-box exercise has been avoided in this study to effectively monitor Toronto's climate action.

CHAPTER 2: LITERATURE REVIEW

2.1 Municipal Climate Policy

With the intent to confront the climate crisis, many urban areas have devised climate policies through mitigatory and adaptive steps in recent years as part of their sustainability agenda. Urban centers, contributing over 70% to global greenhouse gas (GHG) emissions, are recognized as key locations to enact change (Lwasa et. al, 2022). This popular practice has led to an abundance of megacities and smaller townships, drafting various degrees of commitment to environmental protection, representing a widespread adoption of local regulation. More than 13,500 cities have joined the Global Covenant of Mayors (n.d.), an international alliance to monitor, report, and support cities with their respective climate plans. Within Canada alone, a 2022 report found that more than 26 municipalities set carbon neutrality transition plans by 2050 or earlier, passed by their city councils (Herbert et. al).

The first generation of municipal climate policies began in the 1990s, focused primarily on building public awareness about climate change and setting general targets (Wheeler, 2008). The adoption of Kyoto Protocol in 1997 enhanced credibility of concretely planning for climate change, routing cities at large to engage with the logistics of an emission inventory review and setting associated GHG emission targets (Herbert et. al, 2022). Seven years prior (1990) to the enactment of the international agreement however, the first city in the world to adopt an emissions target was the City of Toronto. In 1990, a goal to reach 20% emissions reduction by 2005, based on 1988 levels, was agreed upon by city councillors (Harvey, 1993). The following year, 12 other cities in North America and Europe joined Toronto while national governments still debated the commitments (1993). These cities supported one another by exchanging strategies for reaching targets in time for 2005 (1993). The second generation, primarily between 2000-2015, is acknowledged for the standardization of GHG emission reduction pathways outlined by International Council on Local Environmental Initiatives (ICLEI) and Cities for Climate Protection (CCP; a branch of ICLEI). The ICLEI facilitated support for systemic climate policy implementations, known for its five-step framework for cities to adopt: i) creation of an emissions inventory, ii) setting targets, iii) planning logistics for outlined goals, iv) implementing

the strategy, and v) reporting progress. A multitude of networks have bloomed into existence with increasingly detailed guidelines since then such as C40, Global Compact of Mayors, Race to Zero, the UN's Non-State Actor Zone for Climate Action (NAZCA) platform, and many more (Slater et al.,; Herbert et. al, 2022).

A new generation of climate policy is emerging. Municipal governments are passing policies to acknowledge both the unique role of cities simultaneously contributing to and potential to alleviate the crisis through their regulatory authority over buildings, transportation, and energy (Barichella, 2023). Expected to double in size by 2050, 56% of the world's population inhabit cities, making urban areas a sizable site for systematic (infrastructural) changes in order to positively influence a sustainable lifestyle (World Bank, n.d.). The high energy consumption from concentrated populations has in turn contributed to almost three quarters of CO₂ emissions globally (UN, 2021). Despite contribution to emissions being globally linked, cities are concentrated spatial locations of high emitting behaviour. Thus, cities are a significant site for mitigation of greenhouse gas emissions. The magnitude of influence of cities coupled with the awareness of specific features of the urban area– the land use, industries, demographics, history, climate – are shaping custom approaches to meeting the environmental and social needs of the particular city. For instance, Cape Town's mediterranean climate of wet, damp air damages poor housing infrastructure (Croese, 2020). With the influx in tuberculosis cases and opportunity to retrofit poorly insulated infrastructure, Cape Town's climate plan actively supported low-income neighbourhoods to reduce up to 74% of energy usage in the winter. In a similar vein, New York's Cool City program in 2017 sought to address the Urban Heat Island effect specifically in neighbourhoods that have a higher vulnerability and has been historically disenfranchised (Croese, 2020). Targeted approaches to distinct neighbourhoods and greater sensitivities to local issues, has increasingly become incorporated into climate city planning.

Local governments within cities are recognized to be closest with the constituents, focusing on immediate needs with the ward and providing services. With proximity to constituents, municipalities also often hold higher levels of transparency, and accountability. They are associated with a bottom-up organization with higher sensitivities to local issues than national or international bodies. Municipal governments are prone to take into account local strengths, vulnerabilities, and voices when creating policies. Thus, municipalities are government

bodies that *can* facilitate climate positive changes with residents. For instance, the City of Sydney hosted numerous city wide consultations and involvement of the community in directing the city planning process (City of Sydney, 2024). Community participation during city councillor committee meetings allowed public involvement with governing bodies to shape the short term emissions reduction plans till 2030. Additionally, community participation in decision making allows for greater public acceptance of changes such as switching the energy supply to renewables (Meister, 2022).

However, an array of challenges faced by local governments have been identified by various scholars. Municipalities often lack substantial financial resources to implement strategies to impact the larger population, and face difficulties in measuring the success of their policies (Yeganeh et. al, 2020). The reduction in emissions also rarely has many direct, experiential benefits to outweigh the significant financial cost of the policy (Kousky & Schneider, 2003). Especially considering how other larger entities will continue free-ride at the expense of others, local municipalities would at most, only leave a small dent. Yet these theories have clearly not prevented cities in initiating climate considerations in practice, regardless of the “economic rationality” (2003). These altruistic tendencies prioritize the social benefits and exhibit some potential to influence larger governmental bodies to enact climate policies (2003). Additionally, local governance must perform against lobbying from extractive industries, and lack of political drive for ambitious climate actions. This tends to lead to voluntary approaches to climate action, rather than implementing stricter regulation.

2.2 Environmental Justice Perspective

This thesis adopts a broad conception of sustainability through an "environmental justice" framework. The term "environmental justice" originated in the U.S. during the 1980s, where racialized communities disproportionately faced the harmful impacts of environmental degradation compared to white communities (Chowkwanyun, 2023). The spatial distribution of emissions, pollutants, chemical toxins, landfills, extractivists sites, heat burdens, grey infrastructure, and environmental risks have historically been located in racialized communities (Chowkwanyun, 2023). These lived experiences underscored the necessity of understanding the interconnection between social and ecological challenges to prevent the perpetuation of systemic oppression. Environmental justice highlights the unequal environmental burdens from pollution

to climate change-induced disasters, and examines these injustices along intersecting lines of race, gender, sexuality, Indigeneity, ethnicity, religious identity, and disability. Therefore, this field of inquiry resides within the broader domain of social justice, which interrogates how systems of power sustain inequality and obscure its root causes to maintain oppression.

Environmental degradation exacerbates present inequalities, disproportionately impacting marginalized populations due to limited access resources and capacities to adapt (Ngcamu, 2023, p. 983). The IPCC (2023b) estimates that disproportionality 3.3 to 3.6 billion are already vulnerable to effects of climate change for “human and ecosystem vulnerability are interdependent”. Furthermore, climate change imposes “irreversible losses” of species, and threatens extinctions by weakening the livelihood, severity, and retreat of life (IPCC, 2023b, p. 5-6). Extreme weather, heat, floods, not only result in direct short term effects of exposure to food insecurity, climate-related water-borne diseases, displacement, but these adverse damages are associated with trauma from extreme events. The destruction of livelihoods, homes, income, and health exacerbates social equity, and intensifies the adverse impacts on wellbeing. Urban areas are outlined in the report to be particularly compromised, with intensified heat within cities, that is and expected to further socially marginalized urban residents (IPCC, 2023b, p. 6). During natural disasters, communities with fewer resources have historically faced heightened vulnerability, with adverse environmental impacts affecting their access to adequate health care, shelter, food and other basic needs, more acutely (Ngcamu, 2023, p. 983). For instance, after Hurricane Katrina, two-thirds of the jobs lost belonged to women, reflecting how systemic vulnerabilities exacerbate existing gender inequities. Similarly, traditional cultural norms frequently assign women unpaid care roles—managing households and caring for children and the elderly—thereby increasing their exposure to environmental vulnerabilities (UN Climate Change, 2023). Despite these disparities, global frameworks like the Sustainable Development Goals (SDGs) often treat ‘Climate Action’ and ‘Women’s Rights’ (Goal 5) as separate issues, failing to adopt an integrated, intersectional approach (Ngcamu, 2023, p. 984). Critics argue for embedding intersectionality into climate policy to effectively address these challenges.

The intersectionality of ecological inequities operates across multiple scales—local, regional, national, and international—most starkly illustrated by the Global North-South divide. Kimberlé Crenshaw (1991), who introduced the concept of “intersectionality,” emphasizes that

individual experiences are shaped by overlapping systems of power and oppression, such as race, gender, class, sexuality, and physical ability. Intersectionality should not merely involve listing identity categories; instead, it must offer a nuanced understanding of how systemic structures subjugate marginalized groups. Critiques of "thin" interpretations of intersectionality—where it is reduced to token acknowledgment or descriptive exercises—underscore the need for a deeper, more substantive engagement with the concept (MacKinnon, 2013). MacKinnon (2013) advocates for a dialectical approach that bridges theory and practice, ensuring that theory reflects and addresses lived realities. By grounding theoretical frameworks in the lived experiences of the most affected, environmental justice becomes a powerful tool to mitigate the climate crisis's harms and foster more equitable outcomes. Environmental justice is essential to consider in procedural implementations, particularly when considering the segregated effects of the environment harms.

2.3. Regional Climate Action Context

2.3.1 Canada

In 2021, the federal government of Canada legislated Net-Zero targets by 2050, with its short term targets within 5 years as legally binding (Government of Canada, 2024). In setting these targets, the government acknowledges the widespread and severe risk of climate change on Canadians. The catastrophic impacts of the forest fires, major flooding, and early melting of permafrost across the country is felt directly by constituents (Government of Canada, 2024). The report similarly cites the Insurance Bureau of Canada who estimates a routinely excess \$3 billion in loss every year due to severe weather damages, totalling to 7.7 billion in 2024 alone (Government of Canada, 2024). Thus, by 2030, Canada plans to achieve 40-45% reduction in emissions by 2030 and complete Net-Zero by 2050 in comparison to 2005 levels, remaining in alignment with the IPCC in regards to the percentage proportion for 1.5°C (except the baseline year is short of the 2010s) (Government of Canada, 2024). By 2035, the government aims for a 45-50% reduction, implying that to reach the 2040 target, 50% of the reduction must occur between 2035-2040. The Ministry of Environment and Climate Change (ECC) Canada self-reported it was on track to meet the 2030 target which received copious critiques by The Office of the Auditor General (OAG) in Canada, who contradicted this progress due to a lack of

specificity. The audit report found that only 45% of the measures have an implementation date set, and that the policy presents “overly optimistic assumptions” in the models, such as no new fossil fuel infrastructure and all new electric vehicles by 2040 (OAG, 2023). The report found “significant flaws”, “no prioritization of measures”, and “lack of reliability of emission projections” by ECC (OAG, 2023). Canada’s inaction is so pronounced that it is represented in international standings. In comparison to other G7 nations, Canada has nationally performed the worst in emissions reductions since 2005 (OAG, 2023).

The difficulty of a just transition in the broader Canadian context has been a long-standing challenge as the primary industries rely on fossil fuel production. For every litre of pump of fossil fuels sold, the Canadian treasury board receives 30% of price (OPEC 2023). In fact, Canadian federal subsidies to the oil and gas corporations have been estimated to amount to at least \$65 billion between 2020-2023 (Levin, 2024). One of the largest deposits by the government was directed towards the completion of the Trans Mountain pipeline expansion (TMX), totaling \$26.1 billion. A report conducted by Institute for Energy Economics and Financial Analysis (IEEFA) found that this subsidy for TMX could have been used to fund every major wind and solar project in Canada from 2019-2021, five times over (2022). These renewable energy projects were projected to contribute over 15 GW of energy, enough to power over 13 million homes in total (Stein, 2024). Veritably, the Canadian economy is highly dependent on the advancement of the fossil fuel sector (followed by the auto and minerals industry), with crude oil as the top exported goods and primary industry, reigning in approximately \$123B in 2022, with no explicit pledge to limit extraction (OEC, 2022). In the 2030 Emission Reduction Plan of the federal government, the Oil and Gas sector section focuses on the significance of the industry to the Canadian economy, responsible for “record cash flow” (Government of Canada, 2022, p. 48). The report entrusts the industry to become the “cleanest global oil and gas producers”, only taking into account the emissions resulting from the drilling, refining, and transmission of the fossil fuels, rather than regulating the emissions that derive from the burning of fossil fuels themselves (Government of Canada, 2022). Fossil fuels contribute to approximately 86% of GHG emissions, yet limits to its extraction remains absent from Canada’s National climate strategy. Janzwood and Harrison’s (2023) study finds that fossil fuel-producing countries consistently set low Nationally Determined Contributions (NDCs) in international climate agreements and despite language that indicate transition of fuels, the supply

of fossil fuels are planned to increase. The difficulties of transitioning to a no-emitting future gradually wanes into the backdrop as the public sector enacts contradictory climate and economic goals.

2.3.2 Toronto - Jurisdictional Context

In light of the shortfall on the federal level, it was initially promising to see that Toronto on the municipal level had set more bolder targets. In 2015, Toronto responded positively to the international adoption of the Paris Agreement, committing itself to limit global warming to 1.5°C (CofT, n.d.b). Subsequently, the City of Toronto passed a motion endorsing the Fossil Fuel Non-Proliferation Treaty in July 2021 to uphold a just transition urgently away from fossil fuels (CofT, n.d.b). The City strives to decarbonize systemically by proposing implementation of ambitious programs and policies. Yet, the City faces jurisdictional constraints. On the face of it, the City of Toronto has been granted authority to create its own by-laws with respect to its governance and policies that promote the wellbeing of the city by the province of Ontario (CofT Act, 2006). The Act affirms that the City has the ability to “provide any service or thing that the City considers necessary or desirable for the public” (CofT Act, 2006). Therefore, the City can pass by-laws from energy to health to promote the well-being of its constituents. However, the city is also restricted from planning anything that “opposes or conflicts with federal or provincial legislation” (CofT Act, 2006). The province holds power over the fiscal budgets of the City as they present restrictions on how the budget must be used which is highly subject to compromise. Firstly, the province has the ability to unilaterally implement or scrap projects as all municipalities within Ontario fall within its regulation. A recent example of this is Ontario’s (2024) Bill 212, a recent provincial measure to advance the removal of bike lanes segments from three major roads (Bloor Street, Yonge Street, and University Avenue), a total of 19 km of bike lanes, in the foiled attempt to reduce traffic congestion. The approved bill also prompts further research into other bike lanes in the city that are presumed to pose a threat to gridlock. The City, who implemented the bike lanes in the first place, is now mandated to support the bike lane removal process as explicated by the provincial bill. It’s not just bike lanes— Ontario is also selling Toronto's waterfront space to a mega luxury spa developer and building the contested highway 413 through Toronto’s greenbelt without municipal consent (McGrath, 2021). Regardless of environmental strategies Toronto seeks to enact, municipalities are commonly

understood as “creatures of province”, according to the government official Peter Wallace (Brail et al., 2022). Peter Wallace, who has served both as the Ontario Deputy Minister of Finance and Secretary to Treasury Board to City Manager for Toronto outlines two key features of implementing policies at a basic level, from an internal perspective: financial maneuverability and jurisdiction. With these two capabilities, a government has the ability to afford and absorb risk of transformative policies (IMFG, 2024). Senior governments (provincial and federal) receive significantly more funding revenues that are derived from “opaque” sources, when on the other hand, the city primarily relies on property taxes– a highly visible form of tax revenue, making it difficult to substantially increase the tax (IMFG, 2024). Regardless of altruistic intentions, the capacity to execute is essential for any policy: “it’s not the idea, it’s the delivery” (IMFG, 2024, 10:23). Overall, Toronto’s city council faces limited financial capabilities and jurisdiction to implement transformative changes.

CHAPTER 3: ENVIRONMENTAL ASSESSMENT OF TARGETS

3.1 Comparison to IPCC Findings

With the objective of tackling the imperative for immediate GHG reductions, TransformTO delivers sector-based targets (CofT, 2021h). The policy prioritizes three main areas in composing the targets, based on three of the highest emitting sectors, according to emissions inventory: Buildings, Transportation, and Waste (CofT, 2021h). Leading with the largest contribution to sector-based emissions is ‘Homes and Buildings’ (56%), with the majority of it deriving from natural gas usage to heat space and water (CofT, 2021f). The second largest sector by GHG is ‘Transportation’ (35%), primarily from personal vehicle emissions (CofT, 2021f). The third largest derives from the ‘Waste’ sector (9%) with emissions resulting from methane released by landfills (CofT, 2021f). Considering these emissions values, the climate policy pursues Net-Zero emissions by 2040 in all sectors, in contrast to 1990 GHG levels.

GHG emissions reduction targets are based on 1990 levels and set to be reduced by 45% by 2025, 65% by 2030, and 100% by 2040. Net-Zero by 2050 (NZ50), Business as Planned (BAP), and Do Nothing Scenario (DNS) are other pathways that the strategy outlines, though not the main focus (CofT, 2021f). As the IPCC encourages wealthier countries or entities that have sufficient resources to take more responsibility than the average, TransformTO acknowledges

this in their justification for the ambitious target they set in comparison to other cities (CofT, 2021f). The two main aspects that determine responsibility according to the policy are: i) substantial historic and current emissions contribution to global GHG budget and ii) capability to act – both categories Toronto is understood to fulfill as outlined by the policy (IPCC, 2023a, p. 20).

To compare against IPCC levels to stay below the advised 1.5°C, emissions reduction within this decade is deemed particularly crucial (IPCC, 2023a, p.19). By 2030, a minimum of 43% (between 43-60%) reduction is recommended (IPCC, 2023a, p. 20). Particularly for nations with plentiful resources and contribution to the climate crisis, further reductions are necessary with a recommended 60% (IPCC, 2023a, p. 20). By 2040, countries are advised to reduce emissions by an average 2040: 69% (58-90%) (IPCC, 2023a, p. 20). Finally, by 2050, an average of 84% (73-98%) reduction should be aimed for (IPCC, 2023a, p. 20). If these ambitious targets are met, IPCC has concluded that it would “reduce projected losses and damages for humans and ecosystems (*very high confidence*), and deliver many co-benefits, especially for air quality and health (*high confidence*)” (IPCC, 2023a, p. 20). The building sector in particular will need to reduce by 80-90% from current levels, with renewable energy supplying at least 70-85% of electricity.

Figure 1: Mitigatory Emissions Reduction from 2019 Baseline (IPCC, 2023a, p. 20)

		Reductions from 2019 emission levels (%)			
		2030	2035	2040	2050
Limit warming to 1.5°C (>50%) with no or limited overshoot	GHG	43 [34-60]	60 [49-77]	69 [58-90]	84 [73-98]
	CO ₂	48 [36-69]	65 [50-96]	80 [61-109]	99 [79-119]
Limit warming to 2°C (>67%)	GHG	21 [1-42]	35 [22-55]	46 [34-63]	64 [53-77]
	CO ₂	22 [1-44]	37 [21-59]	51 [36-70]	73 [55-90]

While the GHG targets in TransformTO surpass these recommendations, the baseline year must be noted. The IPCC recommendations rely on reductions from the 2019 emissions levels (IPCC, 2023a, p. 20). Despite this advisement, the policy compares GHG reductions with 1990 levels. For further context, a decline of 37% in Canada’s overall emissions was observed between the 1990s and 2019 (Environment and Climate Change Canada, 2021). This is largely due to the phase out of coal to reliance on hydro electricity generation that was led by the

provincial government. In alignment, Toronto's community-wide GHG emissions were 15.6 million tonnes (MT) equivalent carbon dioxide (CO₂e) in 2019, which is 38% lower than in 1990 (CofT, 2021f). Emission reductions before the climate policy was implemented is taken into consideration, of roughly 37% in emissions reductions. Thus, with the implementation of TransformTO, the City would be aiming to reduce approximately 63% of their emissions prior to the implementation of the policy. However, this policy does not explicitly acknowledge this matter, which may create a misleading impression of the extent to which Toronto is decreasing their actual emissions. Similarly, Toronto's emissions reductions in 2021, primarily due to COVID-19 lockdown, is not expected to continue at the same rate as we return to the pre-pandemic emission levels (CofT, 2021f).

To align itself to the proposed targets, the 'Buildings and Energy' sector plans to connect infrastructure to renewable energy sources. However, one of the sources included in the list of renewable energy is "green natural gas" which studies have found is not entirely carbon neutral or negative (Rai et. al, 2022). Ambitiously, the City aims for 100% retrofits for existing and new buildings as well as a 100% green energy grid (CofT, 2021f). The policy aims to convert 100% of residential water and space heating to heat pumps, phasing out residential natural gas systems by 2040 (CofT, 2021f). Efficient energy use is also accounted for through retrofits. An average 29,000 residential units and an additional 400 commercial buildings require deep retrofits every year within Toronto for 18 years to meet their NZ40 goal (CofT, 2021f). This is said to cut Toronto's energy consumption by half as a result of efficiency gains (CofT, 2021f).

Systemic energy generation will also plan for adjustment. First, wind energy capacity is planned to be scaled up to 200 MW of power by 2050 (CofT, 2021f). Next, the city plans to have 100% of buildings have solar PV installed by 2050 (CofT, 2021f). This would require roughly 17 and 30 solar panels per average home, in order to fully power the home. Onsite battery storage will also be scaled up to 2000 MW by 2050 to ensure controlled production (CofT, 2021f). Energy from wastewater (biodigester plants) and hydrogen will take up only a small portion of the renewable energy generation (CofT, 2021f).

3.2 Analysis on Progress of Proposed Actions

This section analyzes how TransformTO faces setbacks in both substance and implementation of the policy. In substance, the emissions reduction objectives are lagging behind necessary reduction levels mandated by the IPCC. In three main ways, the City shows these deficiencies in composition: i) Scope 3 emissions, ii) the appropriate baseline year, and iii) the overreliance on carbon offsets. In the implementation of policy, the associated funding programs to reach the buildings and energy sector targets will be assessed on its progress. In practice, TransformTO proves to inadequately meet the policy expectations.

3.2.1 Flaws in the Policy's Substance

First, the City's emission calculations to determine reductions are based on a restricted definition of "emissions" to begin with. For context, Scope 1 and Scope 2 greenhouse gas (GHG) emissions originate from direct operational energy use by buildings and indirect energy consumption required for maintenance of the operations respectively. The City only measures these two strands, and thus, the emissions inventory report excludes Scope 3 emissions (CofT, 2021a). Scope 3 emissions derive from materials utilized within the city, but produced outside its boundaries (CofT, 2019b). Accounting for approximately 75% of total emissions from the consumption of goods, Scope 3 emissions are consequential in inducing or preventing climate change (CofT, 2019b). Since emissions do not immediately dissipate within the city's boundaries, the inventory report attributes responsibility for Scope 3 emissions to upstream sources. In 2019, the City measured consumption-based emissions as a case study and found that per capita, the average Torontian would emit 13.1 tons of CO₂e, when the sector-based assessment finds 5.4 tons of CO₂e released instead that year (CofT, b). By failing to account for emissions at all three stages of the supply chain and fragmenting the socio-political systems from physical boundaries, the City of Toronto effectively narrows the scope of its climate objectives. Without a reporting of actual emissions, it is not possible to know whether Toronto has met its true emissions reduction targets. Despite the low starting benchmark, for Toronto's 2025 target, the emission inventory report still predicts that Toronto will not meet the sector-based emission goal of 45% (CofT, 2021a). This is in light of the fact that at the height of the pandemic in 2022 where transportation related activities reduced significantly, the City experienced a 36% reduction in GHG reduction in comparison to 1990 levels (CofT, 2021a). Between 2022-2025, Toronto is required to reduce 2.1MT CO₂e which is equivalent to "converting 83 per cent

(413,416) of single-family homes from fossil (natural) gas heating to electric heat pumps” which has been declared unlikely based on the emissions inventory findings (CofT, 2021e). It should be noted that even if Toronto is able to achieve this by the end of this year (although this extremely unlikely), this still does not account for the necessary reductions in consideration to community-wide emissions. Similarly, the City does not account for Scope 3 emissions resulting from the top financial institutions that are based in Toronto. Researchers from the University of Toronto in 2022, these companies collectively allocated \$1.4 trillion to fossil fuel enterprises, resulting in approximately 1.4 billion tonnes of carbon emissions (Oshinowo et al., 2024). This figure represents emissions that are 100x greater than those of Toronto; however, the City does not account for corporate emissions resulting from their activities (Oshinowo et al., 2024).

Second, the baseline year recommended by the IPCC of 2019 is a more recent year in order to have a significant emission reduction than what TransformTO has selected– 1990s. With the 2040 target surpassing the high reduction by the IPCC (90%), the City appears to set a high bar for converting its energy sources through an energy transition (IPCC, 2023a, p. 20). All of the targets aim for the largest emissions reduction recommended by the IPCC, on the higher end of the recommended bracket. However, the initial baseline year skews the perception of the emissions reductions. To decrease emissions from 2019 would be significantly more challenging for the City. If Toronto were to adopt 2019 as the baseline year, the target for 2025 and 2035 would be below the recommended IPCC reduction range, and 2040’s goal would meet the lowest recommended reduction above by just 5% (63% reduction total). Although 69% reduction is the recognized average reduction for 2040 by the IPCC, Toronto would be reaching for a weaker goal. This is especially due to the fact that accelerated action of Net-Zero “depends on equity and capacity considerations (high confidence)” (IPCC, 2023a, p. 60). The higher end of the bracket of 90% emissions reduction is implicitly for developed nations who are expected to reduce emissions prior to developing countries (IPCC). TransformTO’s chosen baseline year and associated targets are therefore inadequate with the internationally-recognized model for mitigation.

Third, the NZ40 pathway relies on at least 1.6 MtCO₂e to be offsetted either by carbon offsets or Carbon Capture Storage (CCS) (CofT, 2021f). If the City fails to reduce emissions in the other categories, carbon offsets will be bought to reach carbon neutrality. According to the report, CCS technology is predicted to rapidly advance to be efficient in capturing emitted gases.

This may explain why most climate policies rely to some degree on CCS to reduce emissions. However, studies argue that CCS provides the social license for fossil fuels to continue to be extracted and the continuation of emissions-intensive production. Even if corporations or governments are able to capture their emissions from production, CCS will enable the continued expansion of fossil fuel extraction which is largely burned (~90%) by individuals through transportation and heating (5). Thus, CCS is assumed to increase emissions as a result of facilitating the immunity for the status quo deployment of oil and gas. Out of the few successes, CCS technologies were also found to underperform in capturing gases by 20-50% than initially projected (IEEFA, 2022). The IPCC similarly adds that relying on carbon removal technologies is a “major risk” to staying below 1.5°C of warming (IPCC, 2018). In the unfavourable case where Toronto does not meet its emissions reductions from the proposed actions, for instance, renewable energy plans are not sufficiently carried out, the strategy reports it will rely on carbon offsets and Carbon Capture Storage (CCS) to fill the necessary gap. To bank on these half-measures, risks a delay in reaching Net-Zero

3.2.2 Implementation of the Policy

On the whole, the execution of the particular policy programs has been negligible. Although the latest emissions data for 2023 has not been published, the TransformTO progress report determined that emissions will revert to pre-pandemic levels or exceed them. Nonetheless, the actions related to the targets can be evaluated for their implementation progress. The City intends to convert to solar energy as its principal electricity source by encouraging individual homeowners to install rooftop solar panels (CofT, 2021f). The second largest renewable energy source, wind energy, aims to achieve 200 MW of capacity by 2040 (CofT, 2021f). This would enable service to approximately 100,000 dwellings, while Toronto has over 1.25 million homes. Consequently, initiatives facilitating the adoption of solar energy and retrofits are essential for achieving a complete transformation.

The limited number of economic supports for retrofits or renewable energy implementations similarly reveals the insufficiency to expand programs. For example, the City’s Home Energy Loan Program (HELP) currently supports the installation of solar panels of about 35.7 homes per year in Toronto since 2015 (Figure 2). While data of private installations without loans is not provided, the limited number of loans for such an expensive undertaking is

concerning. This is especially critical given the target for 100% of homes capable of hosting solar photovoltaic (PV) systems to do so by 2040. A similar challenge is evident in the Deep Retrofit initiative, which has funded retrofits to a total of six apartment buildings during the pilot project. There has similarly been no publically shared plans to scale the initiative up now that the pilot phase is complete. For the Development Charge Fund, a total of 48 housing projects in Toronto have used the program to receive a refund, evidently falling short of the policy's targets.

Figure 2: Implementation of City Programs

Initiative	Focus	Funding	Status	Challenges
Deep Retrofit Challenge (CofT, n.d.a)	Multi-unit residential and commercial retrofits.	Grants of up to \$500,000 (25% of project costs) from a \$5 million federal budget; loans repayable within 20 years.	Pilot phase: 6 out of 14 applicants received grants. No further scaling of the program since pilot completion.	Limited reach (only 6 buildings retrofitted). No scaling beyond pilot phase.
Home Energy Loan Program (HELP) (CofT, n.d.b)	Home energy efficiency for homeowners.	Loans up to \$125,000 for upgrades (heat pumps, insulation, solar panels, EV chargers, etc.).	Between 2015-2025, 373 loans have been approved (approx. 37.5 homes per year). (CofT, 2025)	Low adoption rate since the program's implementation.
City of Toronto Buildings (CofT, n.d.b)	Renewable energy in government	Fuel switching costs a projected \$1.4 billion and	Target is ongoing; no specific data on	Ambitious target with unclear current progress and

	buildings (ie. City Hall, community centres, etc). Target of 37 MW of renewable energy (primarily solar) to be installed on City-owned facilities by 2030.	\$13 million to be spent on carbon offsets in the next 20 years. (CofT, 2022a)	progress provided. By 2025, all buildings need to have switched to renewable energy	feasibility. Presumably uncompleted due to high cost.
Development Charge Refund (CofT, n.d.b)	Incentives for new constructions to meet green standards.	Refunds depend on Toronto Green Standards Tier for 2-bedroom: Tier 2: \$5,318.71 Tier 3/4: \$6,382.46.	48 homes in Toronto have used the program.	Low adoption rate; requires third-party assessments, which may deter participation. Incentive amounts vary by housing type.
Eco Roof Program (CofT, n.d.b)	Green and cool roofs.	Incentives for eco-roof installations: up to \$100,000 for green roofs, and up to \$50,000 in rebate.	572 eco roofs installed: 94 green roofs and 478 cool roofs.	Modest success, particularly for cool roofs; limited number of green roofs. This can overlap with development standards which

				require cool or green roofs.
--	--	--	--	------------------------------

Therefore, all of the building programs as directed by TransformTO are not close to reaching the necessary level of hundreds of thousands homes being retrofitted every year. As Buildings is the largest emitting category, failing to meet strategies in order to meet the target endangers Toronto's ability to meet the targets. In respect to new development, the City has adopted the Toronto Green Standard (TSG) Version 4 in 2024 to ensure any new developments of 10 units or more comply with the mandatory Tier 1 environmental guidelines in order to receive development approval. The performance measures for Tier 1 include a green landscape with trees, electric vehicle (EV) charging stations, energy efficient design, and construction waste diversion (CofT, n.d.c). Tier 2 and 3 increase in the intensity of listed requirements above, are voluntary measures that are rewarded with a development charge refund if completed, although the financial incentive is minor for developers (Edwards, 2022). The enforcement of the sustainable design requirements further Toronto's larger goal of Net-Zero, however this does apply to existing buildings or many affordable housing developments. Majority of the approved developments are non-affordable at the Tier 1 level by over 95%, and rather, are primarily condominiums or City-owned office buildings (Edwards, 2022) The TSG success cases displayed on the City website for adopting Tier 1, 2, or 3 celebrate largely high-rise developments, including luxury suites in the urban commercial centres or harbourfront locations (Figure 3). While TSG's requirements present a promising shift towards NZ40, the unaffordable development projects, sole application for developments (not singular units), and lack of change of existing buildings prevents ambitious change in consideration to an environmental justice framework.

Figure 3: City of Toronto Tier 2 Project Profiles Showcase (Left, 835 St. Clair Avenue West and 755 King Street West - Tier 2) (CofT, n.d.c)



In a similar manner, the City's short-term energy objectives over 2022-2025 are not only vague but have also largely remained unfulfilled, as indicated by its progress tracker. The cautious execution refers to “work[ing] with industry experts”, “address[ing] barriers and develop strategies”, and “actively support, advocate to and partner” with corporations and higher levels of government (CofT, 2021e). Ultimately, the City’s conduct is restricted due to its jurisdictional scope. While Toronto can attempt to engage and collaborate with other levels of government and departments within the City, the municipality can only compel the parties to do more. The City has solicited assistance from the province to achieve its objectives, although the attainment of these requests remains doubtful. The predominant source of Toronto's energy supply comes from the province (due to a lack of energy infrastructure within the city), which does not align with the City's renewable energy objectives. For instance, Ontario is currently constructing a 550 (MW) gas-fired power plant and augmenting the Portlands Energy Centre by 50 MW (Atrua Power, n.d.). These projects, which face significant opposition from Toronto’s environmental organizations, highlight the province's focus on non-renewable energy sources (Environmental Defence, 2024). While Toronto has set a goal of achieving 100% renewable energy by 2040, the required infrastructural change remains heavily dependent on the province to harmonize Toronto's energy policies with its infrastructure. This divergence is further complicated by the pending closure of the Pickering nuclear facility that Toronto relies on, making the city the primary consumer of the new gas-generated electricity (Ontario Power Generation, n.d.).

The initiatives in TransformTO likewise fail to systematically prioritize the reduction of the highest-emitting sources within the buildings sector. While the burning of fossil gas (methane) contributes over 50% to Toronto's emissions alone, the measures do not account for limiting the fossil fuels industry or usage in any direct regulation, other than indirectly "encouraging the province to switch to renewables" (CofT, 2021e). The unaddressed presence and ongoing expansion of fossil fuel plants in the theoretical and practical frameworks of TransformTO is noteworthy. In short, there is a lack of responsibility for failing to make progress within the division or other ministries, other than adverse environmental repercussions and possible public backlash. These steps are not substantive as discussions and advocacy is not determinate in drastically transitioning systems materially. The policy seems transformative in its expression, although the proposed actions are merely aspirational due to the absence of implementation.

In summary, TransformTO reports reveal multi-layered issues concerning the written policy and absences in its execution. In regards to the emissions targets, the Net-Zero pathway appears to advocate for ambitious change through its rhetoric. This further examination reveals that it falls short of the IPCC standards. Tracking the progress of TransformTO is challenging due to the limited breadth of data yet, the available reports indicate insufficient advancement.

CHAPTER 4: SOCIAL EQUITY ASSESSMENT

4.1 Survey Results & Incorporated Analysis

In this chapter, I assess the positionality of Toronto's climate policy on social equity. Social equity denotes the equitable distribution of goods and services to marginalized communities exposed to pre-existing social discrimination (Champagne, 2020, p. 746). The City deployed efforts to engage with constituent respondents through community surveys, open forums, online questionnaires, and visioning sessions. Toronto solicits "community participation" from a diverse range of consultants, including randomly selected constituents and Indigenous activists (CofT, 2021e). The consultations conducted by the City are evaluated in this section based on the extent community ideas are incorporated into TransformTO and its implementation. After all, the policy's four foundational pillars were created in relation to social values: health, equity, resilience, and prosperity purportedly grounds the TransformTO (CofT,

2021f). Since the policy affects the livelihood of all Torontonians, diverse perspectives from constituents to experts co-authoring the strategy was a priority in the creation of TransformTO. Public engagement can be indicative of the effectiveness of the implementation of climate policy by familiarizing constituents on the targets, building support, and garnering partnerships (Chitsa et al., 2022). The relationship between the community and city is pragmatically essential in carrying out the collective vision of TransformTO. By incorporating the concerns of Torontonians, the City facilitates trust and can more adequately apply the policy when problems are identified. Inclusive public consultations are particularly successful when the outreach is more than a token activity (Chitsa et al., 2022). When community members are involved through all stages of the policy, are educated on the climate crisis, and empowered by the City through their informed contributions, the government can more closely adopt a bottom-up approach to climate action (Chitsa et al., 2022).

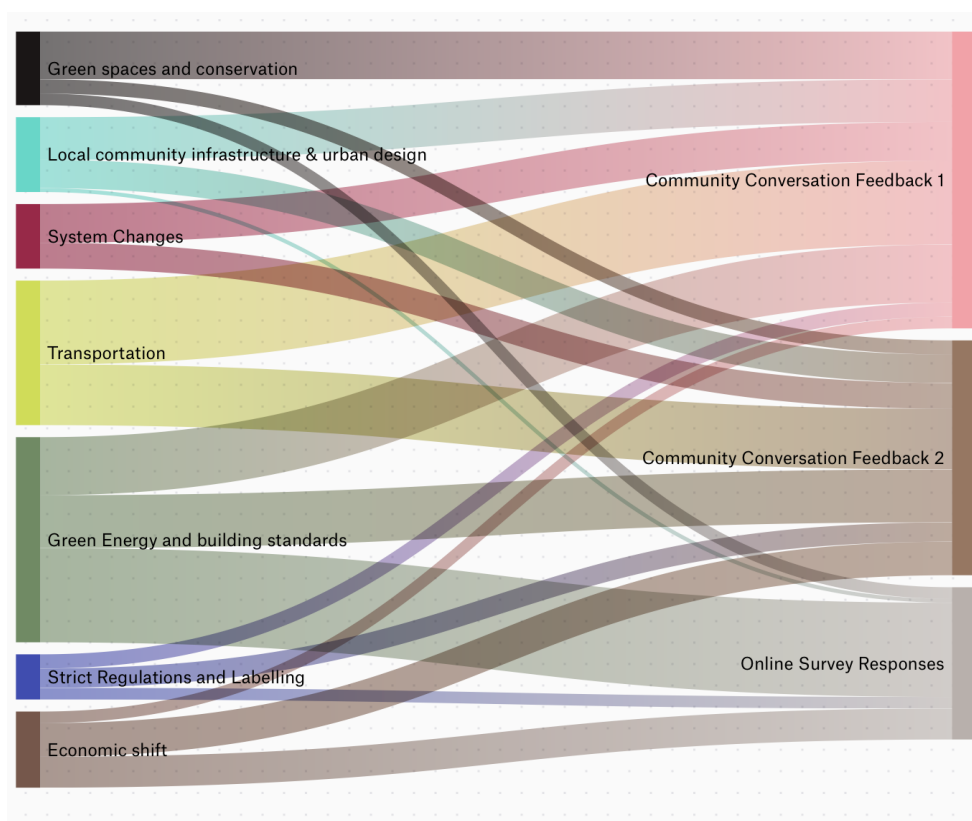
4.1.1 Community Consultations and Online survey 2015-16

From the summer of 2015 to 2016, TransformTO underwent public consultation. The nature of responses from the consultations were based on a variety of in-person and online events with over 2,000 residents participating (CofT, 2015-16). The responses transcribed, from four City-hosted events, were compiled into Community Conversations Feedback documents, available through the City of Toronto's OpenData source. These events took place across Toronto in North York, Scarborough, Etobicoke, and downtown between April and May in 2016. Participants were asked what kind of vision they had for Toronto by 2050. The online workbook responses are individual submissions written by constituents. It should be noted that the limitations in measuring qualitative data responses persists. Some responses include in-depth stories about an individual's neighbourhood to motivate their demand for sustainable public infrastructure when other responses were single-line statements about their desired changes. Since quantifying the depth of the responses is challenging, I included the second category of codes to account for the approach the participant wanted to see. For instance, one respondent from the online survey commented, "I would suggest a regulation for commercial spaces that addresses upper and lower limits to the temperatures to which buildings can be heated or cooled. For example, on a 25 degree day, it would be sufficient to cool a building just by a couple of degrees" (CofT, 2015-16). Not only does the constituent recommend the area of change

(Buildings and Energy), but they also suggest a method to attain the goal, which is through stricter regulation of energy consumption. Hence, I included this secondary category of codes pertaining to the form of change.

In the Community Engagement Report (2016), the City of Toronto consolidated their findings from the online survey and City-led workshop events on TransformTO. Five primary categories were identified from the feedback, however, the proportion to which constituents referred to these categories were unclear, and did not reveal *how* community members wanted to see the change (Figure 4). Therefore, the qualitative responses from the Community Conversation and the Online Survey have been coded into two main categories. The first category refers to the type of environmental change by sector (number of associated quotes): green energy & building standards (160), transportation (116), green spaces and conservation (58), waste minimization and management (27), and food practices (25). The second category indicates the mode in which the constituent would want to see the implementation of climate strategies, ranging from radical to moderate methods. In order of the most cited codes for the second category: economic incentives and pressure (59), local community infrastructure and urban design (59), system changes (50), stricter regulations and labelling (35), education (32), and individual behavioural changes (23). The sankey diagram below (Figure 3) displays the quantity of responses with respect to the two categories.

Figure 4: Top Codes from Community Consultations and Online Survey (2015-16) on Climate
Action



The largest sectors in the responses were ‘Green Energy & Building Standards’ and ‘Transportation’ which advocated for energy efficiency and improved connection to renewable energy sources. There were mixed responses on whether renewable energy should be derived from individual homes, “each building is a source of power and food”, or through district electric grids, “floating solar farms in Lake Ontario” (CofT, 2015-16, Community Conversations 1). In addition, constituents frequently mentioned the need for pedestrianized streets and bike infrastructure support (i.e. bike lanes, suburban connection to downtown, winter maintenance) to encourage active-transport over car use. Public transportation was held in high regard not only because of its low-emissions practices but also because it is more economically accessible across different socio-economic communities. Some friction between the responses pertained to advocacy for electric vehicles on one side and other responses advocating for making “driving socially unacceptable”, enforcing “car-free zones”, and having “no parking in Toronto” (CofT, 2015-16, Community Conversation 1 & 2). Participants also advocated for complete, walkable

cities on numerous occasions to be able to live close to work, school, and stores. Finally, constituents saw the necessity to maximize space by naturalizing it with trees, green corridors, green roofs or farms, gardens, parks, and less lawns. Urban agriculture was frequently mentioned as a way to rewild paved spaces but also to generate food for the community and strengthen the neighbourhood relationships. Greening spaces was identified for specific spaces (i.e. vegetation for corridors, non-designated areas, boulevards, schools, etc) and in critically attentive ways (i.e. pollinator plants, green spaces to control floods, community gardens, absorbing heat to reduce heat island effect, etc). For instance, respondents thought it was important to have trees not only for a greener landscape, but to promote the growth of urban forests, retain mature trees, and interconnect tree-filled parks as mixed use spaces with non-vegetated areas (CofT, 2015-16, Community Conversation 1, 2, Onlines Survey). The equitable distribution of trees in all neighbourhoods for increased shade was also brought up a few times by participants. Desirable social amenities such as community hubs, outdoor recreation centres, and social benefits such as improved health conditions due to carbon-free infrastructure, were repeatedly highlighted by the respondents. In general, the responses by Torontians of their vision for the future of the city are thoughtful, enriching, and well-informed.

The feedback from residents contained multiple suggested methods on attaining their vision. First, participants strongly advocated for financial incentives or disincentives to encourage non-emitting behaviours. One participant encouraged the City to “give interest free loans for retrofits, and provide centres where people can drop in and get info on how they can improve energy savings with retrofits” (CofT, 2015-16, Online Survey). The affordability of retrofits, and implementation of renewable energy enabled through subsidies, cap and trade, grants, and tax reductions were all proposed. Financial disincentives such as carbon taxation for emitting corporations, road tolls, and buildings that use excess amounts of glass rather than insulation were additionally highlighted.

Another mode of transition is through local urban infrastructure that is self-sustaining and promotes community collectives, economy, energy, art, and networks. Toronto would become decentralized with multiple nodes to achieve effective use of urban space. Finally, system wide changes and stricter regulations were advocated for by residents. System-wide change is a broad theme that encapsulates a radical transition to the status quo. For instance, some respondents

desired a “community-sharing economy” or “heart-based jobs”, “shifts in how business view natural resources”, “getting rid of capitalism”, “shifting work hours” or “flex work hours (to create varied rush hours)”, “circular economy”, “local economies”, and “culture change” (CofT, 2015-16, Community conversation 1, 2, & Online Survey). Stricter regulations, suggested by “mandatory” rules for new building standards, and financial support for retrofits were appealed numerous times throughout the reports as well. These responses reflect the residents' demand for drastic measures to be taken to address the severity of the climate crisis. These are confessions of an appetite for sweeping changes to our existing lifestyle— a whole entire economic, social, and cultural change. The frequency and intensity of the statements notably stand out as what constituents are prepared for.

4.1.2 Indigenous Climate Action Report

In November 2018, the City hosted a workshop event, inviting Indigenous representatives from the Yellowhead Institute, Toronto Aboriginal Support Services Council, Indigenous Climate Action, and other groups to discuss TransformTO. The participants began the session, announcing that this small gathering does not qualify as “quality consultation” (CofT, 2018). A one-day event cannot be representative of the Indigenous perspectives on the City’s new climate policy. Despite this insistence, the Community Engagement section on the TransformTO site reveals that further consultations did not occur, nor concrete plans on future meetings planned (CofT, 2021f). The conclusions of the “consultation” report are reposed in the policy, affirming the need “to respect and engage meaningfully with Indigenous knowledge and practices,” (CofT, 2021f). Ironically, TransformTO’s policy directly references the following quote from the Indigenous Climate Action Report:

“Indigenous forms of knowledge need to be engaged meaningfully in addressing climate change. The knowledge is misunderstood and incomplete if non-Indigenous researchers merely “extract the knowledge.”... If the city does not account for and address colonization in its policies it will keep repeating the same problematic behaviours. So Toronto’s Biodiversity strategy, for example, needs “decolonizing.” We need to look at indicators for biodiversity differently—not just counting things, but rather asking, in a much wider way, questions that have a much more comprehensive

focus: “Are we good ancestors?””. (CofT, 2021f, pg. 57)

By embedding this excerpt without any references to engagement with Indigenous Peoples in the implementation or “key action” section, the City extracts knowledge from the Indigenous respondents. The cited critique is exemplary of creating a perception of respect and cooperation, while omitting their critical reflections on the City’s consultation process. Does the City’s mere restatement from Indigenous representatives offset their inaction? The City did not directly implement any of the recommendations from the Indigenous consultation report, such as working with the health sector, measuring progress using “full cost accounting” rather than counting emissions, supporting Indigenous communities to attain basic needs such as water and healthcare, and including Indigenous knowledge systems. The one step the City has taken is the creation of the pilot project, the Climate Indigenous Action Grant, which has so far provided funding to 19 projects, but does not demonstrate explicit initiatives to tackle the lived realities of Indigenous Peoples as voiced in the report. In a similar vein, the short-term strategy between 2022-2025 includes steps to “ensure equitable implementation and ongoing improvement of engagement” with Indigenous community members (CofT, 2021e). The outlined actions for implementation include deeper engagements with Indigenous and vulnerable communities, more precise equity indicators, the creation of an equity advisory committee, and developing further strategies (CofT, 2021e). Although these steps are crucial, there is a lack of significant material commitment to assist Indigenous communities in securing fundamental human necessities. The conceptualized support appears to remain within the confines of dialogue, and written reports. In a similar case, Anishinaabe scholar Graeme Reed critiques the modality in which Indigenous perspectives are incorporated in federal nature-based solutions projects. Although there is “recognition of the rights of Indigenous Peoples in all the policy documents, these rights are rarely respected” within climate policies (Reed et. al., 2022). The explicit references to Indigenous perspectives and highlighting the need for “greater engagement” without direct plans to address the issue resembles a politics of recognition, detached from material promise (CofT, 2021f). The result of the acknowledgement remains in its infancy to bolster sustainable Indigenous self-determination.

4.1.3 Climate Change Perceptions Research: Final Report 2022

In the most recent survey by TransformTO, 1,000 residents were consulted on their general attitudes towards climate change. Overall, 78% of residents reported they are concerned about the impact of climate change on the city, but other issues such as public health, equality, the local economy, and job creation, ranked higher in priority than climate change (CofT, 2022b). Interestingly, 88% of respondents agreed that the City of Toronto's targets will require significant changes for its constituents (CofT, 2022b).. On top of this, 48% of residents think the City should be taking more action to address climate change (CofT, 2022b).. While these responses are encouraging, it was also found in the same survey that participants are simultaneously unwilling to financially contribute towards implementing these actions. On average, the respondents stated they were willing to spend \$249 per year to help fight climate change. Four in ten (41%) reported they would be willing to spend \$0 per year, and very few (3%) say they would be willing to pay \$1,100+ (CofT, 2022b). This is particularly troubling as the average deep retrofit ranges between \$100,000-\$200,000 per home (Retrofit Canada, 2025). Assuming individuals will not pay this amount to retrofit, the City will need to strengthen their retrofit loans and subsidized programs extensively. This lack of willingness to contribute financially to addressing the climate crisis is contrasted deeply. 88% of respondents who also believed that City of Toronto's policy targets will take a high level of effort and 82% of residents who are concerned about the impact of climate change globally (CofT, 2022b). Thus, the survey suggests the constituents want to simultaneously address the climate crisis and maintain their current finances.

One must consider compounding factors when it comes to a lack of personal spending. As demonstrated in Chapter 3, development projects that comply with Toronto Green Standards Tiers are often unaffordable condominium developments. Constituents who are renters may encounter further obstacles in persuading their landlord to implement retrofits, install a heat pump, and acquire solar panels for the roof. The strategy endorses environmental sound enhancements in that it will ultimately reduce energy expenses, thereby positioning it as a feature of social equity. While these features may yield savings in the long-run, asserting the changes promotes socio-economic conditions may be misleading. It requires a large upfront cost to afford retrofits, and compounding financial factors may prevent the ability of the individual to afford these expenses. This only further stresses the need to provide sufficient options to enable

transitioning to less carbon intensive home appliances.

Overall, the participants from consultations between 2015-2022 have encouraged the City to further advance their actions with increased urgency over the years. Participants strongly advocate for transitioning to renewable energy, with a particular focus on energy source and consumption levels within households. The City doesn't materialize policy changes post consultations and surveys at the neighbourhood level with respect to the 'Buildings and Energy sector'. Some respondents desired strict, mandatory regulations to limit for instance, energy usage, and car use, but so far, there have been no City by-laws to mandate these suggestions to the extent that was suggested. The overarching theme from the 2015-2016 consultations and surveys appear to be involved with the initial creation of TransformTO's first policy in 2019, but specific neighbourhood concerns, or suggestions are not found in the final policy draft or short-term goals 2022-2025. The very purpose of engagement is questioned when details from community members are sidelined from the policy. It is similarly not indicated that implementation will take into consideration the points raised by residents. Such findings are concerning considering that consultations are one of the only avenues where the community can shape the TransformTO policy and implementation. Ideal consultation leads to continuous engagement and integration of the ideas in a concrete form, yet this did not occur. This aligns with the trend across many Canadian urban climate policies which consider social equity as a "marginal objective" (Champagne., 2020, p. 763). The consultations appear to function as a check-box activity, and misses the value of engagement through tokenization. In the annual report 2023 by the City of Toronto Climate Advisory Group (CAG), established in 2022 as committee of a variety of community climate and equity organizations. The three recommendations from the CAG are to: i) "Ensure that equity principles are central in all policies, strategies and tactics", ii) "Prioritize inclusive engagement to accelerate progress towards NetZero", and iii) "Transparency, predictability and accountability support residents and stakeholders to participate in climate action" (CofT). This once again stresses the gap in social equity of TransformTO. To conclude, the inability to effectively engage constituents and Indigenous members in the community results in further failure to implement the policy. Therefore, TransformTO does not enhance social equity provisions sufficiently.

CHAPTER 5: FEASIBILITY ASSESSMENT

5.1 Feasibility of the Policy

This chapter will evaluate the financial and political feasibility of TransformTO as a third metric of its overall efficacy. Here, feasibility is understood not merely as the technical capability to implement TransformTO's proposed energy transition but also the social, political, and economic conditions. Scholars such as Lawford-Smith (2013) realize that collective action problems such as world hunger and climate change are possible to solve, but one may be reluctant in claiming this is feasible. To reach 1.5°C requires unprecedented systemic changes. A previous study by Jewell & Cherp (2019) concluded that despite desirable benefits from climate policies practically, it would be politically infeasible to reach 1.5°C by 2100 globally due to historical precedence. The emissions gap between global GHG emissions and Nationally Determined Contributions (NDCs), which tend to be misaligned, possesses a comparable pattern. That is, the United Nation Environment Program estimates that present measures will only be able to reduce emissions by 5% by 2030 (UNEP, 2022, p. 32). Hence, several factors contribute to the feasible nature of a climate policy, beyond their technical potential. Moreover, feasibility according to the IPCC is defined as the “potential for a mitigation or adaptation option to be implemented” (IPCC, 2022). The IPCC identifies six broad dimensions that enable or pose a barrier for implementing mitigation options in urban systems: geophysical, environmental-ecological, technological, economic, socio-cultural, and institutional dimensions (IPCC, 2022, p. 919). Therefore, feasibility is not only about what is practically possible, but also concerns how behavioural, institutional, and social aspects influence the likelihood of implementation. This broader understanding of feasibility is similarly contingent on place-dependent factors (Wedin, 2023). Accordingly, this chapter seeks to review primarily the financial feasibility of the proposed implementation of TransformTO and assess how they have been realized into practice. A short review of the political feasibility will also be conducted.

To begin, the necessary budget to implement the associated actions by Net-Zero by 2040 will require approximately 5% of Toronto's GDP until 2031, followed by 2% in every subsequent year to 2040 (Figure 5) (CofT, 2021g). Subsequently, the budget indicates that residential and commercial buildings are anticipated to necessitate capital investments ranging

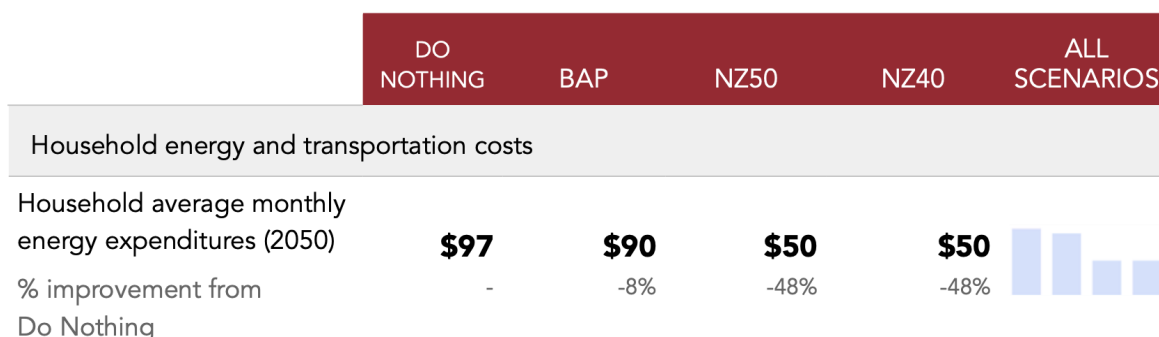
from \$42 to \$74 billion throughout the full duration across all scenarios (CofT, 2021g). Transportation expenses will amount to \$92 billion, exceeding housing costs (CofT, 2021g, p. 120). The report (CofT, 2021g, p. 120) indicates that although natural gas heating in buildings would incur significant expenses, these costs will be mitigated by the densification provisions established in the building codes. When added, these high figures do not consistently add up to the capital investments, however, the implication that large investments are necessitated is understood.

Figure 5: Estimated budget to implement policy (CofT, 2021g)

	BAP	NZ50	NZ40
Net impacts over the period, \$ billions			
Total incremental capital investment, 2020-2050	\$31.40	\$139.63	\$145.86
Total savings, 2020-2050 ⁹⁷	-\$32.02	-\$107.64	-\$114.00
Revenue losses, 2020-2050 ⁹⁸	\$3.35	\$25.41	\$25.40

If these investments are made, the City expects to see financial returns starting the year in the year 2040 of \$114 billion. The projected savings and avoided costs stem from estimated to derive from environmental changes. A prime example of this is denser buildings which are built to be more energy efficient and consume less (fossil fuel) energy (Figure 6). This indicates a reduction in energy bills amounting to collectively \$90 million annually (CofT, 2021g). Thus, the policy considers the financial benefits derived from reductions in emissions. Additionally, the City predicts that improved wellbeing as a result of Net-Zero 40 pathway will lead to long-term saving. The health of constituents will significantly improve when the city is close to 100% renewable energy with little to no air pollution being produced. As noted in the policy, air pollution is predicted to cause 1,300 premature deaths and 3,550 hospitalizations for heart and lung disease in Toronto (CofT, 2021g). Toronto's reduction in emissions is understood to drive public health care costs by imposing less strain on hospitals (CofT, 2021g). Based on these projected cost reductions, the City proposes a financial incentive to mitigate emissions.

Figure 6: Comparison of household fuel expenditures across all scenarios (CofT, 2021g)



However, Toronto's funding strategy is particularly concerning since the policy implies a capital-constrained public sector. In this case, the public sector must still invest in over 50% of necessary projects (Figure 7). While the report does not specify which field best applies to Toronto, one can predict it would be the latter two options for funding TransformTO due the municipal government's dedication to Net-Zero plans.

Figure 7: Funding Sources for TransformTO (CofT, 2021g)



5.2 Analysis of the Current Stage of Implementation

In reality, the municipal government is spending significantly less than the recommendations outlined in the Transform TO's technical report. In particular, this analysis will focus on capital spending within the 'Buildings and Energy' sector. The 2024 budget includes a planned capital investment of \$1,486.35 million and an operational budget of \$63.36 million for emissions-reducing projects (CofT, 2024b). Evidently, these amounts are a very small fraction of what is required by the policy, particularly in the early stages where approximately 5% of Toronto GDP (approximately \$21 billion) is required per year until 2031 (CofT, 2021g). The

majority of the gross expenditures –a total of \$21.3 million– from the 2024 budget was used for salaries to maintain the existence of the Environment & Climate division of the City (CofT, 2024c). Even if the entire budget was allocated to retrofit projects, it would still fall short of the annual investment of many billions. Additionally, the 2024 budget includes conflicting capital investments of \$48.17 million for operational City uses of fossil fuels and \$826.02 million in capital spending designated “fossil fuel projects” (CofT, 2024a). The financial support for these projects exacerbates the gap in transitioning from fossil fuels, as detailed in TransformTO. Therefore, a lack of progress has been made to address the critical steps since the Net-Zero Strategy’s adoption in December 2021 from a financial perspective. The 2024 Annual Report evaluating progress confirmed that Toronto is not on course to achieve the Net-Zero by 2040 targets (CofT, 2024a). The current trajectory aligns with the "Business as Usual" scenario, which shows minimal differentiation in emission reduction compared to the "Do Nothing" scenario as indicated by the policy (CofT, 2021f; CofT, 2024a). Contrastingly, all of the City’s short-term action areas (2022-2025) are evaluated as "in progress", according to its own tracking documents (CofT, 2024a, Appendix 1.1). This further illustrates the slow pace of implementation and ambiguity for the extent of which programs have been implemented. Without accurate reporting on the progress and emissions inventory, constituents will not know whether reduction targets have been met.

For the Existing Building Retrofits, the City 2024 budget projects to spend a total of \$10 million between 2024-2033 (CofT, 2024c). Furthermore, financial aid from the Federation of Canadian Municipalities (FCM) for the HELP program (which provides loans for retrofits and renewable energy installations) will be eliminated in 2025-2026, which will further downsize funding programs for the largest emitting sector, ‘Buildings and Energy’ (CofT, 2024c). The remaining funds are spent primarily on home energy assessments than direct grants (from highest to lowest in spending): the emissions performance standards, HELP (due to FCM grant), Home Energy Rating and Disclosure (HER&D), Eco-Roof Incentive Program, and Vehicle4Hire Transition to Net Zero program (CofT, 2024c, p. 10). The most recent budget cites the Environment & Climate division’s ‘Capacity to Spend’ is restricted by historical capital spending trends and agreed upon contracts as a limit (CofT, 2024c, p. 24). Between 2019 to 2023, this division spent \$17.351 million per year on average (CofT, 2024c). This cited figure shapes the subsequent ten-year capital plan which aligns itself to historical capacity. The spending for the

Environment & Climate division in fact predicts it will peak in 2025 due to the FCM grant, then projected to decrease slightly beginning in 2026 till 2033 (CofT, 2024c, p. 24).

In regards to political will from the public sphere, the policy does acknowledge there will be a disruption to the status quo, but does not engage deeper on the level of political engagement that currently exists. They simply state “there is no time to delay”, indicating that regardless of the consensus, actions such as outlined in the TransformTO must be implemented (CofT, 2021f). This is despite the fact that constituents according to the Perceptions Survey did not want to contribute significantly financially (on average \$241 per year) on combating climate change (CofT, 2022b). In the survey, Torontonians demonstrated reluctance to materially contribute to climate-friendly actions, presenting the likely possibility of social backlash if such the proposed budget was fully implemented (CofT, 2022b). For the City to expand its objectives, they would likely require a significant decrease in funding for other City programs, increased taxes, or increased subsidies from other levels of government. The political will to advocate for greater changes may also be hindered by the lack of transparent progress by the City.

Evidently, a gap in implementation demonstrates significant flaws in mitigating the climate crisis, particularly in this most crucial decade. Fransen et al. (2023) proposes that an implementation gap involves not only the adoption of a policy which reflects the ambitions of the state, but also the post hoc implementation of the pledge. The study notes that the international policy debate largely overlooks the policy outcome gap, that is recognized as driven by the policy design itself which must adequately acknowledge state capacity, public support, innovative capacity, policy design and community feedback (Fransen et al., 2023). Toronto’s inability to enforce the implementation could therefore be understood as a fault with the formulation policy itself, considering its inability to effectively reduce emissions as it stipulates. This pattern of an implementation gap persists globally, but remains under-conceptualized for there remains an underlying assumption that adoption of the policy entails implementation, within the international discourse (Fransen et al, 2023). In these respects, the draft budget pronouncements to carry out TransformTO do not coincide with what is being spent by the City.

CHAPTER 6: PHILOSOPHICAL ANALYSIS ON THE DEMANDINGNESS OF CLIMATE ACTION

In this final chapter of the thesis, an assessment of moral obligations will be applied to the case of TransformTO. The role of ethical analysis is to determine how TransformTO performs in light of moral prescriptions. In this light, this chapter aims to harmonize theory with action in the most concrete way. The severity of climate change implies that individuals are charged with some degree of responsibility towards protecting the environment. Since emitting GHG is harmful, an ethical assessment can help determine to what extent Torontonians are obligated to reduce their emissions from a moral standpoint. In the following section, I present two distinct degrees of moral compliance to mitigate dangerous climate change offered by Peter Singer and Liam Murphy. Singer offers the perspective that one must mitigate climate change intensely, regardless of whether anyone else does. If everyone has failed their duty to reduce their fair share of emissions, one must pick up the slack as much as they possibly can. Alternatively, Murphy suggests that it is not morally obligatory to perform environmentally protective actions that go above and beyond one's fairshare. The aim is to identify the crucial theoretical polarities of the i) demandingness of climate action as obligatory in non-ideal contexts, and ii) facing the aftermath of failed collective responsibility in the case of TransformTO. This section aims to illustrate how the respective theorists, Singer and Murphy, might address the issue of climate inaction, without endorsing either theory specifically.

Before considering the two theories, it is important to distinguish between ideal and non-ideal theory in this context. Ideal theory, first proposed by John Rawls (1971), assumes a perfectly just society where individuals comply with moral obligations. If everyone emits only their fairshare emissions rationed equally, then climate change can be avoided. Non-ideal theory mirrors our current reality where many individuals and businesses fail to reduce their GHG emissions. Even well-intentioned or informed individuals often have large carbon footprints. This environmental disregard enlarges the total amount of emissions that must be reduced for the (small) portion of compilers. Compilers in a non-ideal world are tasked with the aim of eliminating the global problem, but their work intensifies when fewer entities take on this task.

In our current society, individuals are placed in a priori position that is unequal when it comes to making sustainable —and ethical— choices. Major lifestyle changes to reduce your impact are fundamentally made more difficult: transforming your energy system, diet,

transportation, and consumer decisions would all need to radically change and at a cost. Our current reality takes the form of a non-ideal world, where the framing of the ethical question, green energy (moral but hard) or fossil fuels (immoral but easy) are predetermined by our social, political, and technological context.

6.1 Peter Singer

Singer defends a radical, act-utilitarian theory that obligates conducting oneself in a way that maximizes a sum of people's wellbeing. In 1972, he wrote a paper called *Famine, Affluence, and Morality*, in response to 9 million people experiencing severe famine in Bengal. He begins by piecing together two commonly accepted principles. The first premise states it is objectionable to suffer from a "lack of food, shelter and medical care" (Singer, 1972, p. 231). Next, it is conceivable that donating to charities can intercept the suffering. Therefore, he concludes based on these true premises that it is morally obligatory to aid as long as one has the *ability* to prevent suffering. Singer illustrates a hypothetical scenario of a drowning child in a pond to motivate his claim. Imagine an individual walking by the pond could hop in and save the child's life (p. 231). In the case the individual does nothing, the child would drown. To stand by and watch would be atrocious behaviour, and thus, impermissible for Singer. The only appropriate course of action is to save the child for it bears a relatively insignificant cost—ruining their clothes—to the bystander (p. 231). Regardless of one's intentions, proximity, or rights of autonomy, failing to act is more severe as it results in the death of a child.

Singer's argument can extend to climate change, where the severe consequences for humanity and the entire planet, may be understood to outweigh the sacrifices required to avoid the ecological collapse. The first premise is that "suffering and death from lack of food, shelter, and medical care" are expected to result from climate change. The IPCC predicts that 1.5°C will result in the triggering of multiple tipping points of extinctions for thousands of species, collapse of the tropical coral reef system, breaking down of ocean circulations systems, and overall, imposes irreversible, abrupt impacts on humanity. The impacts of the climate crisis are already being felt—for instance, 37% of heat-related deaths every year are attributed to climate change—yet the issue is still projected as a potential futuristic harm (UN 1.5°C, n.d.). The World Health Organization (WHO) conservatively estimates that climate change causes 250,000 deaths annually till 2050 as a result of the additional heat waves, wildfires, floods, and hurricanes

(2023). While Singer's hypothetical scenario is of a child drowning in a pond, climate change results in a reality where children would be drowning from intense flooding and rising sea levels. The hotter, humid temperatures also influences the spreading of diseases such as malaria, lyme, ebola, and exacerbates respiratory diseases (WHO, 2023). Provided the grimness of climate change, complicity in causes of climate change are rebarbative.

Singer's second premise is similarly applicable. GHG emissions directly contribute to the rising of global temperatures, and induce the frequency of natural disasters (IPCC). The inhibition of emissions would in reverse, intercept the effects of the climate crisis. With the massive development of emissions-reducing solutions presented by climate scientists, utilizing possible solutions would be morally required by Singer in order to prevent the life-threatening effects of climate change. An individual can reduce their carbon emissions to the point of producing near or no emissions through lowering consumption, becoming vegan, installing renewable energy, and relying on bikes for transportation. Environment-friendly habits may be less convenient or costly, but relatively insignificant in comparison to murder and irremediable damages inflicted by the climate crisis. The ability to commit to ecological sound solutions sufficiently justifies shouldering the weight of the task.

Certainly, one should not give until they are experiencing more suffering by sacrificing anything of "comparable moral importance," such as the terrible thing one is trying to prevent, for it would be counterproductive to do so (p. 232). In an ideal world where each person equally reduced their emissions prescribed by science, no one would be obligated to reduce their emissions further. However, considering that most people do not, there will not be enough reduction to prevent climate change causing irreversible damage to the planet. Therefore, the non-ideal conditions suggest that by reducing more than one's fairshare, they will be able to prevent more suffering as a result of climate change. Our obligation to mitigate follows from the ability to prevent violations of inflicting harm. Singer warns, what one believes they are capable of "very greatly influenced by what people around him are doing and expecting him to do" (p. 237). Yet expectations or feelings of reluctance does not have anything to do with the validity of the argument for Singer. The threshold for giving must be just enough to attain marginal utility; one must sacrifice "to very near the material circumstance of a Bengali refugee" (p. 241). Singer anticipates the objection that this will lead to a collapse of the moral code because it becomes too taxing to take on this obligation in addition to uphold negative rights (i.e. right to not be

murdered, stolen from, etc) that is expected norm. He believes this additional obligation will not likely result in increased immoral behaviour— the act of donating or retrofitting one's home is contrary to indecent behaviour, and thus, it is unlikely to “incentivize” disobedience to all moral rules. The logic of a possible limit or carrying capacity of our moral standards is an assumption— there is no maximum number of required conducts to promote the goods that are necessary to sustain the system of morality. He accepts the risks, if in the case it does occur: “If the stakes are an end to widespread starvation, it is worth the risk” (p. 238).

Not only must one refrain from spending money on luxury goods, but an extra \$5 coffee is unjustifiable for it could be better spent to buy medicine or food for someone on the brink of death. Similarly, most individuals who have the financial capability of purchasing or taking out a loan to buy solar panels would be directed to do so. He introduces a demanding moral requirement for all, contrary to our intuition that donating large pools of money to charities or significantly reducing one's emissions is purely optional. Furthermore, the consequence of failing to abolish praiseworthiness for benevolent actions is worse than otherwise. To donate to charity or spend money on becoming sustainable should not be regarded as “supererogatory”, rather it is morally wrong to not fulfill the action. If generosity is perceived as optional, it becomes an acceptable habit to not give and hence, contributing to widespread perpetuation of harm (p. 238). For Singer, moral obligations should enforce the best conduct maximally (p. 237). It may be objected that Singer view is too demanding to expect agents to produce exceptional results. The moment these benevolent acts become required, they can no longer be deemed praiseworthy or heroic. However, Singer would contend that our rights or other morally significant principles that would inhibit mass emission reductions do not outweigh the significant consequences of the climate crisis. The moral weight depends on the final product of the action in question.

It may also be objected that individuals do not face responsibilities since climate change is a result of cumulative emissions, not casually by one individual's emissions. Walter Sinnott-Armstrong (2010) argues that it is permissible that one drives an carbon-intensive SUV, pumping ton(ne)s of carbon dioxide in the air. This behaviour is believed to neither directly trigger or prevent global warming from occurring. Collectively caused harm means collective responsibility for Armstrong, and thus, it is the role of the government institutions to respond to climate change. This would look like refusing subsidies to fossil fuel companies, transitioning

the energy source of the grid, and expanding sustainable, public transportation for constituents. Armstrong questions not only ‘why would it be necessary to eliminate emissions when no one does?’ but also ‘can one make a difference even if they wanted to?’, deeming individual climate efforts as futile. Considering this present societal passivity for transformation change, the tipping point will surely be surpassed, leading to irreversible damage.

Firstly, the fundamental cause of climate change is misunderstood. Every increase in temperature by 0.1 degrees results in extinction of species, and intensification disasters according to the IPCC. The 1.5°C tipping point is a human prescribed marker in which a reasonable number of damages would have culminated by this point that would lead to ecosystem collapses. As every emitted GHG contributes to global warming, every reduction similarly prevents this impact. One cannot accept the former statement without the later. Additionally, James Nolt famously calculated the emissions of an average American citizen within her lifetime, resulting in the death of one or two future persons. Others have drawn aggregate conclusions– that an individual's emissions will only slightly negatively impact a lot of people. Humanity suffers as a result of the compounding nature of the widely distributed harms. However, whether through concentrated or divided harm, responsibility for someone’s death is still relevant due to the causal involvement. If a group of people collectively decide to murder someone, each person still bears responsibility. The individual punch at the victim may have not been enough to kill them, but the cumulative effects of numerous punches by each group member leads to the person’s death. The mathematical apportion in understanding the contributors harm is not enough to overcome the dilemma of emitting as it still directly results in suffering. Any amount of sacrifice is not futile but equally significant in resisting the severity of the climate crisis in accordance with Singer's argument.

Secondly, Singer argues that individuals are responsible to take action, even if fiduciary bodies such as the government do not. He acknowledges that political contributions can be effective in alleviating the famine crisis, but it tends to be that “for many people the idea that “it’s the government’s responsibility” is a reason for not giving” (p. 240). Purely monetary support is not enough, instead “we ought to be campaigning actively for entirely new standards for both public and private contributions to famine relief” (p. 240). He is suggesting that other forms of support are similarly necessary as the crisis cannot be solved purely through financial redistribution. Although he does not specify whether acts of protest or shift in our economic

system could also be constructive, this reading of Singer widens the possibilities of the actions one could take.

Another objection is that since the exact impact of the climate crisis in future is still ambiguous, radical transitions should not occur. The earth's ecosystems could collapse before or after the 1.5°C marker. The natural carbon sink could absorb emissions quicker than we thought, or technological advancement may lead to the creation of a magical device that saves us from emergency. However, climate change is already inflicting abrasion. Singer again views this objection as an excuse to not relieve suffering, based on an impalpable "belief about what might happen in the future" (p. 240). Abuses to humanity in the present can and must be alleviated without delay.

He concludes his paper asserting, "at the very least, though, one can make a start" (p. 242). The very purpose of Singer theory is for its pragmatic advantages, not for its theoretical contributions: "What is the point of relating philosophy to public (and personal affairs) if we do not take our conclusion seriously?" (p. 242). The weight of the act-utilitarian theories are significant precisely due to their tangible benefits to our lives. Now that Singer's perspective has been discussed, I will apply his theory to the case of TransformTO.

6.1.1 Singer on TransformTO

Under Singer's theory, Toronto would not adequately fulfill the moral demand to reduce emissions as much as possible in order to avoid the dangerous 1.5°C of warming. The initial targets of the policy and most importantly, the inability to accomplish the plan, disappoints the advocates of act-utilitarianism. First, the targets in themselves do not meet Singer's expectations. Since capability is considered a determinant of responsibility, Singer would claim Toronto's failure to maximize its efforts, is blameworthy. Recalling the findings in Chapter 3, the IPCC (2023) requires carbon neutrality by 2050 at the latest in comparison to 2019 levels. Despite this, TransformTO selected the baseline year of the 1990s to assess for emissions reductions and narrowly excludes Scope 3 emissions in their calculations. The process of narrowing Toronto's climate responsibilities is the first mistake made by the policy. Indeed, the manifestation of TransformTO would cost beyond the City's entire budget to carry out the plans it set into place and the policy makes ambitious targets which exceed jurisdictional power. However, the targets in themselves do not meet the significant emissions reduction required by science still. The

policy's misleading progress reports, lack of transparency, and perception of sustainability are largely unregulated as TransformTO is not binding. The municipality induces a positive perception which may prevent further urgent actions to be made.

The IPCC additionally maintains that developed areas in particular are expected to meet Net-Zero sooner than areas that face financial precarity (2023a). Although the municipality may have limited capabilities in comparison to the provincial or federal government, the City's operating budget of approximately \$15 billion is substantial. Developing countries such as Liberia, Bhutan, Malawi, and Sierra Leone's entire national budget is less than Toronto's city budget (World in Data, n.d.). Considering historical and actual emissions, Singer would advise an equal distribution of the emissions, requiring cities like Toronto to massively cut their emissions in comparison to entities that use less, up to the point where Torontonians are living just above sustenance level. There is no reasonable justification for affluent regions to emit more than poorer ones. This is acknowledged by the report itself when the City defines Toronto's fairshare emissions which is supposed to be met:

“Responsibility is determined on the basis of both historic and current emissions, as well as the capability to act... In addition, countries that have access to more resources need to do more than those countries without resources. The right to sustainable development implies that all countries have the right to lift their peoples out of poverty... meaning that countries with greater levels of poverty have the right to generate more emissions per capita than richer countries.” (CofT, 2021f, p. 35)

The policy admits the crucial role Toronto plays, particularly considering its relative wealth. TransformTO justifies setting ambitious targets: the City acknowledges responsibility for reducing its fair share of high emissions. Interestingly, the definition of fair share is determined not only by the city's cumulative emissions, but also their capability to act which aligns to Singer's reflections. The policy accepts the premises of his argument and assigns responsibility to themselves in writing. Despite this recognition, Toronto misses outlining its complete duty in not only fulfilling fair share of emissions, but also promoting substantially more than 5% of Toronto's GDP to climate action, but a much higher percentage to provide funding for other

cities to also transition.

Secondly, the inability to implement the strategy violates the moral requisite under act-utilitarianism. TransformTO fails to fulfill its commitment due to the inability to expand programs such as HELP, or invest into a non-emitting energy source for Toronto to use (see Chapter 3). For Singer, the municipal government does not have excuses for not having the funds or jurisdiction in implementing the plans. While Toronto buys energy produced by the province and provincial oversight could challenge any of Toronto's implementations, Toronto could attempt to become self-sufficient by creating their own energy sources to reduce reliance. Moral diffusion by attributing responsibility to higher levels of government would turn a blind eye to the City's current contribution which is significantly lower than both what the policy and science demands. In addition, the municipal government does not incorporate the constituents and marginalized groups' perspectives adequately into the limited implementation of policy.

In regards to the stakeholder of responsibility, Singer would advocate for the pathway that produces the maximal result, regardless of what others do. Above individual contributions, the construction of a climate strategy contributes more efficiently and largely to progressing wellbeing. The IPCC affirms the most effective mitigation strategy for cities is to engage with large scale, systemic transformations:

“Urban-scale interventions that implement multiple strategies concurrently through policy packages are more effective and have greater emissions savings than when single interventions are implemented separately... Therefore, city-scale strategies can reduce more emissions than the net sum of individual interventions, particularly if multiple scales of governance are included.” (IPCC, 2022, p. 919)

A more ambitious, transformative climate strategy would be preferable for Singer. Cities such as Toronto have the funds to mass distribute loans for retrofits and adoption of renewable energy relatively speaking. With all residential and commercial infrastructure connected to the electric grid, transforming the grid's source of energy to renewable energy allows for system wide change. Similarly, providing enough funds allows individuals to transition independently to ensure it is financially reasonable to install renewables. In essence, Toronto fails Singer's

demand of taking significant strides as much as possible until each constituent is supported just above the bare minimum living standards.

6.2 Liam Murphy:

Liam Murphy proposes a distinct view from Singer with a distinct approach to TransformTO. He contends agents are not morally required to “pick up the slack” when others fail to meet their duty. This argument arises out of a non-ideal context where duty is constrained and premised upon an unjust situation. He determines the degree to which the overcompensation for non-compliers’ weighs against the demand to be benevolent which amounts only to one’s fairshare. Murphy begins by asserting the lack of consensus in delineating between what one is responsible for or what is strictly non-permissible in all circumstances. In the case that each person is unaware of their responsibilities due to an unclear outline of responsibility in non-ideal scenarios, it is puzzling to claim that one is failing to meet their responsibility (Murphy, 2000, p. 5-6).

For Murphy, a theory of beneficence concerns the extent to which we must progress and concerning the appropriate level of action that one would be responsible for. He draws on the distinction between benevolence and beneficence: the former is about caring for others when the latter is about the active process of promoting the state of well-being (p. 6). On this account, his emphasis concerns not what is good or bad directly, but on *how* to promote or bring about the means to achieve the good.

His central claim is that one must only be obligated to perform moral actions only if others are also similarly doing their part. Morality itself should not place burdens that increase as more individuals fail to comply. While morality may not be convenient, it must be thoroughly justified. Murphy formulates an agent-neutral condition on compliance since “it would be objectionable to expect agents to take up the slack caused by the non-compliance of others” (p. 76). Rather, the demands must be equitably distributed, without contingency on the behaviour of others. That is, it would be an inappropriate imposition of responsibility to make up for other individual’s lack of action. The compliance condition Murphy introduces maintains that an agent under partial compliance should not be required to sacrifice more than an agent under full compliance (p. 80). Hence, Murphy announces that the optimizing principle of beneficence violates the compliance condition (p. 76). Of course, a moral principle that is agent-relative

cannot apply to all people, with a common aim to strive for and additionally, cannot account for the compliance condition (p. 77).

He opposes what he calls the “optimizing principle of beneficence”, a characterization of the act-utilitarianism (Singer 10). The optimising principle requires one to promote wellbeing until the point where further efforts would burden the agent as much as they would benefit others. The agent’s condition would naturally be very low, and thus, an extraordinarily unjustifiably demanding view:

“Optimizing principle imposes extreme demands might be said to rest on a failure to recognize that there are principled limits to the ability of one person to promote the well-being of another.” (p. 10)

Murphy does not conform to a singular definition of well-being. Well-being could be differentiated between the “preference-hedonist component” and well-being that arise out of the principle of beneficence. Murphy states that the plausible minimum level of well-being cannot consider both our basic needs such as health, food, shelter as minimum well-being with relationships, personal projects, and life goals as on the same spectrum of well-being. The non-absolute term is generalized and thus, sacrifices in well-being are “incomparable” (p. 10).

He presents two additional reasons why agents are not expected to perform supererogatory acts, particularly when others fail their normative duty under full-compliance: i) alienation and ii) containment. First, alienation concerns detaching our motivations from her actions. Constraints are placed on our motivations under the optimizing principle of beneficence. A complying agent cannot extract full value from an activity that is either obligatory or permissible because her motivations always to some extent appear with the ethical need to complete the act. The accompaniment taints the authenticity of acts. For instance, the optimizing principle would regard becoming friends with another as an “acceptable” act. His upshot is that in fact “compliance with a moral theory can reduce the well-being of a complying agent” (p. 22). An individual is alienated in the sense that we should not think through intuitively clear things: alienation, thus results in wrongness in character. This is the paradox of the optimizing principle. When one aims for the good, one would have impure motivations of complying with the code of conduct. We would be better off having different motives to achieve the same result. An action

thus, cannot be held as intrinsically valuable. If one's motivation is conditional on whether the action is morally defensible, then whether partial or full motivations, then it is wrong to Murphy.

The second issue with the optimizing principle of beneficence regards containment. Moral confinement is about narrowing "all possible actions not otherwise morally spoken for" by ranking the actions one should perform, leading to only the top or few actions (p. 27). Optimizing principle offer little variety in choosing one's career options, how to spend free time, and even everyday choices. Thus, significantly confining limits the stream of possibilities that would contribute to the agent's wellbeing. One would make decisions in a near manner of a determined world. Morality should not be restrictive of our autonomy but rather prohibitive, and assert our autonomy in choosing the right action: "lack of confinement brings an intrinsic benefit of greater autonomy" (p. 29). It is deemed unappealing to reduce an agent to a limited number of actions and consider that the ideal moral agent's actions are all pre-decided. The autonomous decision to make a choice, amongst a variety of possibilities is a valuable consideration in ethics.¹

6.2.1 Murphy to TransformTO:

Prescribing Murphy's theory on obligations in non-ideal circumstances, the City of Toronto is found to breach their fair share of responsibilities in large. In principle, the policy appears to ascribe a fairshare level of obligation to itself, but in implementation, the incomplete activities fail to match the necessary level of emission reduction as stipulated by the IPCC. While Murphy may have a similar conclusion to Singer about the failure of TransformTO, he adopts a distinct reasoning. While Singer would argue that TransformTO fails to maximally reduce emissions, Murphy situates the failure within a framework of shared fairness under non-ideal conditions. An individual is not obligated to do no more or less than this. A true climate policy must fulfill its proportionate burdens and never less than what fairness demands in reducing one's emissions.

¹ Elizabeth Ashford (2000) acknowledges that utilitarianism does not give special moral weight to personal relationships or projects. Ashford argues that Bernard Williams equates integrity with loyalty to one's own commitments regardless of their moral justification. She counters that genuine integrity requires a critical reflection on the moral worth of one's commitments, and may demand abandoning them if they conflict with more compelling moral reasons (such as preventing suffering), proposing as an alternative form of utilitarianism which weighs integrity.

Moreover, Murphy's approach emphasizes that moral principles should not impose excessive costs on the morally motivated just because others are uncooperative. Yet, paradoxically, Toronto seems to invoke the limits of its jurisdiction or funding to justify a lower level of action — even as it publicly claims climate leadership and ambition. This exposes an inconsistency. The City sets goals as if others will cooperate (ie. provincial renewable energy reforms), but then under-delivers when that cooperation falters. In Murphy's terms, this would constitute a misapplication of fairness: Toronto reduces its own efforts not because of shared constraint, but because of political convenience, which is ethically impermissible.

Overall, Toronto's moral obligation should remain stable under any conditions. This means that the City cannot make demands more severe just because other people do not do what they ought to, and instead, ascribe only to one's fairshare emissions reductions. However, it should be noted that intense sacrifice for climate change still persists for fairshare reductions. For example, the average individual must not produce any emissions by 2040-50, to stay in alignment with IPCC's recommendation. This is what science prescribes in order to prevent the triggering of the existential tipping points for humanity and environment. Although this will require significant alterations in one's life through for example retrofit and adoption of solar PV onto residential infrastructure, compliance through the policy must still be met according to Murphy if it is fair.

Moreover, Murphy argues it should not be in the nature of moral principles to stipulate inequality. The optimizing principle is inherently flawed for its systemic imbalance it generates between compilers and non-compliers. A number of "compliance effects" may result from a moral principle but is not a fault with the theory itself since "there is nothing a moral principle can do about this result: the non compliers are supposed to comply, but they do not" (p. 79). If climate change persists as a result of non-compliance, this is a result and not a demand of the principle according to Murphy. Therefore, it is not morally obligatory that individuals within Toronto perform supererogatory acts for the climate. If climate change persists, this is deemed as a mere consequence.

In conclusion, Murphy would advise climate action to prioritize fairness over the optimization of obligation. In this framework, the moral worth of reducing emissions is not diminished by whether the agent acts out of duty, obligation, or altruism; rather, what matters is that the action corresponds to a just distribution of burdens among all equal parties. In summary,

Murphy's theory on the moral demands identifies that individuals do not need to pick up extra work when it comes to climate action. Still, individuals face demanding sacrifices to reduce emissions, even under full-compliance.

CHAPTER 7: CONCLUSION

TransformTO in principle and implementation does not adequately address the urgency of the climate crisis. In returning to my research questions, it is evident that TransformTO does not sufficiently concern a shift towards a more environmentally just future. The policy fails in all four dimensions of the environmental, social equity, feasibility, and ethical criterias of this study. The pitfalls primarily land in the lack of implementation that is required by IPCC standards (Chapter 3). The financial aid program to incentive retrofits and renewable energy installations remain in their infancy, despite this decade requiring the most investment in these areas. For social equity criteria, the City has taken steps to conduct consultation, but the incorporation of the constituents perspective must be more thoroughly incorporated in the implementation (Chapter 4). The analysis of the policy's feasibility has found that the City proposes a large spending budget, but is unable to spend a fraction of the proposal (Chapter 5). Finally, two distinct ethical theories, Singer and Murphy's, which operate under non-ideal theory, demonstrate that TransformTO cannot meet the respective moral demands (Chapter 6). Singer advocates for demanding, obligatory action by the institutions to protect individual interests in the long term, involving deep sacrifices. On the other hand, Murphy requires moral obligations to be split up fairly, which is still not met in the case of TransformTO. Considering the lack of progress of TransformTO, it may be more accurate to regard the policy as a written affirmation of the necessity of radical climate action.

Understandably, these conclusions are difficult to swallow. It appears antithetical to the very purpose of TransformTO to permit the continued delay in implementation, drawing us closer to the irreversible tipping point. Yet, increasing emissions through social license permitted by the mere statement of a sustainability strategy or acknowledgement of the climate crisis is dangerously deceptive in achieving tangible results. Toronto *can* take larger strides such as building their own renewable energy sources, limiting consumption, and supporting retrofit programs to significantly adjust what we emit. In this thesis, I have attempted to highlight the gap between ambition-implementation in Toronto's climate policy. These findings ultimately

serve as a reminder to refuse to abide by consolations, and instead, take concrete steps to transform our rhythm of life. What we permit and excuse remains our responsibility.

WORKS CITED

- Atura Power. (n.d.). *Portlands Energy Centre Upgrades*. Retrieved 20 April 2025, from <https://aturapower.com/our-projects/natural-gas/portlands-energy-centre-upgrades/>
- Barichella, A. (2023). Introducing Transatlantic Perspectives on the Role of Cities, States and Regions Within the Climate Regime. In A. Barichella (Ed.), *Can Cities, States and Regions Save Our Planet? Transatlantic Perspectives on Multilevel Climate Governance* (pp. 1–22). Springer International Publishing.
https://doi.org/10.1007/978-3-031-33936-3_1
- Brail, S., Conteh, C., & Hackman-Carty, L. (2022, April). *The Municipal Role in Economic Development – IMFG*. Institute on Municipal Finance and Governance (IMFG).
<https://imfg.org/report/economic-development/#what-role-should-canadian-municipalities-play>
- Carey, J. (2023). While some tout “renewable natural gas” as a way to mitigate climate change, others see a false solution. *Proceedings of the National Academy of Sciences of the United States of America*, 120(28), e2309976120.
<https://doi.org/10.1073/pnas.2309976120>
- Champagne, D. (2020). Urban sustainability policies in neoliberal Canada: Room for social equity? *Current Sociology*, 68(6), 761–779. <https://doi.org/10.1177/0011392119892668>
- Charmaz, K., & and Thornberg, R. (2021). The pursuit of quality in grounded theory. *Qualitative Research in Psychology*, 18(3), 305–327.
<https://doi.org/10.1080/14780887.2020.1780357>

- Chowkwanyun, M. (2023). Environmental Justice: Where It Has Been, and Where It Might Be Going. *Annual Review of Public Health*, 44, 93–111.
<https://doi.org/10.1146/annurev-publhealth-071621-064925>
- Chitsa, M., Sivapalan, S., Singh, B. S. M., & Lee, K. E. (2022). Citizen Participation and Climate Change within an Urban Community Context: Insights for Policy Development for Bottom-Up Climate Action Engagement. *Sustainability*, 14(6), 3701.
<https://doi.org/10.3390/su14063701>
- City of Sydney. (n.d.). *Community engagement strategy and community participation plan—City of Sydney*. Retrieved 9 December 2024, from
<https://www.cityofsydney.nsw.gov.au/strategies-action-plans/community-engagement-strategy-community-participation-plan>
- City of Toronto. (2006). City of Toronto Act. <https://www.ontario.ca/laws/statute/06c11>
- City of Toronto. (2015-16). Community Engagement Report.
<https://www.toronto.ca/wp-content/uploads/2019/09/912f-TransformTO-Community-Engagement-Report-2015-2016.pdf>
- City of Toronto. (2018). Indigenous Climate Action Report.
https://www.toronto.ca/wp-content/uploads/2019/05/8eb4-2019-03-25_Indigenous-Climate-Report_final.pdf
- City of Toronto. (2019a). *Annual report 2019: Environment and Energy Division*.
<https://www.toronto.ca/wp-content/uploads/2021/06/9035-EED-2019-Annual-ReportAODA.pdf>
- City of Toronto. (2019b). Consumption-Based Emissions Inventory
<https://www.toronto.ca/services-payments/water-environment/environment>

[tally-friendly-city-initiatives/transformto/torontos-consumption-based-emissions-inventory/](#)

City of Toronto. (2021a). *Greenhouse Gas Emissions Inventory 2019*.

<https://www.toronto.ca/wp-content/uploads/2021/10/8f2e-2019-Inventory.pdf>

City of Toronto. (2021b). *Net-Zero Existing Buildings Strategy*.

<https://www.toronto.ca/legdocs/mmis/2021/ie/bgrd/backgroundfile-168400.pdf>

City of Toronto. (2021c). *Toronto Green Standard review and update—Report for action*.

<https://www.toronto.ca/legdocs/mmis/2021/ph/bgrd/backgroundfile-168196.pdf>

City of Toronto. (2021d). *Transform Net-Zero Strategy*.

<https://www.toronto.ca/legdocs/mmis/2021/ie/bgrd/backgroundfile-173758.pdf>

City of Toronto. (2021e). *Transform Net Zero Strategy Short-term Implementation Plan 2022-2025*.

<https://www.toronto.ca/legdocs/mmis/2021/ie/bgrd/backgroundfile-168402.pdf>

City of Toronto. (2021f). *TransformTO Net Zero Framework Technical Report 1 &*

[2.https://www.toronto.ca/wp-content/uploads/2022/04/8f02-TransformTO-Net-Zero-Framework-Technical-Report-Parts-1-2.pdf](https://www.toronto.ca/wp-content/uploads/2022/04/8f02-TransformTO-Net-Zero-Framework-Technical-Report-Parts-1-2.pdf)

City of Toronto. (2021g). *TransformTO Net Zero Framework Technical Report 3*.

<https://www.toronto.ca/wp-content/uploads/2022/04/9693-TransformTO-Net-Zero-Framework-Technical-Report-Part-3.pdf>

City of Toronto. (2021h). *TransformTO Net Zero strategy*.

<https://www.toronto.ca/legdocs/mmis/2021/ie/bgrd/backgroundfile-173758.pdf>

City of Toronto. (2022a). *City of Toronto Real Estate Portfolio Net Zero Carbon Plan*.

<https://www.toronto.ca/wp-content/uploads/2022/09/9624-City-of-Toronto-Corporate-Real-Estate-Management-Net-Zero-Carbon-Plan-September-2022.pdf>

City of Toronto. (2022b). *City of Toronto Climate Change Perceptions Research: Final Report 2022 Ipsos*.

<https://www.toronto.ca/wp-content/uploads/2022/03/96f2-City-of-Toronto-Climate-Change-Report-FINAL.pdf>

City of Toronto. (2022c). *Update on electric vehicle strategy implementation*.

<https://www.toronto.ca/legdocs/mmis/2022/ie/bgrd/backgroundfile-227898.pdf>

City of Toronto. (2024a). *Annual TransformTO Net-Zero Progress And Accountability Report*.

<https://www.toronto.ca/wp-content/uploads/2024/03/95d3-Attachment-1-Annual-TransformTO-Net-Zero-Progress-and-Accountability-Report.pdf>

City of Toronto. (2024b). *Budget Notes 2024*.

<https://www.toronto.ca/legdocs/mmis/2024/bu/bgrd/backgroundfile-242067.pdf>

City of Toronto. (2024c). *Budget Notes Environment and Climate 2024*.

<https://www.toronto.ca/legdocs/mmis/2024/bu/bgrd/backgroundfile-242402.pdf>

City of Toronto. (2025). *Home Energy Loan Program LIC Disclosure*.

<https://www.toronto.ca/services-payments/water-environment/environmental-grants-incentives/home-energy-loan-program-help/special-charges/>

City of Toronto. (n.d.a). *Deep Retrofit Challenge*.

<https://www.toronto.ca/services-payments/water-environment/environmentally-friendly-city-initiatives/transformto/>

City of Toronto. (n.d.b). *TransformTO Climate Action Strategy Front Page*.

<https://www.toronto.ca/services-payments/water-environment/environmentally-friendly-city-initiatives/transformto/>

City of Toronto. (n.d.c). *Tier 1, 2, and 3 Project Profiles*.

<https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/tier-2-project-profiles/>

City of Toronto & TAF. (2016). *TransformTO: Climate action for a healthy, equitable, and prosperous Toronto report 1: Short-term strategies—Highlights*.

<https://www.toronto.ca/wp-content/uploads/2018/02/9488-TransformTO-Report1-Highlights.pdf>

Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. *Stanford Law Review*, 43(6), 1241–1299. <https://doi.org/10.2307/1229039>

Croese, S., Green, C., & Morgan, G. (2020). Localizing the Sustainable Development Goals Through the Lens of Urban Resilience: Lessons and

Learnings from 100 Resilient Cities and Cape Town. *Sustainability*, 12(2), Article 2. <https://doi.org/10.3390/su12020550>

Currie, A. (2024, May 29). It's Time to Phase Out the Portlands Gas Plant. *Environmental Defence*.
<https://environmentaldefence.ca/2024/05/29/its-time-to-phase-out-the-portlands-gas-plant/>

Department of Energy. (n.d.). The Department of Energy's Energy.Gov. Retrieved 17 March 2025, from <https://www.energy.gov/>

Döhlen Wedin, A. (2024). Understanding Feasibility of Climate Change Goals and Actions. *Ethics, Policy & Environment*, 27(1), 48–62.
<https://doi.org/10.1080/21550085.2023.2180254>

Edwards, R. (2022). *Opportunities and barriers to sustainable urban development: An analysis of the Toronto Green Standard (Version 3)* [Thesis, Toronto Metropolitan University].
<https://doi.org/10.32920/19067645.v1>

Environment and Climate Change Canada. (2021). *NATIONAL INVENTORY REPORT 1990–2019: GREENHOUSE GAS SOURCES AND SINKS IN CANADA*.
https://publications.gc.ca/collections/collection_2021/eccc/En81-4-1-2019-eng.pdf

Environment Program, U. N. (2022, October 21). *Emissions Gap Report 2022*.
<https://www.unep.org/resources/emissions-gap-report-2022>

Fransen, T., Meckling, J., Stünzi, A., Schmidt, T. S., Egli, F., Schmid, N., & Beaton, C. (2023). Taking stock of the implementation gap in climate policy. *Nature Climate Change*, 13(8), 752–755. <https://doi.org/10.1038/s41558-023-01755-9>

- Giang, A., & Castellani, K. (2020). Cumulative air pollution indicators highlight unique patterns of injustice in urban Canada. *Environmental Research Letters*, 15(12), 124063. <https://doi.org/10.1088/1748-9326/abcac5>
- Government of Canada. (2022, November 8). *Faster and Further: Canada's Methane Strategy*. <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/reducing-methane-emissions/faster-further-strategy.html>
- Government of Canada. (2024, December 12). *Canada's next net-zero milestone: The 2035 emissions reduction target*. <https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/2035-emissions-reduction-target/next-netzero-milestone.html>
- Global Covenant of Mayors. (n.d.). Retrieved 9 December 2024, from <https://www.globalcovenantofmayors.org/>
- Herbert, Y., Dale, A., & Stashok, C. (2022). Canadian cities: Climate change action and plans. *Buildings & Cities*, 3(1). <https://doi.org/10.5334/bc.251>
- Heyen, D. (n.d.). *Social justice in the context of climate policy: Systematizing the variety of inequality dimensions, social impacts, and justice principles*. Retrieved 16 April 2025, from <https://www.tandfonline.com/doi/full/10.1080/14693062.2022.2142499>
- Hudson, G., Atak, I., Manocchi, M., & Hannan, C.-A. (n.d.). *(No) Access T.O.: A Pilot Study on Sanctuary City Policy in Toronto, Canada*. 2017.
- Institute on Municipal Finance & Governance (Director). (2024a, May 8). *The Culture of Public Money: Local, Provincial and Federal Perspectives* [Video recording]. <https://www.youtube.com/watch?v=RbAYyZF4lqQ>

Institute on Municipal Finance & Governance (Director). (2024b, May 8). *The Culture of Public Money: Local, Provincial and Federal Perspectives* [Video recording].

<https://www.youtube.com/watch?v=RbAYyZF4lqQ>

IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3-24. <https://doi.org/10.1017/9781009157940.001>.

IPCC, 2022: Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (eds.)]. In: *Climate Change 2022: Impacts, Adaptation, and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3-33, doi:10.1017/9781009325844.001.

IPCC, 2023a: Sections. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental

Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, [doi: 10.59327/IPCC/AR6-9789291691647](https://doi.org/10.59327/IPCC/AR6-9789291691647)

IPCC, 2023b: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

Janzwood, A., & Harrison, K. (2023). The political economy of fossil fuel production in the Post-Paris Era: Critically evaluating Nationally Determined Contributions. *Energy Research & Social Science*, 102, 103095. <https://doi.org/10.1016/j.erss.2023.103095>

Jewell, J., & Cherp, A. (2020). On the political feasibility of climate change mitigation pathways: Is it too late to keep warming below 1.5°C? *WIREs Climate Change*, 11(1), e621. <https://doi.org/10.1002/wcc.621>

Konidari et al., (2007). A multi-criteria evaluation method for climate change mitigation policy instruments. *Energy Policy*, Volume 39, Issue 10, 2011, Pages 6331-6343, ISSN 0301-4215, <https://doi.org/10.1016/j.enpol.2011.07.034>.

Kousky, C., & Schneider, S. H. (2003). Global climate policy: Will cities lead the way? *Climate Policy*, 3(4), 359–372. <https://doi.org/10.1016/j.clipol.2003.08.002>

Kronlid, D. O., & Öhman, J. (2013). An environmental ethical conceptual framework for research on sustainability and environmental education. *Environmental Education Research*, 19(1), 21–44. <https://doi.org/10.1080/13504622.2012.687043>

Our World in Data. (n.d.). *Land use over the long-term*. Retrieved 9 December 2024, from <https://ourworldindata.org/grapher/land-use-over-the-long-term?stackMode=relative&time=latest>

Lawford-Smith, H. (2013). *Understanding Political Feasibility*. *Journal of Political Philosophy*. <https://onlinelibrary.wiley.com/doi/10.1111/j.1467-9760.2012.00422.x>

Levin, Julia. (2024). Canada's Fossil Fuel Funding in 2023. *Environmental Defense*. <https://environmentaldefence.ca/wp-content/uploads/2024/03/Canadas-Fossil-Fuel-Subsidies.pdf>

Lwasa, S., K.C. Seto, X. Bai, H. Blanco, K.R. Gurney, Ş. Kılıkış, O. Lucon, J. Murakami, J. Pan, A. Sharifi, Y. Yamagata, 2022: Urban systems and other settlements. In IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926.010

MacKinnon, C. A. (2013). Intersectionality as Method: A Note. *Signs*, 38(4), 1019–1030. <https://doi.org/10.1086/669570>

McGrath, J. (2024). *Opinion: The Ontario Place spa is a costly extravagance we'll be subsidizing forever* | *TVO Today*.

<https://www.tvo.org/article/opinion-the-ontario-place-spa-is-a-costly-extravagance-well-be-subsidizing-forever>

Meister, T., Schmid, B., Seidl, I., & Klagge, B. (2020). How municipalities support energy cooperatives: Survey results from Germany and Switzerland. *Energy, Sustainability and Society*, 10(1), 18. <https://doi.org/10.1186/s13705-020-00248-3>

Murphy, L. (2000). *Moral Demands in Nonideal Theory*, New York, Oxford University Press, pp. viii + 168. Tim Mulgan - 2003 - *Utilitas* 15 (1):113.

Ngcamu, B. (2023, July). *Climate change effects on vulnerable populations in the Global South: A systematic review* | *Natural Hazards*.
<https://link.springer.com/article/10.1007/s11069-023-06070-2>

Nolt, John. (2011) *How Harmful Are the Average American's Greenhouse Gas Emissions?*
Retrieved 4 March 2025, from
<https://www.tandfonline.com/doi/full/10.1080/21550085.2011.561584>

Nuclear power | *Pickering Nuclear Station*. (n.d.). OPG. Retrieved 20 April 2025, from
<https://www.opg.com/power-generation/our-power/nuclear/pickering-nuclear/>

OECD. (2022). *Canada (CAN) Exports, Imports, and Trade Partners*. The Observatory of Economic Complexity. <https://oec.world/en/profile/country/can>

Office of the Auditor General of Canada. (2023) Report 6: Canadian Net-Zero Emissions Accountability Act —2030 Emissions Reduction Plan.
https://www.oag-bvg.gc.ca/internet/English/att_e_44374.html

O'Neill, J. (1997). Managing without Prices: The Monetary Valuation of Biodiversity.

Ambio, 26(8), 546–550.

Oshinowo, T., Nesbitt-Jerman, A., Soden, R. (2024). Bay Street Climate Monitor: Tackling the Global Carbon Footprint of Toronto's Financial Industry. Toronto Climate Observatory. Toronto, ON. <http://climateobservatory.ca/baystreetclimatemonitor>

Rai, S., Hage, D., Littlefield, J., Yanai, G., & Skone, T. J. (2022). Comparative Life Cycle Evaluation of the Global Warming Potential (GWP) Impacts of Renewable Natural Gas Production Pathways. *Environmental Science & Technology*, 56(12), 8581–8589. <https://doi.org/10.1021/acs.est.2c00093>

Reed, G., Brunet, N. D., McGregor, D., Scurr, C., Sadik, T., Lavigne, J., & Longboat, S. (2022). Toward Indigenous visions of nature-based solutions: an exploration into Canadian federal climate policy. *Climate Policy*, 22(4), 514–533. <https://doi.org/10.1080/14693062.2022.2047585>

Ritchie, H., & Roser, M. (2020). CO₂ emissions. *Our World in Data*.

<https://ourworldindata.org/co2-emissions>

Singer, P. (1972). Famine, Affluence, and Morality. *Philosophy & Public Affairs*, 1(3), 229–243. <http://www.jstor.org/stable/2265052>

Stein, Z. (2024). Gigawatt (GW) | Definition, Examples, & How Much Power It Produces. <https://www.carboncollective.co/sustainable-investing/gigawatt-gw>

Taylor, A. (2016), "Institutional inertia in a changing climate: Climate adaptation planning in Cape Town, South Africa", *International Journal of Climate Change Strategies and*

Management, Vol. 8 No. 2, pp. 194-211. <https://doi.org/10.1108/IJCCSM-03-2014-0033>

United Nations. (2021). *Greener Cities*. <https://news.un.org/en/story/2021/10/1101992>

Urban Development Overview. (n.d.). Retrieved 17 March 2025, from
<https://www.worldbank.org/en/topic/urbandevelopment/overview>

Welsh, J. (2024). *Toronto Green Standard: Net Zero Transition Study Update*.

What is Grounded Theory? | Explanation & Components. (n.d.). ATLAS.Ti. Retrieved 18 April 2025, from
<https://atlasti.com/guides/qualitative-research-guide-part-2/grounded-theory>

Wheeler, S. M. (2008). *State and Municipal Climate Change Plans: The First Generation*.
Journal of the American Planning Association: Vol 74 , No 4. Retrieved 9 December 2024, from
<https://www.tandfonline.com/doi/full/10.1080/01944360802377973#d1e216>

World Bank. (n.d.). Urban Development. Retrieved 9 December 2024, from
<https://www.worldbank.org/en/topic/urbandevelopment/overview>

Yeganeh, A. J., McCoy, A. P., & Schenk, T. (2020). Determinants of climate change policy adoption: A meta-analysis. *Urban Climate*, 31, 100547.
<https://doi.org/10.1016/j.uclim.2019.100547>

Zheng, S., Chen ,Yang, Hong ,Jingke, & and Pu, Y. (2025). Global Climate Policy Effectiveness Analysis: Evidence from 49 Countries, 1951–2018. *Journal of Comparative Policy Analysis: Research and Practice*, 27(1), 1–38.

<https://doi.org/10.1080/13876988.2024.2405120>