Green Action Centre submission on Winnipeg's Climate Action Plan
to the Standing Policy Committee
on Water and Waste, Riverbank Management and the Environment
September 6, 2018

Green Action Centre is pleased to support Winnipeg's Climate Action Plan – Planning for Climate Change, Acting for People. We acknowledge the long and arduous policy history to reach the plan's release and consideration by Council. But we also note that "**The Climate Action Plan is the first step, not the last step.** Winnipeg's Climate Action Plan is the first community wide strategy for comprehensively addressing climate mitigation in Winnipeg" (55). Leadership, resources, engagement and collaboration, community action, and a re-examination of other city policies are all required to realize this plan.

This brief has two purposes (a) to register Green Action Centre's support for the main features of the plan and (b) to identify potential missed opportunities and elements that could be added or strengthened to realize the plan's objectives. We note that, under implementation principles, the plan is considered a living document and that it requires internal (corporate) and external (community) collaboration as well as further technical and economic analysis as well as budgetary support (55-56). With these considerations in mind, we make the following observations on organics diversion, non-residential ("commercial") motor vehicle transport, and green and fair budgeting.

1. Organics diversion.

The Climate Action Plan steps somewhat gingerly and vaguely around the need for a green bin curbside program to meet organics waste-diversion targets. However, it does indirectly point in this direction by identifying a short-term action to "Implement direction from the Comprehensive Integrated Waste Management Strategy to advance the priority of organic material diversion from landfill" (50). CIWMP identified green bin collection as a central means of organic diversion.

In addition to our own educational and social enterprise programming, e.g. Compost Winnipeg, Green Action Centre has engaged the City at length about the need for a green bin program and was a strong critic of Council's action to shut down evidence-based engagement on how best to meet the City's organics and climate responsibilities. We believe there are lessons to be learned from the failure two years ago to follow through with in-depth consideration of best practices and professional advice. These lessons include ceasing to subsidize unsustainable landfilling of organics through the current garbage collection system financed from property taxes and creating a greener and fairer system based on "polluter pays" and Pay As You Throw (PAYT) for garbage, while covering diversion costs instead from property taxes, as recommended in the 2011 CIWMP. See our recent summary of policy recommendations for organics at http://greenactioncentre.ca/wp-content/uploads/2018/05/GA-Briefing-Note-Composting-Policy-for-submission-to-CoW-ClimateActionPlan-Feb2018.pdf.

2. Non-residential ("commercial") motor vehicles.

Half of Winnipeg's emissions arise from motor vehicles. Any serious climate action plan must tackle these as a high priority. The plan includes numerous excellent recommendations under Strategic Opportunity #3 Advancing Sustainable Transportation – Increase Mobility Options and Shift to Zero

Emission Vehicles, which we support. But virtually all of these are directed at residential motor vehicles and alternatives for personal transport – transit and active transportation. Largely missing from this picture is the "Commercial Vehicles" sector, which is responsible for 18% of Winnipeg's GHG emissions (11). The sole reference to this major emissions sector is found in the EV strategy 3.6: "Explore low emission freight delivery opportunities within the City of Winnipeg, including first and last mile business services, electric freight vehicles, and improved route use planning and infrastructure" (40). This action is assigned to the long-term post-2027 period.

Green Action Centre regards this as an unacceptable delay in initiating action on commercial vehicles for several reasons. First, the size of the climate impacts of this sector should elevate its priority. But further, we have in the Manitoba Trucking Association a willing and eager partner ready to sponsor research into technologies and best practices and pursue the most cost-effective measures in collaboration with academic, environmental and government partners. They have found responsive academic and environmental partners but are still looking for a responsive government. Winnipeg should be that government. The Public Works Department and the Winnipeg Fleet Management Agency (whose vehicles we presume are included in the "commercial vehicles" sector) are the logical agencies to collaborate with the Manitoba Trucking Association in researching and implementing best practices for both corporate and community emissions reductions in the non-residential transportation sector.

Finally, the City should respond to Manitoba Trucking Association's invitation to join a GrEEEner Trucking initiative (EEE = "economically and environmentally efficient") to enhance community collaboration that creates a City able to work together for the common good. The City already does this with active transportation and transit users. Commercial trucking is a missing piece of community collaboration on sustainable transportation, and Manitoba Trucking Association has taken the first step, which is not adequately reflected in Winnipeg's Climate Action Plan.

For further information on this point, see the attached joint submission from the Manitoba Trucking Association and Green Action Centre to the Winnipeg climate consultation process.

3. Green and fair budgeting.

Canada's Ecofiscal Commission notes:

> *An ecofiscal policy corrects market price signals to encourage the economic activities we do want (job creation, investment, and innovation) while reducing those we don't want (greenhouse gas emissions and the pollution of our land, air, and water)* **(**https://ecofiscal.ca/**).**

Green Action Centre has amplified this definition by identifying a set of green and fair budget principles that promote sustainable behavior by individuals and institutions and help create a more just and sustainable society. Such measures

a) Make it easier and more rewarding to do the right thing (e.g. free or low-cost recycling and public transportation services);
b) Make it harder and more costly to act unsustainably (e.g. by removing perverse subsidies for sprawl, fossil fuel consumption and landfilling organic waste);
c) Promote planning and investments for a more sustainable future (e.g. economically and ecologically efficient buildings, communities, transportation and waste

management);

d) Take a full-cost accounting perspective in assessing the costs and benefits of actions (e.g. social, ecological and economic costs and benefits of building, energy and transportation choices);
e) Other things being equal, have users who impose social costs pay for those costs (e.g. polluter pays); but also
f) Insure that basic welfare and human development needs (e.g. food, shelter, health and education) are provided for all citizens.

Principles (a) through (d) lead to a more sustainable society. Principles (e) and (f) represent two aspects of a just society that need to be reconciled – paying the costs of one's actions and meeting basic human needs. Despite potential tension between them, justice requires attention to both.

The treatment of Transit in comparison with private vehicles and the proposed treatment of organic waste collection costs are two glaring examples of unsustainable and unfair budgeting in Winnipeg

- Bus fares rise annually, whereas car ownership, driving and parking (except in metered areas) are untaxed. Hence the economic incentives keep rising in favor of commuting and shopping by car rather than taking transit and drivers get a free ride when it comes to paying for building and maintaining expensive road infrastructure.

- Winnipeg's organics diversion planning and consultation were killed two years ago when a proposed fee structure was judged unjust to lower income neighborhoods and backyard composters. The fee structure ignored financing recommendations of the 2011 Comprehensive Integrated Waste Management Plan and Green Action Centre.

We conclude that, unless green and fair budgeting principles are also adopted, Winnipeg cannot succeed in meeting its climate obligations cost-effectively and equitably. Unfortunately, green budgeting considerations do not survive the consultation process except for requests for adequate resources and funding as part of the budget cycle. It is time for that to change.

4. Recommendations.

   a. Revive green bin curbside pickup and other organics diversion planning with a stakeholder working group to meet climate and waste diversion goals in a just and cost-effective manner.

   b. Consult with Manitoba Trucking Association and other stakeholders on the creation of sustainable freight and fleet working group to identify and pursue opportunities to reduce emissions

   c. Green and fair budgeting

      1. Adopt green and fair budgeting principles as an additional Direction for Sustainable Winnipeg in the current *OurWinnipeg* review.
      2. Review current and proposed financial measures in city budgets for alignment or misalignment with the just achievement of climate and sustainability goals.

Contact: Peter Miller (p.miller@mymts.net)

ATTACHMENT

Commercial Vehicle GHG Reduction Strategy (March 1, 2018)

Submitted by Manitoba Trucking Association and Green Action Centre.

Introduction

Commercial vehicles are responsible for 17.6% of Winnipeg's GHG emissions (Golder report, 22) but so far have not been included within the scope of the six proposed transportation actions in the City's draft climate action plan. Manitoba Trucking Association (MTA) and Green Action Centre believe that this oversight can be corrected by adopting a seventh transportation action to reduce emissions from the trucking or commercial vehicle sector.

Numerous vehicle types operate within the City, including delivery and courier trucks, service vehicles (e.g. Hydro, tow trucks, garbage trucks), construction vehicles like graders and front-end loaders, buses and transit. Transit services will have their own strategies and oversight, but the other categories could be included in the trucking GHG reduction initiative.

Whereas in some other spheres of action (e.g. waste, recycling and organics collection and management) the City needs to take a leadership role, in this instance, MTA is prepared to take ownership of collaborative strategic planning and implementation to reduce trucking emissions. Indeed, MTA has proposed *The GrEEEner Trucking Fuel Efficiency Initiative*[1] to two provincial governments and is hopeful that the forthcoming provincial *Climate and Green Plan* will include their proposal. MTA and Green Action Centre recommend that this provincial initiative include a component directed to trucking within the City and Capital Region, where a majority of Manitoba's emissions occur. Note further that many trucking firms have adopted serious GHG reduction commitments. (See attached policy excerpts.)

The GrEEEner Trucking Initiative, although it begins with the low-hanging fruit of retrofitting trucks to improve their efficiency, also contemplates additional measures ranging from regulatory adjustments that would reduce GHGs (green tape initiatives) to new technologies and fuels (e.g. vehicle electrification). All measures would receive an evidence-based review and assessment and advice for implementation by a GrEEEner Trucking Advisory Council, which would include academics and ENGOs as well as trucking industry representatives. MTA expects that new initiatives should be cost-shared between the trucking industry and recycled carbon tax revenues (to which the trucking industry will be a major contributor).

While details of the MTA proposal will need to be negotiated, Green Action Centre welcomes the initiative and foresight of MTA in developing its proposal and seeking out partners. This approach can fill a major gap in the City's draft climate action plan. We can adapt the proposal to the format of the City's draft plan as follows.

Transportation Sector

Action 7: Identify, evaluate and adopt measures to reduce the carbon footprint of trucking services within Winnipeg and the Capital Region.

Tool A: Create a sub-function of the GrEEEner Trucking Advisory Council to engage in strategic planning that considers issues and identifies and evaluates opportunities to reduce commercial vehicle emissions in Winnipeg and The Capital Region.

Tools B1, B2, B3, etc.: These would be measures identified and recommended by the GrEEEner Trucking Advisory Council. The following measures are illustrative of the possibilities.

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[1] Attached. GrEEEner means "Economically and Environmentally Efficient."

- Phase 1
    - Promotion and retrofits focused on city operators
        - Dray, small and/or local cartage vehicles
        - Create a targeting initaitve for smaller or slow speed vehicles
            - NRCan stats and/or demonstration
- Phase II
    - What is the opportunity outside of trucking vehicles?
        - Construction
        - Non-trucking service vehicles
            - Hydro
                - Simple idle reduction practices
    - Are there supply chain opportunities?
        - Demonstration project or study?
            - Last mile considerations?
                - Change behaviours and deliveries at night or during certain hours?
                - Non-traditonal vehicles?
                - diamond lane concept for commercial vehicles?
        - City of Winnipeg procurement policies
            - U of M? RRC? U of W?
            - Emergency services?
        - City of Winnipeg
    - Improved Transportation Planning
        - including commercial goods movement strategies
        - vehicle segregation
            - trucks and bikes
    - Electrification demonstration and cost/benefit review for smaller courier/delivery vehicles?
        - Fedex?
- Phase III
    - Non-vehicle considerations
        - Diesel generators on construction sites
        - Solar
        - Charging stations
        - Carbon sinks
    - What is the fuel of the future?
        - For city operations very likely electric so how do we foster?
            - Technicians needed?
            - Infrastructure needed?

'Community Implementation Prototype'

Community role: As described above.

City role: Endorse and engage with MTA and their partners in the further refinement of their proposal and participate in the design of initiatives directed at Winnipeg and The Capital Region.

Attachments:

1. Winnipeg GHG Emissions Summary from the Golder Report.
2. The GrEEEner Trucking Fuel Efficiency Initiative.
3. GHG reduction commitments from international trucking firms (internet excerpts).

4.9 GHG Emissions Summary

Overall GHG Emissions are shown below in Table 4 and Figure 3.

Table 4: Summary of GHG Emissions

Activity	Annual Emission Rate (tonne CO_2e/year)				GHG Intensity (tonne CO_2e per capita)	Percent of Total
	CO_2	CH_4	N_2O	Total GHGs		
Building Electricity	18,284	0	0	18,284	0.03	0.3%
Building Natural Gas	1,790,048	1,073	9,906	1,801,027	2.60	33.5%
Transit	43,044	57	395	43,495	0.06	0.8%
Vehicles-Residential	1,689,442	2,434	33,241	1,725,116	2.49	32.1%
Vehicles-Commercial	938,779	338	6,525	945,642	1.37	17.6%
Waste Disposal	—	798,801	—	798,801	1.15	14.9%
Water and Waste Water	4,922	33,620	8,117	46,659	0.07	0.9%
Total	**4,484,518**	**836,322**	**58,184**	**5,379,024**	**7.78**	**100%**

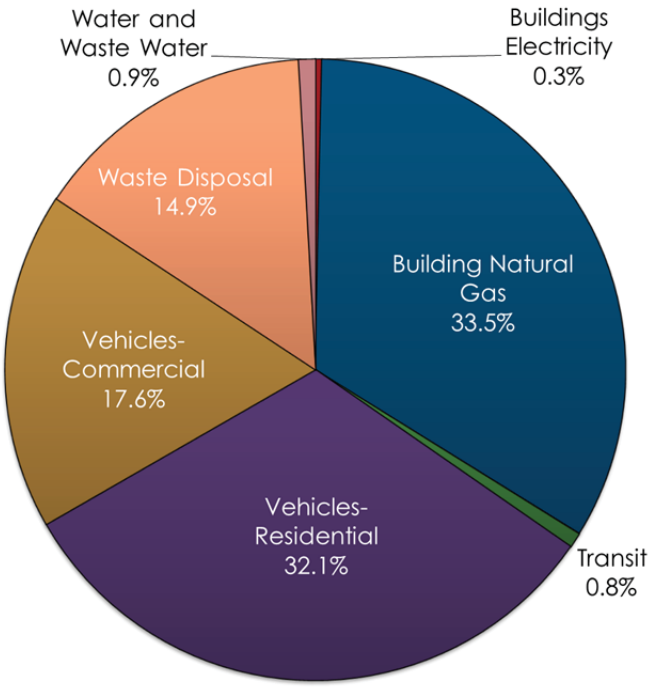


Figure 3: Summary of GHG Emissions

MANITOBA TRUCKING ASSOCIATION

PROVIDENCE

BULLER
SCHOOL OF BUSINESS

The GrEEEner Trucking Fuel Efficiency Initiative

Economically and Environmentally Efficient

A collaboration of industry and academia in support of Manitoba GHG reduction

Questions can be directed to:

Terry Shaw
Executive Director
Manitoba Trucking Association
tshaw@trucking.mb.ca
204-632-6600

Bruce Duggan
Director
Buller Centre for Business
Providence University College & Seminary
bruce.duggan@prov.ca

The Trucking Industry

The trucking industry plays a vital role in Manitoba's economy. There are over 25,000 Manitobans directly employed in the truck transportation sector, and figures show that for every ten jobs created in the trucking industry, seven jobs are created in associated industries. The transportation and warehousing industry employs 5.7 per cent of Manitoba's labour force, and consistently makes up 6 to 7 per cent of the provincial gross domestic product (GDP).

Not only is trucking a major contributor to Manitoba's economy, it is a critical service provider to the rest of the industries driving the Manitoban economy, such as wholesale and retail trade, manufacturing, construction and agriculture.

Trucking in Manitoba contributes over $2 billion annually to our provincial GDP.

Introduction

The MTA appreciates the GHG challenges our society is currently facing and have acknowledged that steps be taken to address this situation. The approach promoted has always been one of collaboration and one that strove for specific understanding of the impacts on industry and GHG reductions. This has led to relationships being formed, such as with the Buller Centre for Business of Providence University College. This particular relationship has led to positive regulatory change as well as this proposal.

The GrEEEner Trucking Fuel Efficiency Initiative was formally presented to the Manitoba government in 2015. It was in response to the government of the day's approach to GHG reduction: an increase in biodiesel limits. The response provided by this initiative proposed the creation of a carbon tax on diesel, with the proceeds raised returned to industry for investment in tools known to reduce GHGs. The proposed program has three phases that would run concurrently after launch and establishment of the prior phase.

This concept has been presented to a variety of audiences and the feedback has all been very positive. The next step is to secure support for the implementation of this concept from the Manitoba government.

Put simply, this program will create formal partnerships between trucking and stakeholders outside of the trucking industry with a mandate of collaborating on short, medium and longer-term tools for reducing trucking GHGs. The program will be self funded by the trucking industry via a Manitoba carbon tax and is designed to address the two biggest roadblocks to GHG reduction:

1. Technology use or availability
2. Regulatory barriers or regulatory conflict

Aside from funding the program, industry would also operationalize it with guidance from a "GrEEEner Trucking Council" composed of industry, academia and the green community. This council would assist with direction and activity of the three GrEEEner Trucking phases in an effort to specifically, strategically and genuinely reduce GHGs in Manitoba.

The GrEEEner Trucking Fuel Efficiency Initiative

Phase I

This phase involves three primary actions:

1. The creation of the GrEEEner Trucking Council
2. The implementation of a Carbon Tax on Diesel
3. Forming the operational framework for the rebate program

To guide program discussion, the MTA would assemble a council of industry members, members from academia as well as from the green community. As mentioned, the MTA and The Buller Centre of Providence University College have been very active on the environmental file for years and not only have the relationships to populate this council, volunteers have put their name forth awaiting a green light from the province regarding support of this program.

For years, the MTA Board has supported an increase to the province's current diesel fuel tax of 3.5% to support the GrEEEner program. When implemented, this new carbon tax would generate approximately $4million annually. These funds would be directed back to industry to incent or expedite the uptake of proven fuel efficiency technologies. The current concept envisions this occurring as a 50% rebate on purchase of these technologies meaning another approximately $4million of industry funds would also be invested directly in GHG reducing tools.

There are tools available today that companies are currently using. Phase I provides those that are already investing in these technologies the opportunity to expedite their uptake or expand into newer technologies. It will also provide those who may have been sitting on the fence a greater incentive to invest in fuel efficiency tools.

The MTA has experience, capacity and the relationships necessary for the successful and efficient administration of this program. One dedicated staff member, supported administratively by the MTA (HR functions, IT support, reception, communication, promotion, etc.), could easily manage program rebates and audits.

Phase II

This phase involves two primary actions:

1. Phase I analysis
2. Work on the removal of regulatory barriers preventing the uptake of currently available technologies

Phase II would include analysis of program uptake and GHG reductions for fine-tuning of program effectiveness and investment levels.

This phase would also include work on regulatory barriers to increased uptake of currently available efficiency technologies. There are technologies currently available that our industry sees economic and environmental benefit in that are not allowable in Manitoba simply due to current regulation. Understanding and, if warranted, removing these regulatory barriers to use would afford industry greater opportunities for savings (financial and environmental).

We have seen recent success with this concept. In 2015 the MTA and Providence College's Buller Centre for Business, successfully advocated for changes to the Manitoba Long Combination Vehicle network as well as the use of New Generation Wide Base Tires without weight penalty. Both of these technologies provide demonstrable economic and environmental benefits and the only barrier to their use was regulatory.

The messaging regarding these technologies did not change, the community delivering the message did. The trucking industry long advocated for these technologies with no success. Rightly or wrongly, the success came when those outside of the trucking community shared the message of support after reviewing and understanding the opportunities presented by these technologies.

The GrEEEner Trucking Council would engage in technology reviews and the various government entities hearing positive word from the GrEEEner Council could then consider regulatory change "trusting" that the suggestion

came from a broad group providing fair and balanced opinions (not that the MTA should not have been considered as such).

Phase III

This phase has one primary focus: investigating and fostering promising next generation GHG reduction tools for the trucking industry. The questions to be answered through this phase will be:

- What emerging technologies have the most promise for success in the Canadian climate?
- What regulatory considerations need to be made?
- What elements of public or industry awareness need to be addressed?
- Are there infrastructure impacts or required investments associated with the technologies?
- Are there any operational or HR impacts associated with these technologies and how can they be overcome?

GHG Reduction Outcomes and Estimates - Overview

The MTA and the Manitoba Government have collaborated on efficiency programming previously. Between 2009 and 2012, the original GrEEEn Trucking Program had four separate program offerings.

Per the program summary report prepared by the University of Manitoba Transport Institute (UMTI) the province funded rebates of $637,000 on industry investments of $2,900,000. This collective investment assumed a 7-year life for the technologies purchased (except tires) and showed a savings of 8,897,000 litres of fuel savings attributable to this program. This amounted to a reduction of 23,456 tonnes of carbon by this program. Based on these dollar amounts this is a cost per tonne of approximately $151.

However, the calculation cannot end there because the 8.9million litres of diesel were not consumed because they were not purchased. Assuming a cost per litre of $1, this produces a savings to industry of $8.8million dollars on an investment of under $4million. This means this program had net financial benefit while also showing significant GHG reductions. This is why the MTA has continues to champion this concept.

The GrEEEner Trucking Fuel Efficiency Initiative, follows the above principles save it is entirely industry funded via a carbon tax.

A brief summary of the program cost and benefit estimates is below, with the full model attached.

At $25,000 per truck to achieve a 22% fuel increase, with the technology lasting 5 years, assuming an almost immediate efficiency degradation (to provide conservative estimates), this program still shows a net financial benefit as well as GHG reductions of over half a million tonnes by 2030.

Conclusion

The MTA appreciates the GHG challenges our society is currently facing and have approved that steps be taken to address this situation. This is based on the assumption the programs being considered are relative to genuine opportunities to reduce GHGs and include opportunities for ownership in the carbon tax levels and GHG reduction efforts. The approach promoted has always been one of collaboration; hence the much appreciated partnership in this initiative of Providence University College's Buller Centre for Business.

The cost impact to the trucking industry from a carbon tax is potentially immense. The economic impact of the trucking industry to our provincial economy is also significant. Policy on this front must be strategic and measured.

There are a variety of sectors and categories with opportunity for genuine GHG reductions. There are also a variety of options available when considering tax levels and reduction programs. Seeking large reductions provincially from a few constituents may not be available or certainly not likely.

Sound policy will not only reduce GHGs but can also do so in a fashion that actually fosters economic activity. It is believed that success on this front can only come through partnership with those on the front lines. They know best what the available opportunities are. They also know best what the available solutions are. Providing these interested and educated parties the opportunity for ownership in their tax levels and reduction efforts will be the most likely path to success.

All of the above considerations are embodied in the GrEEEner Trucking Fuel Efficiency Initiative.

GHG Reduction Outcomes and Estimates – Specifics

As mentioned previously, in practice (the original GrEEEn Trucking Program) and in concept, this initiative significantly reduces GHGs while also reducing operational costs for the Manitoba trucking industry and the Manitoba supply chain.

To be clear, these estimates are put forth for a large industry, of many small companies, providing a very wide range of services in very diverse working conditions. There will be no "one size fits all" solution applicable to all trucks or companies. That is part of the benefit of this initiative. It allows those who can maximize all technologies the opportunity to do so. It also allows those who can benefit from some of the technologies supported, the opportunity to do so. It allows a broad section of the trucking industry a voice on what technologies or regulatory barriers are applicable to their niche so that a variety of targeted and beneficial opportunities can be much more quickly recognized.

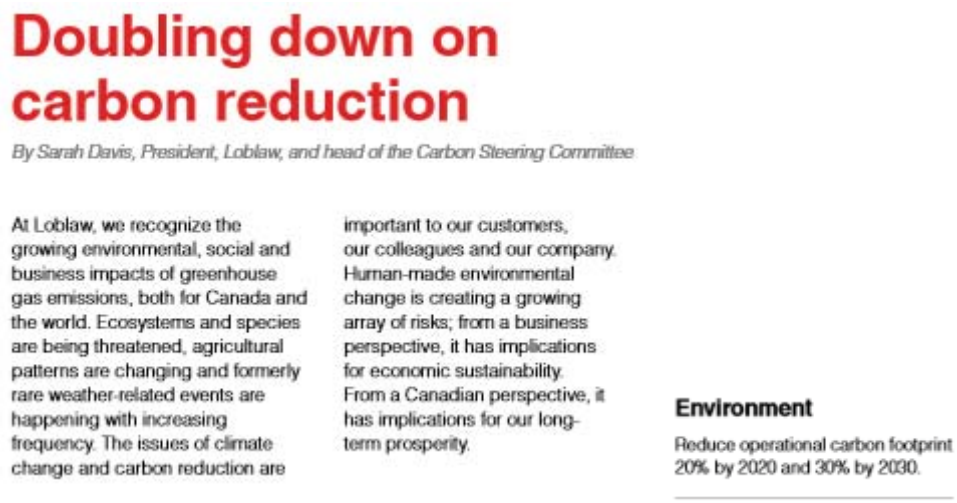
Below are the estimated costs, and benefits, of equipping one generic truck and dry van to the CTA Envirotruck standard. Attachment A shows the compounded benefits through 2030.

Class 8 Longhaul Truck	non-equipped truck	equipped truck	change
average MPG	6.1	7.4	1.3
average annual distance (miles)	110,000	110,000	-
average annual distance (kms)	177,028	177,028	-
gallons/mile/truck	0.164	0.134	
gallons/truck/year	18,033	14,781	(3,252)
litres/truck/year	68,261	55,952	(12,309)
lbs of CO2 per gallon	22.23	22.23	-
lbs of CO2 per litre	5.87	5.87	-
tonnes of CO2 per litre	0.0027	0.0027	
lbs of CO2 per truck/year	400,868.85	328,581	(72,288)
tonnes of CO2 per truck/year	182	149	(33)

estimated cost to fully equip vehicle to above	$ 25,000		
estimated efficiency increase	22%		
vehicles per year if $8million invested	320		
tonnes of CO2 over vehicles per year	58,186	47,693	(10,493)
tonnes of CO2 reduced year one			10,493

Trucking and courier companies with strong GHG reduction commitments

Loblaw Companies (includes Superstore and Shoppers Drug Mart)
http://www.loblaw.ca/content/dam/lclcorp/pdfs/Responsibility/Reports/CSRR/en/2016/Loblaw%202016%20Corporate%20Social%20Responsibility%20Report.pdf



Doubling down on carbon reduction

By Sarah Davis, President, Loblaw, and head of the Carbon Steering Committee

At Loblaw, we recognize the growing environmental, social and business impacts of greenhouse gas emissions, both for Canada and the world. Ecosystems and species are being threatened, agricultural patterns are changing and formerly rare weather-related events are happening with increasing frequency. The issues of climate change and carbon reduction are important to our customers, our colleagues and our company. Human-made environmental change is creating a growing array of risks; from a business perspective, it has implications for economic sustainability. From a Canadian perspective, it has implications for our long-term prosperity.

Environment

Reduce operational carbon footprint 20% by 2020 and 30% by 2030.

Loblaws Senior VP Bob Chant recently said, "We're committed to be part of the solution. We're not waiting to be told to do something" while announcing a corporate goal of zero carbon delivery systems and unveiling an electric semi truck. ECCC Minister McKenna commented, "We have a target [to reduce its greenhouse gas emissions by 30 per cent below 2005 levels by 2030]. It's not a target that the federal government has to meet. It's a target we all have to meet as a country and we're all part of it. The fact that Loblaws has stepped up... is a really great step. For everyone who is thinking about this, please do the same" (emphasis added) (https://www.nationalobserver.com/2017/11/03/news/supersizing-electric-vehicles-loblaws-trucks-going-green).

UPS - https://www.ups.com/ca/en/services/sustainability/environmental-responsibility.page; https://www.pressroom.ups.com/pressroom/ContentDetailsViewer.page?ConceptType=PressReleases&id=1519225541368-230 and https://sustainability.ups.com/

UPS To Deploy First Electric Truck To Rival Cost Of Conventional Fuel Vehicles

US 02/22/18
Atlanta, GA

Collaboration With Workhorse Group on New, Zero Emission Vehicles is Industry First

UPS (NYSE:UPS) today announced it plans to deploy 50 plug-in electric delivery trucks that will be comparable in acquisition cost to conventional-fueled trucks without any subsidies – an industry first that is breaking a key barrier to large scale fleet adoption. The company is collaborating with **Workhorse Group, Inc.** (NASDAQ:WKHS) to design the vehicles from the ground up, with zero tailpipe emissions.

"Electric vehicle technology is rapidly improving with battery, charging and smart grid advances that allow us to specify our delivery vehicles to eliminate emissions, noise and dependence on diesel and gasoline,"

said Carlton Rose, President, Global Fleet Maintenance and Engineering for UPS. “With our scale and real-world duty cycles, these new electric trucks will be a quantum leap forward for the purpose-built UPS® delivery fleet. The all electric trucks will deliver by day and re-charge overnight. We are uniquely positioned to work with our partners, communities and customers to transform freight transportation.”

Workhorse claims these vehicles provide nearly 400% fuel efficiency improvement as well as optimum energy efficiency, vehicle performance and a better driver experience. Each truck will have a range of approximately 100 miles between charges, ideal for delivery routes in and around cities. The class 5, zero emission delivery trucks will rely on a cab forward design, which optimizes the driver compartment and cargo area, increasing efficiency and reducing vehicle weight. The new trucks will join the company’s Rolling Lab, a growing fleet of more than 9,000 alternative fuel and advanced technology vehicles.

"This innovation is the result of Workhorse working closely with UPS over the last 4 years refining our electric vehicles with hard fought lessons from millions of road miles and thousands of packages delivered,” said Steve Burns, CEO of Workhorse Group. “Our goal is to make it easy for UPS and others to go electric by removing prior roadblocks to large scale acceptance such as cost.”

UPS will test the vehicles primarily on urban routes across the country, including Atlanta, Dallas and Los Angeles. With zero emissions and lower noise, the electric delivery trucks will help UPS make its fleet cleaner and quieter, a significant benefit in urban areas.

Following real-world test deployments, UPS and Workhorse will fine-tune the design in time to deploy a larger fleet in 2019 and beyond. Since most of the maintenance costs of a vehicle are associated with the engine and related components, UPS expects the operating cost of the new plug-in electric vehicle to be less than a similarly equipped diesel or gasoline vehicle. UPS’s goal is to make the new electric vehicles a standard selection, where appropriate, in its fleet of the future. UPS has approximately 35,000 diesel or gasoline trucks in its fleet that are comparable in size and are used in routes with duty cycles, or daily miles traveled similar to the new electric vehicles.

UPS has more than 300 electric vehicles deployed in Europe and the U.S., and nearly 700 hybrid electric vehicles. The company recently ordered 125 new fully-electric Semi tractors to be built by Tesla in 2019, the largest pre-order to date. Additionally, last September, UPS announced it will become the first commercial customer in the U.S. to start using three medium-duty electric trucks from Daimler Trucks Fuso brand, called the eCanter.

The initiative will help UPS attain its goal of one in four new vehicles purchased by 2020 being an alternative fuel or advanced technology vehicle. The company also has pledged to obtain 25 percent of the electricity it consumes from renewable energy sources by 2025 and replace 40 percent of all ground fuel with sources other than conventional gasoline and diesel, an increase from 19.6 percent in 2016.

UPS operates one of the largest private alternative fuel and advanced technology fleets in the U.S. This includes all-electric, hybrid electric, hydraulic hybrid, ethanol, compressed natural gas (CNG), liquefied natural gas (LNG) and propane.

For more information on UPS's sustainability initiatives, please visit **www.ups.com/sustainability**.

About UPS

UPS (NYSE: UPS) is a global leader in logistics, offering a broad range of solutions including transporting packages and freight; facilitating international trade, and deploying advanced technology to more efficiently manage the world of business. UPS is committed to operating more sustainably – for customers, the environment and the communities we serve around the world. Learn more about our efforts at **ups.com/sustainability**. Headquartered in Atlanta, UPS serves more than 220 countries and territories worldwide. The company can be found on the web at **ups.com** and its corporate blog can be found at **longitudes.ups.com**. To get UPS news direct, follow **@UPS_News** on Twitter.

About Workhorse Group, Inc.

Workhorse Group, Inc. (NASDAQ: WKHS) is a technology company focused on providing sustainable and cost-effective solutions to the commercial transportation sector. As an American original equipment manufacturer, we design and build high performance battery-electric vehicles including trucks and aircraft. We also develop cloud-based, real-time telematics performance monitoring systems that are fully integrated with our vehicles and enable fleet operators to optimize energy and route efficiency. All Workhorse vehicles are designed to make the movement of people and goods more efficient and less harmful to the environment. For additional information visit www.workhorse.com.

DHL

http://www.dhl.com/en/press/releases/releases_2017/all/logistics/dhl_freight_tests_electric_trucks_to_lower_its_overland_transport_emissions.html



Press Release

Bonn 12/14/2017

DHL Freight tests electric trucks to lower its overland transport emissions

- **Daimler FUSO eCanter vehicles for local transport in Berlin metropolitan area**
- **All-electric trucks for B2B and B2C freight forwarding services**

DHL Freight, one of the leading providers of road freight services in Europe is electrifying its freight forwarding business with the deployment of two FUSO eCanters made by Daimler Trucks. Today's official vehicle handover to the first European customers marks the beginning of DHL Freight's extensive 24-month test phase of the electric trucks in the Berlin metropolitan area. The 7.5-ton eCanter is the first all-electric, series-produced truck. Its low-emissions drive and low noise levels make it unique among freight-carrying trucks.

"The use of alternative drives, such as those built into the all-electric FUSO eCanter, plays an important role in reaching our Group-wide goal of reducing all logistics-related emissions to zero by the year 2050. DHL Freight is firmly committed to helping make this happen. By deploying the eCanter, we hope to reduce emissions from our forwarding business, as well as local air pollution emissions, which will in turn reduce our carbon footprint and that of our customers," explains Uwe Brinks, CEO DHL Freight.

Low-emissions freight deliveries

In the coming months, the two all-electric trucks will be starting up at the Wustermark branch for local freight forwarding services in Berlin. Here, the new lightweight trucks will mainly be used to deliver to businesses and private customers in the city center. The trucks will be on the roads delivering less-than-container-load shipments weighing over 35 kg, such as electric or large home appliances, to private customers. DHL Freight will be using the eCanter both for pick-up and delivery, with the aim of reducing pollution for first and last mile services in the road transport business.

In addition to the two vehicles for DHL Freight, DHL Parcel has also officially taken over four electric trucks for the Berlin region. DHL Parcel will use the four trucks in the central downtown area of Berlin for supplying companies and major customers. The electric trucks are fully integrated into the operational process and replace the vehicles previously used. The aim of the test is to gain more information about the use of e-trucks for company deliveries. The all-electric FUSO eCanter is, in terms of Total Costs of Ownership, more cost-efficient than conventional diesel-driven vehicles and has a range of about 100 kilometers and a maximum commercial payload of 3.5 tons.

Successful reduction of emissions

Deutsche Post DHL Group's environmental protection program GoGreen encompasses the transparent calculation of greenhouse gas emissions, as well as a variety of practices and technologies to reduce emissions. By the year 2025 Deutsche Post DHL Group will increase the carbon efficiency of its own activities and those of its transport subcontractors by 50% globally, as compared to the 2007 baseline. At the local level, the Group aims to improve the lives of people right where they live and work using clean transport solutions. Deutsche Post DHL Group will make 70% of its own first and last mile services with clean pick-up and delivery solutions, such as electric vehicles. Finally, Deutsche Post DHL Group will reduce net logistics-related emissions to zero by the year 2050.

The use of vehicles with alternative drives and technologies plays an important role in this regard, which is why DHL is testing and implementing various concepts worldwide. In addition to new types of drives, other emissions-reducing strategies such as truck superstructures that save fuel and therefore reduce emissions are being used as well. These include the aerodynamic teardrop trailer, which has a drop-shaped roof to reduce air resistance, thereby reducing fuel consumption by 6% to 10% over conventional heavy trucks. DHL Freight has been using the teardrop trailer in its transport operations in Germany, France and the Benelux countries since 2014.

DHL - http://www.dhl.com/en/about_us/green_solutions.html

DHL GoGreen Solutions

Optimized transport routes, alternative drive vehicles and energy-efficient warehouses: There are many ways to reduce climate-damaging CO2 emissions and other environmental impacts in the transportation and storage of goods.

Working with our customers, we want to leverage this potential. At DHL, we call this ↗ *GOGREEN* We believe that environmental protection and business success are not just compatible, they are closely interlinked. Sustainability has long been a competitive factor: Consumers increasingly consider environmental aspects in their purchasing decisions. The same applies to investors who consult sustainability rankings when looking for viable investment options.

With our expertise and global presence, we can offer our business customers a broad portfolio of green products and services. By providing detailed › **Carbon Reports**, we show them where they stand in terms of greenhouse gas emissions. In our › **Green Optimization** service, we work with customers to identify areas for improvement, and ways to achieve a reduction of greenhouse gas emissions and improve their overall environmental performance. And to compensate for unavoidable emissions, we offer › **Climate Neutral** services.

Purolator - https://www.purolator.com/en/resources-and-support/about-us/corporate-information/corporate-social-responsibility/our-environment.page?

Greenhouse Gas Reporting

We have been conducting an annual greenhouse gas (GHG) inventory since 2007.

- Our reporting tool was developed based on the globally-recognized GHG Protocol Corporate Standard supported by the World Resources Institute and the World Business Council for Sustainable Development (WRI/WBCSD).
- Currently, Purolator's carbon footprint reporting is composed of Scope 1 (fleet fuel, facility heating), Scope 2 (facility electricity) and Scope 3 (contractor fuel, waste, travel) emissions.

- We have developed the capability to provide customers with a Carbon Footprint Report that quantifies the emissions related to their specific shipments. This helps customers better understand their carbon footprint and identify ways to minimize their environmental impact.

Fleet Efficiency

We have the largest hybrid electric vehicle fleet of any freight and parcel solutions provider in North America.

- We operate over 559 hybrid electric delivery vehicles in Canada (as of July 2015).
- Our non-revenue fleet consists of 126 hybrid cars.
- Our HEV Fleet has logged 48.8 million kilometres to date, and we have prevented the emission of 1,625 tonnes of GHG emissions and saved 688,459 litres of fuel since introducing hybrid electric vehicles in 2005
- All new heavy equipment is specified with Ecoflaps (perforated mudflaps) to assist in improving on-highway fuel efficiency through less drag on the vehicle.
- All new class 8 highway tractors are specified with automated manual transmissions to assist in improving fuel efficiency and reduce driver fatigue.
- We have eliminated 10,600 tonnes of GHGs annually, using sophisticated modeling software to redesign our ground network in Eastern and Western Canada.
- Over 3200 Geotab installed on our fleet of trucks which provides Fleet Maintenance with Critical Maintenance Notifications which may affect the truck fuel performance and potential breakdowns
- Our corporate, sales and management car fleet is now 83 % HEV- or diesel-powered to help reduce carbon footprint and reduce fuel consumption.
- We utilize a new electric vehicle charging station at our head office parking lot in Mississauga, Ontario as well as at our Montreal Hub; There is a plan to increase the amount of electric vehicle charging stations for facilities across Canada over the next few years.

Fed Ex - http://www.fedex.com/bt/about/sustainability/earthsmart.html

EarthSmart Innovations – FedEx services and assets, including trucks, services and facilities which meet strict, quantifiable standards for innovation and environmental sustainability. Examples of FedEx Global EarthSmart Solutions include the electrical assisted tricycles which operate in Paris, hybrid trucks and all electric delivery vehicles which FedEx employs in major urban centers including Paris and London and the automated shipping tool Electronic Trade Documents.

https://about.van.fedex.com/newsroom/fedex-introduces-zero-emission-all-electric-nissan-e-nv200-vehicles/

FedEx Introduces Zero-Emission All-Electric Nissan e-NV200 Vehicles

Contributing to Company Goal of Improving Delivery Vehicle Fuel Efficiency by 30% Over 15 years

February 10, 2016



TOKYO, February 10, 2016—Marking the first use of all-electric pickup and delivery vehicles in Japan, FedEx Express (FedEx), a subsidiary of FedEx Corp., today announced the introduction of two zero-emission all-electric Nissan e-NV200 vehicles at the Shinsuna station for Tokyo area pickups and deliveries. FedEx also installed an e-NV200 battery charging station at the facility.

For FedEx, reducing the environmental impact of daily carbon dioxide emissions from its aircraft and delivery

vehicles is central to the company's commitment to connecting the world in more responsible and resourceful ways.

This goal, a part of the FedEx EarthSmart initiative, will further advance the company's existing target of improving fleet fuel efficiency by 30% by 2020, from a 2005 baseline. To reach it, FedEx follows these measures:

REDUCE: Optimize routing and driving habits to reduce mileage and fuel consumption;
REPLACE: Upgrade vehicles to more efficient ones wherever possible;
REVOLUTIONIZE: Identify and invest in future technologies such as alternative fuel, hybrid-electronic and electronic vehicles.
Through these initiatives, FedEx has already nearly achieved its goal, bringing its cumulative improvement from 2005 levels to 29.5% as of 2014. Plans are to revisit the goal after it is reached.

The introduction of all-electric vehicles is one measure in the FedEx long-term approach to environmental issues. As of 2014, FedEx has 397 hybrid vehicles, 404 electric vehicles, 132 natural gas-fueled vehicles and 40 hydrogen-fueled vehicles globally.[1] FedEx Japan has seven hybrid vehicles and nine natural gas-fueled vehicles as of February 2016.

"With more than 190 countries recently signing the COP21 Paris Agreement to establish an international framework for decreasing fossil fuel dependency worldwide, global awareness of environmental and global warming issues is increasing," said Masamichi Ujiie, regional vice president, North Pacific. "As a company conducting business worldwide, FedEx is committed to addressing environmental issues through such environmental measures as the introduction of zero-emission all-electric vehicles."

[1] FedEx 2014 Global Citizenship Report http://csr.fedex.com/downloads/