

CUTRIC-OPTA RESEARCH PROPOSAL

Introduction

Ontario has introduced a Cap and Trade Program that will be implemented on January 1st, 2017. This program will have impacts on the transportation industry, including municipal transit agencies.

While there has been some preliminary research completed to explore the impacts and opportunities associated with carbon pricing programs for Metrolinx¹, there has been insufficient research into the impacts of carbon pricing on municipal transit specifically. And there has been no research carried out to date that provides transit-led normative recommendations to the Government of Ontario vis-à-vis municipal transit opportunities associated with Cap and Trade policies, including new potential revenue generation opportunities.

This research proposal will explore the impacts and opportunities that carbon pricing will have on municipal transit agencies across Ontario through a combination of research exploring best practices globally, GHG score card methodology development for Ontario transit, and normative consultation sessions based on expert insights gained from transit industry members.

The culmination of this research and collaborative consultation process will be a transit-led Cap and Trade Strategy provided to the Government of Ontario to guide future policies to ensure they are mainstreamed with transit needs and that they align with transit-led solutions.

PART A: RESEARCH THEMES

What is Cap and Trade?

Cap and Trade creates a limit on the quantity of Greenhouse Gas (GHG) emissions that industries can emit. This limit is gradually reduced over time in order to further reduce emissions. In the case of Ontario, this reduction is expected to range between 4.14 and 4.51 per cent annual GHG reductions until 2021.²

Cap and Trade limits on industry stakeholders are divided into allowances that represent a unit of emissions. Each business within an identified industry must obtain allowances to cover emissions within the cap through a market auction or by receiving freely-allocated allowances.³ A business can reduce its carbon costs by selling any unused allowances to any other company that may have too few.⁴

The Ontario Cap and Trade program has established a target of a 15 per cent reduction in GHG emissions by 2020, 37 per cent by 2030, and 80 per cent by 2050. These targets establish the parameter conditions for what could be a robust and growing market for emissions offsets that can be bought and sold in an open marketplace by a variety of actors, including potentially transit systems.

The threshold for “heavy emitters” that are currently included in the Cap and Trade Program includes industries and institutions with annual GHG emissions of more than 25,000 tonnes. Additionally,

¹ (Evola, 2016)

² (Phillips & Drolet, 2016)

³ (Evola, 2016)

⁴ (Phillips & Drolet, 2016)

transportation fuels will be covered at volumes of 200 litres or more. All emitters of 10,000 tonnes of CO₂ “equivalent” or more will be required to report their emissions starting in 2017, as well.⁵

Firms that are targeted as “heavy emitters” can offset their carbon footprint by investing in carbon offsets. “Offsets” relate to projects that reduce GHGs or draw carbon pollution out of the atmosphere. In Ontario, the government will recognize real, additional, enforceable, verifiable, and permanent reductions that occur outside the cap.⁶ Transit may have a role to play in the “offset” marketplace.

What does the Ontario Climate Action plan say about transportation & transit?

The Ontario Climate Change Action Plan currently outlines five ways to lower emissions from transportation.

1. Increasing the availability and use of lower carbon fuel. This includes propane and liquefied gas, as well as gasoline that has been mixed with renewable fuels. This will boost the renewable content of fossil fuels, and assist fuel distributors by supporting them in providing lower carbon fuel to consumers that is less carbon intensive. The government intends to also fund pilot projects to assess waste and agricultural methane as a fuel source.
2. Increasing the use of electric vehicles. This includes maintaining the province’s incentives for electric vehicles, eliminating HST on zero-emission vehicles, providing free overnight vehicle charging to EV owners, incentivizing the replacement of older cars, ensuring charging infrastructure is widely available, creating electric vehicle ready workplaces, and funding an electric and hydrogen innovation advancement program that will recognize manufacturers that exhibit performance in advance zero-emission vehicle sales, marketing, infrastructure and public awareness. Lastly, this will be accomplished through increasing the public awareness through working with Plug’n Drive.
3. Supporting cycling and walking. This includes supporting cycling and walking as mobility options to help decrease the number of cars on the road, as well as improve overall public health. This will be accomplished through better commuter cycling networks, safe cycling, convenient cycling (parking stations), and commuter cycling accommodated through infrastructure along highways and major transit corridors.
4. Increasing the use of low-carbon trucks and buses. This includes offering a Green Commercial Vehicle Program that will provide incentives to eligible businesses that want to buy low-carbon commercial vehicles and technologies to reduce emissions, including electric and natural gas-powered trucks, aerodynamic devices, anti-idling devices, and electric trailer refrigeration. Another method to accomplish this will also be through building a network of low-emission fueling stations, and improving competitiveness of short-line railways (According to the Railway Association of Canada, short- lines can be three to four times more efficient per tonne-kilometre than transporting the same freight by truck).
5. Supporting the Accelerated Construction of GO Regional Express Rail. This includes creating a strong network that encourages people to choose transit.

Additionally, the Ontario Climate Change Action Plan identifies the need to begin developing post-2020 Cap and Trade regulations. The Report states, “The government has heard from Ontario businesses that they want additional clarity for the post- 2020 compliance periods.” The province will begin consultations later in 2016 to develop post-2020 program guidelines. Ontario’s Western Climate Initiative partners – Quebec and California – just recently began their own consultations in this regard.

⁵ (Government of Ontario, 2016)

⁶ (Phillips & Drolet, 2016)

Key to these discussions will be the need to maintain a competitive economy while achieving environmental results.

Ontario's Cap and Trade program is expected to generate proceeds of approximately \$1.8 to \$1.9 billion each year,⁷ but the program could generate additional funding if Cap and Trade regulations were extended to include mid-emitters in the future.

What challenges exist for municipal transit within Ontario's Cap and Trade & Climate Action Strategies in the immediate future?

Cap and Trade policies will result in an immediate increase in diesel costs as of January 1st 2017. This will be the result of an initial five per cent increase in diesel fuel costs, which will continue unabated for the next five years (i.e. five per cent per annum until 2021). The evident impact on transit is higher diesel costs in the short-term. This may cause a challenge for those transit agencies that currently struggle to pay for operations within the existing low-priced global diesel marketplace.

However, in addition to the increase in diesel costs, the Ministry of Transportation has also become more vigilant in monitoring and fining transit agencies with relation to noxious material emissions from older buses. Though this monitoring activity is not an explicit component of the Cap and Trade policy, it forms part and parcel of the overall mainstreaming of climate action strategies and emissions-reducing activities that all ministries within the provincial family have been asked to undertake.

Both of these outcomes will create financial costs for municipal transit agencies.

The research identified below, as carried out by CUTRIC, will map the diesel cost increases across Ontario transit agencies based on existing Cap and Trade regulations, and it will map out other "climate action" strategies that the MTO may be considering implementing over the next five years (such as NOX monitoring efforts).

Robust methodologies to model and score GHGs from transit

The Ontario Climate Action Plan and Cap and Trade Program have outlined the fact heavy emitters will be required to record and report their emissions⁸. The CUTRIC research proposed here will develop a GHG reporting tool for transit agencies within OPTA so that transit agencies can accurately map out their own GHG footprint before being required to do so in the future.

Currently, most GHG monitoring tools for transit explore diesel-to-CO2 conversions only. This is insufficient for the purpose.

CUTRIC will develop a more robust mapping tool that includes the following GHG measures:

1. CO2 *equivalent* measures from diesel and compressed natural gas combustion in fleets ("CO2 equivalent" outputs relate to CO2, CO, and other global warming pollutants produced through combustion of fossil fuels);
2. NOX emissions measures from diesel and compressed natural gas combustion;
3. CO2 equivalent measures from garages and transit offices – heating, cooling and other electrical or gas-based auxiliary systems to maintain garages;
4. CO2 equivalent measures of travel among staff for transit business (CO2 equivalent measurement of travel choices by transit employees who commute for business purposes to meetings, conferences, etc.);
5. CO2 equivalent measures of travel among staff to commute to work (CO2 equivalent measurement of transit staff GHG footprint in getting to work on a daily basis).

⁷ (Government of Ontario, 2016)

⁸ (Government of Ontario, 2016)

These emissions constitute the *full* GHG footprint of transit agencies. (For example, transit offices located in areas not easily or quickly served by transit itself constitute a GHG problem that needs to be addressed in the future to enable less carbon intensive mobility for staff employees.)

The outcomes of this research will be used to develop a standard method for effective monitoring, mapping and scoring of transit agencies' respective GHG footprints on a per rider basis, or other standardized metric.

Thus, CUTRIC will develop a system-by-system evaluation of OPTA transit agencies to understand which transit companies are low, medium, and high emitters based on GHG emissions from sources No. 1 to No. 5 above. To do so, CUTRIC will develop an Ontario report card for transit agency GHG emissions, which agencies can use to assess themselves on an annual basis and which they can use to measure year-on-year GHG reductions to qualify for Cap and Trade revenues as well as offset credits in the future.

Exploring conditions for the use of Cap and Trade revenues

As of January 1st 2017, Ontario's Cap and Trade program will begin generating revenue. Legally, those revenues are tied to innovation of green technologies and/or the procurement of green technologies.

Currently, there is no normative strategy outlining how Cap and Trade revenues can or should be used for transit system investments at the municipal level.

This legal requirement to bind Cap and Trade revenue to the development or integration of green technologies begs the question as whether some of the revenue will be allocated to transit agencies, *if* those funds support diesel bus procurements or the expansion of garages that do not accommodate electric or hydrogen fuel cell propulsion.

CUTRIC will utilize qualitative consultation sessions over the course of 2017 to develop a strategy for Cap and Trade investments into municipal transit agencies in Ontario going forward.

The CUTRIC method for qualitative sessions will map onto the consultation method utilized over the past two years as part of CUTRIC Federal and Provincial consultation sessions as funded by Industry Canada (now Innovation, Science and Economic Development Canada) and the Ontario Ministry of Economic Development and Growth. This method focuses on focus group style outputs related to opportunities, challenges and solutions vis a vis themes of technological tools and policy framework. The method additionally involves separating a larger consultation group into breakout groups in which they are asked to deliver conclusions related to opportunities, challenges, and solutions. The result of this method is stakeholders responding to identified challenges ahead and developing actual technological, social, and operational solutions to overcome challenges and realize opportunities associated with Cap and Trade.

Potential for new revenue mechanisms emerging from low carbon fleet conversions through Cap and Trade offsets

It is unclear whether Cap and Trade in the future will grant credits to agencies as they convert to low or zero-carbon electric or hydrogen fuel cell options.

As part of its assessment and analysis, CUTRIC will explore the potential for new revenue generation within transit agencies, as they transition to greener fleets or as ridership grows and displaces single occupancy vehicles. This assessment will include recommendations to government as to how transit could or should be enabled to generate carbon credits or offsets that can be sold in a carbon marketplace in the future.

PART B: METHODOLOGY

1. Literature review

CUTRIC will develop a literature review to document how transit has modeled its GHG footprint in other sub-national and national jurisdictions globally.

This will include examining how transit has been affected by Cap and Trade and direct carbon taxation policies in other jurisdictions. Additionally, this literature review will examine the benefits that transit agencies have received from carbon pricing globally.

2. GHG report card methodology generation

CUTRIC will develop a robust mapping and scoring tool that includes the full GHG footprint of transit agencies. This mapping and scoring tool will be used to develop a standard method for effective monitoring, mapping and scoring of transit agencies' respective GHG footprints on a per rider basis, or other standardized metric.

3. Policy mapping of potential cost challenges and revenue generation capabilities based on transit experiences in other jurisdictions

CUTRIC will create a policy map that will illustrate the possibilities emergent in other global jurisdictions with carbon pricing programs – such as in Quebec and California – to demonstrate mechanisms by which transit has benefited from carbon pricing tools in play.

4. Consultation sessions with Ontario transit agency staff

Consultation sessions will be held five times throughout 2017 as follows. The consultation sessions will be prescheduled to enable the attendees to find a point person within their transit teams that will serve as a transit expert. The sessions will look at hypothetical scenarios and gather ideas from various industry experts for solutions to be fed into a Strategy Plan on behalf of OPTA members to the Government of Ontario, including the Ministry of Environment & Climate Change (MOECC) and Ministry of Transportation.

Tentative timeline for deliverables

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| Literature Review: | Carbon pricing & transit innovation (globally) | February 2017 |
| Consultation Session 1: | Ontario Cap & Trade: overview & diesel pricing | February 2017 |
| Consultation Session 2: | Transit GHG footprinting: models & methodologies | April 2017 |
| GHG Report Card Methodology: | | June 2017 |
| Consultation Session 3: | Ontario Cap & Trade: transit revenue qualification | June 2017 |
| Consultation Session 4: | Ontario Cap & Trade: carbon offset opportunities | August 2017 |
| Consultation Session 5: | Ontario Cap & Trade: infrastructure and operation investments | October 2017 |
| Cap & Trade for Transit: | OPTA Strategy Submission | December 2017 |