

Establishment of the Greater Toronto Atmospheric Fund (GTAF): Proposal for a Regional Climate and Clean Air Agency

An initiative and collaboration of:



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EXECUTIVE SUMMARY

It is proposed that there be a **Greater Toronto Atmospheric Fund (GTAF)** to promote the transformation of the GTA into a low carbon region in Ontario and Canada. The GTAF proposal seeks **\$25 million over five years** for incubation financing and programme delivery and a **\$100 million capital asset for a revolving fund that will leverage up to \$1 billion** for joint ventures with the public and private sectors. The GTAF will seek to become self-financing over time. It could serve as a development model that could eventually serve as a pilot for other urban regions across Ontario and the rest of the country.

BACKGROUND

- The acid test for tackling climate change lies in regions like the Greater Toronto Area (GTA), a major source of equivalent carbon dioxide (eCO₂) emissions, accounting for 14 percent of Canada's total eCO₂ emissions or 100 million tonnes of eCO₂ emissions annually. Substantial political commitment, motivated utilities, technical expertise, financial resources, and proven on-the-ground delivery mechanisms already reside in the GTA. **If national targets cannot be met in the GTA, then they cannot be met anywhere.**
- To accelerate eCO₂ emissions reduction potential locally, a climate agency is proposed to transform the GTA into a low carbon region. Fortunately, there is a successful model for such an agency—the Toronto Atmospheric Fund (TAF)—and proven regional mechanisms such as the GTA Clean Air Council developed by the Clean Air Partnership (CAP).
- At the 2005 Toronto Smog Summit, federal Ministers Stéphane Dion and John Godfrey, provincial Minister Leona Dombrowsky, and mayors and councillors from across the GTA endorsed and signed a joint Declaration which pledged to explore "... opportunities to establish a GTA Atmospheric Fund that would apply the Toronto Atmospheric Fund model across the entire GTA."
- Key objectives of the GTAF are to:
 - a) Incubate, scale up, and finance **conservation demand management and renewable energy initiatives** that reduce eCO₂ emissions, smog, and energy use;
 - b) Accelerate **market uptake of federal, provincial, and municipal climate and clean air programmes** through partnerships with all levels of government;
 - c) Create technology and financing **partnerships with private companies** to enhance new green industries in the region, thereby creating a green industry region of excellence;

- d) Rigorously monitor, measure, and **verify performance**;
 - e) Create a delivery **model to serve as a pilot for other regions in Canada**.
- The GTAF, in helping the Government of Canada meet its Kyoto targets and the Province of Ontario phase out coal, will bring greater **energy security** and **better air quality** and will stimulate new technologies and job creation.

GUIDING PRINCIPLES FOR PROGRAMME DELIVERY

Once the most significant opportunities for emissions reductions are identified, principles to guide the development of GTAF's programmes are proposed as follows:

- Environmental benefits—Activities that improve local air quality and reduce greenhouse gas emissions will receive priority attention;
- Regional equity—Activities that benefit the whole region, for instance, improved air quality throughout the GTA air shed, will receive priority, while locales that are currently underserved by provincial and federal programme activity will receive particular attention initially;
- Co-benefits—Activities that offer substantial co-benefits such as reduced municipal energy costs, economic development, and local job creation will receive priority attention;
- Leveraged financing—Projects that can leverage additional financial resources from a range of sources, both public and private, will be given priority for grant funding and capital financing;
- Partnerships—The GTAF will seek out partnerships and joint ventures with municipal and regional governments, public institutions such as hospitals and universities, electric and gas utilities, and financial institutions with the aim of facilitating commitments to reducing eCO₂ and smog precursor emissions.

POSSIBLE PROGRAMME DELIVERY EXAMPLES

- a) The federal EnerGuide for Houses Retrofit Incentive Programme provides funds to homeowners averaging \$800 nationally. The GTAF would aim to increase uptake of the Incentive in the GTA to 100,000 households, focusing on underserved locales and bringing an extra \$40 million into the GTA to reduce the energy costs that home owners pay.
- b) The Province of Ontario has set a target of achieving an ethanol gasoline blend

of 5 percent by 2007. The GTAF would aim to promote production of cellulose feedstock, which is climate friendly, as well as conversion processes that most efficiently convert corn to ethanol.

- c) The Province of Ontario will soon bring in feed-in-tariffs that encourage the production of renewable energy from small generators, such as homeowners. The GTAF would aim to incubate and ramp up a GTA-wide solar PV rooftop programme aiming to facilitate 10,000 solar rooftops averaging 2 kW each by 2010.
- d) GTA municipalities are pioneering light emitting diode (LED) technologies in applications such as street and road lighting, traffic signals, signage, parking lot lighting, etc. which collectively use significant energy. The GTAF would aim to extend LED outdoor applications across the GTA in municipal uses, resulting in significant cost savings for taxpayers.

GOVERNANCE AND ADMINISTRATION

A board that will include individuals from across the GTA who can ensure that the wide views, talents, and expertise that exist in the region are represented on the Board, will govern the GTAF.

A Joint Committee of the TAF and CAP Boards and the GTA Clean Air Council will provide direction during GTAF's start-up. A key task of the Joint Committee would be to develop a long-term governance structure for GTAF in consultation with stakeholders. Existing regional agencies such as the Toronto Regional Conservation Authority could serve as governance models for the GTAF.

The start-up and research phase will be administered collaboratively by TAF and CAP—they cooperate presently on a number of initiatives while sharing administrative staff. No new legislation or legal instruments would be required, so a quick start of activities is expected once funds are committed.

CONCLUSION

The Greater Toronto Atmospheric Fund (GTA) will strategically accelerate eCO₂ emissions reductions and uptake of government programmes, provide insurance that targets can be met, improve air quality, and create a regional model that could work elsewhere in Ontario and Canada.

ESTABLISHMENT OF THE GREATER TORONTO ATMOSPHERIC FUND (GTAF): PROPOSAL FOR A REGIONAL CLIMATE AGENCY

Introduction

At the 2005 Toronto Smog Summit, federal Ministers Stéphane Dion and John Godfrey, provincial Minister Leona Dombrowsky, and mayors and councillors from across the GTA endorsed and signed a joint Declaration which contained a resolution to explore "... opportunities to establish a GTA Atmospheric Fund that would apply the Toronto Atmospheric Fund model across the entire GTA." In addition, his speech to the Summit, Minister Dion commented:

"I would also like to say that the declaration that we are signing today is very important for Toronto. One of the commitments of the declaration that I am particularly interested in is to explore the possibility of expanding the Toronto Atmospheric Fund Model so that it will apply across the entire Toronto area."

The Greater Toronto Area (GTA) is the fifth largest metropolitan area in North America, after Mexico City, New York City, Los Angeles, and Chicago. The GTA has a population of about 5.6 million (2005), covers over 7,000 square kilometres, and encompasses 24 local municipalities, four Regional Municipalities, and a rich diversity of urban, suburban and rural settlements, and ethnicities.

With a work force of approximately 2.9 million people, more than 100,000 companies and a \$135 billion gross domestic product, the GTA is Canada's undisputed business and manufacturing capital and a driving force in Canada's national economy.

The GTA is also a major source of equivalent carbon dioxide (eCO₂) and smog precursor emissions, accounting for about 14 percent of Canada's total eCO₂ emissions or 100 million tonnes of eCO₂ annually (2000). Major sources of these emissions include residential and commercial buildings, vehicles, local industry, and municipal waste management.

The acid test for tackling climate change in Canada lies in regions such as the GTA, where there is broad local political commitment, a concentration of technical expertise and institutional capacity, large and relatively densely populated markets, significant financial resources, and successful on-the-ground project delivery mechanisms. In addition, the Province of Ontario is committed to phasing out coal fired electricity generation. **If national targets cannot be met here, then they cannot be met anywhere.** Regions like the GTA must play a vital role in assisting Canada meet its Kyoto target and Ontario to meet its coal phase-out commitment.

Fortunately, throughout the GTA there is a strong commitment to clean air and climate mitigation/adaptation. Under the auspices of The Clean Air Partnership (CAP) and with core funding from the Toronto Atmospheric Fund (TAF), the GTA Clean Air Council identifies and promotes effective collective initiatives to reduce air pollution and its associated health risks in the GTA. Additional funding from Environment Canada, the Ontario Ministry of the Environment, the Federation of Canadian Municipalities (FCM), and corporate sponsorships has enabled TAF, CAP, and the GTA Clean Air Council to pursue a variety of successful initiatives to improve air quality and reduce greenhouse gas emissions. Meanwhile, nine municipalities representing 70 percent of the GTA's population—together with two Regional Municipalities—are members of the Federation of Canadian Municipalities Partners for Climate Protection campaign. They have developed and are implementing local climate plans to reduce eCO₂ emissions.

Among them, the City of Toronto has emerged as a well-recognized world leader in climate mitigation and adaptation, initiating and paying for successful municipal initiatives such as TAF, Toronto's Energy Management Programme, the Better Buildings Partnership, a landfill gas methane capture programme, an organic waste recycling programme, and the Toronto heat watch warning system. Toronto's leadership was recognized recently when Mayor David Miller was asked to serve as the inaugural chair of the World Mayors' Council on Climate Change, a joint initiative of the City of Kyoto and ICLEI—Local Governments for Sustainability.

Other GTA municipalities are also assuming a strong role. The City of Mississauga, for example, has pioneered the retrofit of Light Emitting Diode (LED) traffic signals in the region, and the City of Markham recently established an energy efficiency office to deliver retrofits in municipal buildings across the city.

Finally, numerous private companies, including utilities (Enbridge), developers (Tridel), oil companies (Suncor and Sunoco), energy service companies (Toronto Hydro Energy Services), media (Toronto Star), and technology leaders (Hydrogenics) are teaming up with municipalities to incubate climate mitigation projects that are stimulating the sustainable energy sector and fostering job creation in the GTA.

Opportunities and Challenges

There are significant opportunities for future eCO₂ emissions and smog precursor reductions in the GTA. Federal, provincial and municipal policies and programmes are now in place that, if intensified regionally through effective market transformation, business joint ventures, and technology partnerships, could accelerate Canada's achievement of its climate plan targets while enabling the Province to phase out coal and enhance energy security. These programmes and supportive policies include:

Federal

- EnerGuide for Houses Retrofit Incentive,
- EnergyStar and EnerGuide product labelling,
- One Tonne Challenge,
- Climate Partnership Fund,
- Wind Power Production Incentive (WPPI),
- Renewable Power Production Incentive (RPPI),
- Class 43.1 tax write-offs for renewable energy investments,
- FCM's Green Fund,
- Sustainable Development Technology Canada.

Provincial

- Phase out of coal-fired electricity production in Ontario by 2009,
- Renewable Portfolio Standard—5 percent (1,350 megawatts) from new renewable sources by 2007 and 10 percent (2,700 megawatts) by 2010,
- Ethanol-blended gasoline target of 5 percent by 2007,
- Feed-in-tariffs for renewable energy from small generators,
- 60 percent waste diversion goal.

Municipal

- TAF and CAP,
- City of Toronto Better Buildings Partnership,
- CAP's "Emission Reduction Best Practices for Municipalities" programme funded by the MOE and Model Clean Air Plan for the Living City,
- Municipal utility conservation and demand management programs,
- Numerous municipal eCO₂ and clean air, energy efficiency, and procurement initiatives, including ones through the GTA Clean Air Council.

For example, on a per capita basis, the EnerGuide for Houses Retrofit Incentive Programme will need to facilitate retrofits of 50,000 households in the GTA by 2010 to meet its national 300,000 household target. Meanwhile, the Programme is showing significant environmental accomplishment. Over 10,000 households in Ontario have completed the "before" and "after" audit process, yielding an average of 25 percent reduction in heating energy use and about four tonnes eCO₂ reduction per household.

Those 50,000 households in the GTA represent a mere 2.5 percent of the region's households, however. If the programme were instead able to reach 100,000 households in the GTA, a third of the national target, it would provide insurance that EnerGuide for Houses will be able to meet its targets, and perhaps earlier than expected.

The challenges that face delivery of the EnerGuide and many other national or provincial government programs are legion, however, in a largely urban region like the GTA.

Primary among them is the challenge of creating awareness and purchases in a market that is saturated with advertising and messages. In addition, people are very busy and have difficulty creating time for activities that aren't easy and convenient, like selecting a contractor.

What is needed in the Toronto region, therefore, is a regional climate agency that will promote transformation of the GTA into a low carbon region. Such an initiative should ideally possess the capacity to accelerate the incubation, dissemination, and financing of market transformation and technology development initiatives that reduce eCO₂ and smog precursor emissions in the region, building on existing policies and initiatives while creating new ones of its own.

TAF—A Model for Regional Action and Financing

The City of Toronto, which adopted a greenhouse gas reduction target in 1990 and allocated funds to deliver the target, has established and funded a variety of initiatives to reduce eCO₂ emissions that could be scaled up to the GTA region. Prime among the models is the Toronto Atmospheric Fund, which for 12 years has been incubating and financing eCO₂ reduction projects.

Through grants, expert consultation, and development of specialized financial instruments, projects TAF has incubated through grants, joint ventures, and capital financing have played a leading role in the creation of:

- EnerGuide for Houses Retrofit Incentive Programme,
- City of Toronto Better Buildings Partnership,
- GTA Clean Air Council,
- City of Toronto \$20 million energy efficiency programme,
- Enwave deep lake water cooling,
- North America's first urban wind turbine,
- Ontario's first transportation management association,
- Canada's first municipal trigeneration facility,
- Canada's largest Energy Star appliance retrofit,
- Canada's largest solar photovoltaic installation,
- Canada's largest halide street lamp retrofit,
- Canada's largest LED traffic signal retrofit,
- Canada's first Clean Air Consumer Guide,
- Canada's first Heat/Watch Warning System,
- Toronto's first LEED Gold condominium,
- London Climate Change Agency (U.K.).

TAF is able to link the community and municipal government, spark incubation by assuming the cost of scoping and feasibility studies, spread risks by entering into joint ventures with companies, and leverage its capital to address failures in the financing market. In sum, it delivers projects that might otherwise not go forward.

Among the co-benefits of TAF's investments are:

- Moving technological innovation into the marketplace,
- Development of innovative mechanisms for financing environmental projects that leverage private capital and reduce risks,
- Public education,
- Jobs in the construction and other industries,
- Putting Toronto in a world leadership position.

A board of directors appointed by Toronto City Council governs TAF. Board members are recruited based on their expertise in financial, environmental and other fields. City Council also approves TAF's annual budget, which is approximately \$1.7 million in 2005. TAF operates with a staff of four.

Independent fund managers invest TAF's endowment, now valued at \$26 million. TAF's Investment Committee, comprised of respected financial professionals, oversees the fund's performance. One-third of the endowment is devoted to mandate-related investments, in effect, serving as a revolving fund. Recent provincial amendments to the TAF Act will enable TAF to grow faster and be more effective in the future. In sum, TAF has a successful 12-year track record as a project and technology incubator and financier in Toronto dedicated to reducing eCO₂ emissions and improving air quality.

GTA Clean Air Council—A Regional Cooperation Model

The Greater Toronto Area Clean Air Council (GTA-CAC) promotes increased awareness of regional air quality issues in the GTA and the actions needed to reduce emissions through the individual and collective efforts of all levels of governments. The Council identifies and promotes the most effective initiatives to reduce air pollution and greenhouse gas emissions in the GTA, along with their associated health risks.

The GTA Clean Air Council was established at the Toronto Smog Summit in 2000 with founding members being the Government of Canada, the Province of Ontario, and the City of Toronto. Today members also include representatives from towns, cities, and all four regional governments in the GTA. The Council is supported by TAF and contributions from participating municipalities.

For example, vehicle idling in the GTA accounts for 200,000 tonnes of eCO₂ emissions annually. For 10 years the City of Toronto was the only GTA municipality with a stand-alone anti-idling by-law. Through cooperation and joint efforts, Council members have moved forward after two campaigns to implement comparable bylaws across the GTA. Today, six other municipalities have implemented by-laws and several more are actively

considering them. Developments such as this demonstrate the readiness of GTA municipalities to move forward when compelling information, resources, and opportunities exist.

Since its inception, the GTA Clean Air Council has:

- Organized and sponsored annual Toronto Smog Summits in 2001-2005 at which all levels of governments commit to new clean air actions and report on their performance in implementing previous actions;
- Served as a clearinghouse on government clean air actions, publishing and updating “Governments’ Actions on Clean Air in the GTA”, which for the first time catalogued policy and regulatory activity throughout the GTA;
- Commissioned research on emissions modeling and quantification methodologies, with support of the MOE;
- Facilitated adoption of a variety of municipal measures, such as the Anti-Idling Bylaw, which are reducing emissions throughout the GTA.

Key objectives for 2005 include commissioning of the second phase of the emissions modeling project funded by the MOE; production of an Energy Star procurement guide; further development of municipal by-law and enforcement initiatives; and development of a building performance research capacity for participating municipalities.

The Clean Air Partnership

The GTA Clean Air Council is an initiative of the Clean Air Partnership (CAP), a public charity that was activated by TAF in 1999 with the aim of facilitating public outreach, social marketing, and regional collaboration on mitigating local air pollution and greenhouse gas emissions. In addition to the GTA Clean Air Council, CAP has developed and implemented projects that were initially incubated by TAF, such as Toronto’s heat watch warning system—it saves many lives annually—the annual Smog Summit, and the Clean Air Consumer Guide, whose Third Edition was distributed through the Toronto Star, Hamilton Spectator, Kitchener-Waterloo Record, and the Guelph Mercury. The Guide explains the diversity of certification programmes in the marketplace, such as Energy Star, and promotes provincial and federal clean air and climate programmes to the public.

GTAF—A Proposal

The GTA Clean Air Council, the Toronto Atmospheric Fund, and The Clean Air Partnership seek to establish the Greater Toronto Atmospheric Fund (GTAF) with financial support from senior levels of government and the private sector. The mandate of the new organization is to accelerate reductions of eCO₂ and smog precursor emissions

across the Greater Toronto region by working on the ground through public and private partnerships and joint ventures to incubate, scale up, finance, aggregate, and deliver local initiatives in the energy, water, waste, and transportation sectors.

Key objectives of the Greater Toronto Atmospheric Fund (GTAF) are to:

- Incubate, scale up, and finance conservation demand management and renewable energy initiatives that reduce eCO₂ emissions, smog, and energy use;
- Accelerate market uptake of federal, provincial, and municipal climate and clean air programmes through partnerships with all levels of government;
- Create technology and financing partnerships with private companies to enhance new green industries in the region, thereby creating a green industry region of excellence;
- Rigorously monitor, measure, and verify performance;
- Create a delivery model that can serve as a pilot for other regions in Ontario and Canada.

Given Toronto's strategic global position as a leading world city on climate, the GTAF will be ideally placed to extend the Province's and the Federal Government's leadership in energy policy and greenhouse gas reductions and serve as an example for other large metropolitan areas seeking to mitigate global climate change.

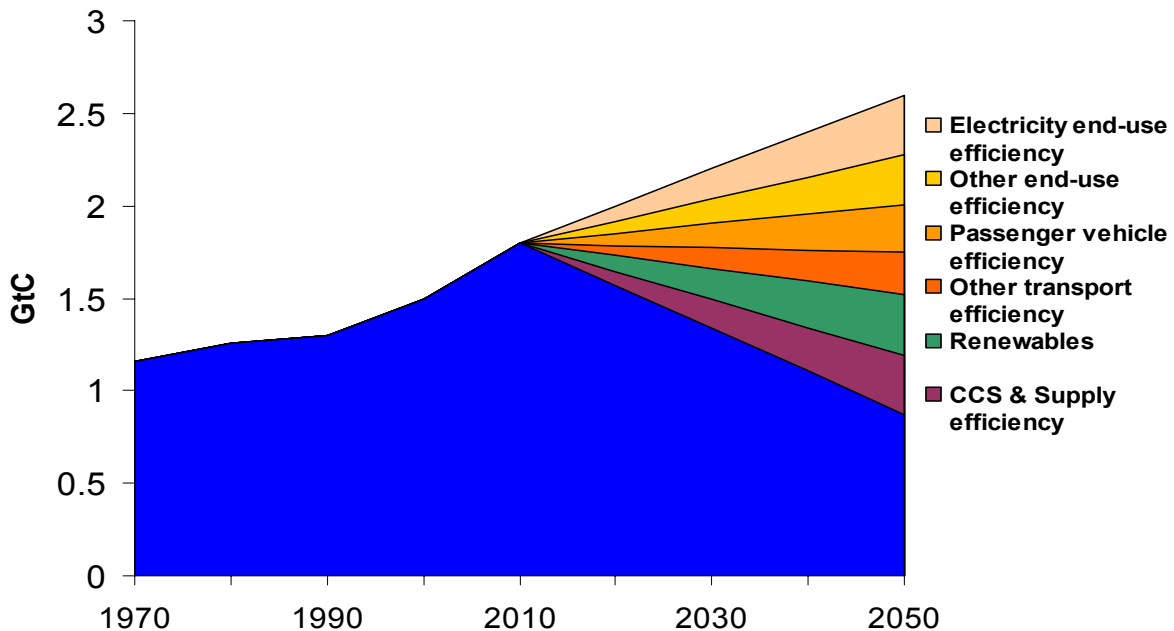
The GTAF's long-term operational aim is to generate additional revenue streams to recycle into its projects to ensure that it will eventually become self-financing.

It should be noted that this initiative is not linked to the "New Deal for Cities", which seeks to create permanent inter-governmental financial relationships. Nonetheless, the establishment of the GTAF will send a strong signal about the willingness and ability of governments at all levels to work together at a regional level on a performance basis to reduce eCO₂ and smog precursor emissions.

Phase 1— Strategic Research and Targeting Opportunity "Wedges"

The first phase of development of the GTAF is strategic planning to identify major generic regional opportunities for reducing eCO₂ and smog precursor emissions, and applying generic measures to the task of reducing these emissions from a business-as-usual scenario. These opportunities are "wedges", a valuable pedagogical concept pioneered by Stephen Pacala and Rob Socolow in Science (Vol. 305, 13 August 2004, pp.968-972) for thinking about how to reduce global emissions of carbon dioxide with current technologies (see the example below).

Emissions Reduction Wedges—Examples



Early research will seek to identify the major wedges that offer opportunities, utilizing municipal powers and influence, for reducing eCO₂ emissions in the GTA. The wedges fall into two categories: “trend wedges” and “baseline wedges”. Trend wedges are generic measures that seek to reduce the emissions associated with trends or activities stemming from population and economic growth, e.g., growth in auto use or increased residential development. Baseline wedges are generic measures that seek to reduce the energy and/or emissions intensity of activities that existed in the baseline year, such as energy efficiency retrofits of existing buildings or existing traffic signals. Some generic measures might overlap both types of wedges. For instance, shifting to ethanol-based fuels may reduce the carbon intensity of existing passenger car use, while also reducing emissions from the anticipated growth of passenger car use in the future.

Potential wedges, targeting emissions reductions 2006-2012, might include:

Residential Sector

Baseline Wedges

- Retrofit 100,000 homes in the GTA – about 5-to-10% of the existing stock -- with measures to reduce space heating, utilizing the EnerGuide for Houses Retrofit Incentive, yielding an average of 25% in the reduction of heating energy per household.

- Retrofit 10,000 homes in the GTA with solar arrays averaging 2 kW per rooftop.
- Retrofit 30% of the region's condominiums for energy efficiency improvements averaging energy reductions of 10% per building.
- 80% of all new domestic refrigerators and central air conditioners purchased are Energy Star rated.

Trend Wedges

- 40% of all new condo development at least LEED Gold and 25% more efficient than the National Model Energy Code.
- 20% of all new suburban homes built install heat pumps rather than traditional furnaces for space heating.

Municipalities, Universities, Schools and Hospitals Sector (MUSH)

Baseline Wedges

- Retrofit 75% of municipally owned buildings and facilities, roughly 2,000, with efficiency measures achieving electricity and natural gas reductions an average of 15%.
- 80% of all outdoor lighting under public control - road lighting, traffic signals, public space lighting, parking lot lighting, signage, etc. - retrofitted with LED or hybrid LED/metal halide lighting.
- All major landfills have methane capture and generation of green power.
- 70% diversion of all organic household waste to composting or biogas power generation.
- Retrofit 50% of hospitals, universities and schools with efficiency measures achieving electricity and natural gas reductions on average of 15%.
- Reduce emissions from existing municipal fleets by 20% or more, using purchases of hybrid vehicles and alternative fuels.

Trend Wedges

- 30% of all new MUSH sector construction exceeds NMEC standards by 25% or more.

Transportation Sector

Baseline Wedges

- Promote purchase of 20% of passenger autos to high efficiency hybrid or diesel vehicles.
- Promote use of biodiesel in 30% of the bus and truck fleets in the MUSH sector.

Baseline and Trend Wedges

- Ethanol from low energy-intensive or cellulose biomass 10% of the gasoline mix for light duty vehicles.

The initial research phase has several components:

- 1) Conceptual planning—Initial characterization of wedges methodology and first-cut identification of wedge opportunities.
- 2) Screening—10-to-20 wedges would initially be screened, with an aim of identifying 5-to-10 wedges that appear to offer the best initial opportunities in terms of significant emissions reductions, existing policies and delivery models available, potential financial partners available, and market research already available. For instance, the wedges could also focus on areas where municipal governments have strong powers, such as waste management or their own house in order buildings and facilities, and where there are large federal or provincial incentive programmes in place.
- 3) Quantification – The selected measures would be quantified on the basis of available information and estimates of market penetration, etc., and cost per tonne of eCO₂ reduced would be calculated. This quantification stage could be done at a deeper, detailed and more accurate level than the eCO₂ scoping done in the earlier phases.
- 4) Prioritization—From the screening process, the most promising 5-to-10 wedges would be investigated in more detail and then prioritized based on a matrix screening that looks in more detail at political feasibility, ease of administrative delivery, complimentary funding available, and cost effectiveness.
- 5) Recommendations – On the basis of the above, recommendations would be made for the top three-to-five areas that GTAF should address in its first three years.

This research phase will be undertaken by ICLEI—Local Governments for Sustainability with additional input by Ralph Torrie of ICF Consultants. The research results will pro-

vide a foundation to guide the GTAF's programme activity so that the most significant and feasible opportunities for emissions reductions in the GTA are addressed.

Guiding Principles for Programme Delivery

Once the most significant opportunities for emissions reductions are known, principles that will guide the development of GTAF's programme activity are proposed as follows:

- Regional equity—Activities that benefit the whole region, for instance, improved air quality throughout the GTA air shed, will receive priority, while locales that are currently underserved by provincial and federal programme activity will receive particular attention initially;
- Environmental benefits—Activities that improve local air quality and reduce greenhouse gas emissions will receive priority attention;
- Co-benefits—Activities that offer substantial co-benefits such as reduced municipal energy costs, economic development, and local job creation will receive priority attention;
- Leveraged financing—Projects that can leverage additional financial resources from a range of sources, both public and private, will be given priority for grant funding and capital financing;
- Partnerships—The GTAF will seek out partnerships and joint ventures with municipal and regional governments, public institutions such as hospitals and universities, electric and gas utilities, and financial institutions with the aim of facilitating commitments to reduce eCO₂ and smog precursor emissions.

Possible Programme Delivery Examples

The following examples of potential programme delivery offer illustrative ways that the GTAF could carry out its mandate. The GTAF's actual programme activities, however, will depend on the outcome of the foregoing wedges research as well as wide consultation to identify the most politically and financially feasible initiatives.

- a) The federal EnerGuide for Houses Retrofit Incentive Programme provides funds to homeowners averaging \$800 nationally. The GTAF would aim to increase uptake of the Incentive in the GTA to 100,000 households, focusing on underserved locales and bringing an extra \$40 million into the GTA to reduce the energy costs that home owners pay, while reducing an additional 200,000 tonnes of eCO₂ annually.
- b) The Province of Ontario has set a target of achieving an ethanol gasoline blend of 5 percent by 2007. The opportunities for farmers are significant, as is the potential for improvement in air quality across the GTA. The greenhouse gas bene-

fits of the new policy, however, will depend on feedstock and the efficiency of the plants that convert biomass into energy. The GTAF could consider several options, such as pilot ventures to produce cellulose feedstock or to convert corn to ethanol efficiently.

- c) The Province of Ontario will soon offer feed-in-tariffs that encourage the production of renewable energy from small generators, such as homeowners. The GTAF would aim to incubate and ramp up a GTA-wide solar PV rooftop programme, aiming to facilitate 10,000 solar rooftops totaling 20 mW by 2010.
- d) GTA municipalities are pioneering light emitting diode (LED) technologies in applications such as street and road lighting, traffic signals, signage, parking lot lighting, etc. which collectively use significant energy. LED technologies reduce energy use typically by 85 percent. The City of Mississauga, for instance, is paving the way for LED applications in traffic signals, recently followed by the City of Toronto. The GTAF would aim to extend LED outdoor applications across the GTA in municipal uses, resulting in significant cost savings for taxpayers.

Governance and Administration

The GTAF's Board will include individuals from across the GTA who can ensure that the wide views, talents, and expertise that exist in the region will govern the GTAF.

A Joint Committee of the TAF and CAP Boards and the GTA Clean Air Council will provide direction during GTAF's start-up. A key task of the Joint Committee would be to develop a long-term governance structure for GTAF in consultation with stakeholders. Existing regional agencies such as the Toronto Regional Conservation Authority could serve as governance models for the GTAF.

The start-up and research phase will be administered collaboratively by TAF and CAP—they cooperate presently on a number of initiatives while sharing administrative staff. No new legislation or legal instruments would be required, so a quick start of activities is expected once funds are committed.

Financing

TAF currently operates at the level of about \$1.7 million annually, its revenues derived from investment of its \$26 million endowment, which includes funds for grants, special projects, and staff. CAP currently operates at the level of \$1 million annually, its revenues derived from grants from TAF, provincial and federal government agencies, and corporate sponsorships.

In order to be effective, the GTAF will need funding of \$5 million annually for 5 years, commencing in 2006, to be used primarily to incubate initiatives and partnerships and for administrative/programme staff. These funds could come from the federal government's new Partnership Fund, with additional support from federal climate programmes, founding corporate sponsors, and utilities supplementing this amount. The FCM could

potentially fund relevant feasibility and pilot projects.

In addition, the GTAF will seek capital in the range of \$100 million to create a revolving fund that will invest in joint ventures with the private sector to leverage the up to \$1 billion in capital investment that will be needed to accelerate emissions reductions locally. These funds will not be needed until 2007 and beyond, since time will be required to ramp up the GTAF's initiatives, and could be paid out to GTAF in annual installments of \$25 million per year over four years. Revenues generated by the GTAF's investments will be used to finance the GTAF's operations beyond the 5-year startup period. Such a fund for the GTAF would also need to come from the federal government.

To put this in perspective, studies of the remaining energy efficiency in City of Toronto-owned buildings indicate that investment of \$100 million is required for the City alone to meet its target of reducing energy use by 15 percent.

Strategic Planning Budget

In order to move this initiative forward, the GTA Clean Air Council, Toronto Atmospheric Fund, and The Clean Air Partnership are seeking funds now for the initial strategic planning and research phase, with the wedges analysis described above as a key element to be undertaken. The costs of this phase are as follows:

Expenses

Short-term contracted staff	\$20,000
Technical expertise (ICLEI & ICF)	20,000
Communications & consultation	10,000
Administration	<u>5,000</u>
Total	\$55,000

Revenue

Toronto Atmospheric Fund	\$15,000
Provincial Government	15,000
Federal Government	15,000
Corporate sponsors	<u>10,000</u>
Total	\$55,000

The Toronto Atmospheric Fund Board at its meeting August 3, 2005 committed funding to the above budget. In addition, the Tridel Corporation has committed \$5,000. Other potential corporate funders who are currently reviewing the proposal include Enbridge and Toronto Hydro.

Key deliverables that will be produced include: a report on the significant emissions reduction opportunities in the GTA; a preliminary business plan for establishment of the GTAF, incorporating a detailed budget and timelines; and an options paper on legal

structure and long-term governance. These deliverables will be produced after extensive consultation with potential municipal and corporate partners in the GTA, as well as with federal and provincial officials.

Conclusion

The GTA, the largest metropolitan area in Canada, accounts for about 14 percent of Canada's greenhouse gas emissions or 100 million tonnes of eCO₂ annually. Major sources of these emissions include residential and commercial buildings, vehicles, local industry, and waste management. Considerable potential exists to assist Canada in meeting its Kyoto Protocol commitments by accelerating emissions reductions in the GTA through a regional climate agency, building on the successful Toronto Atmospheric Fund model, which incubates and otherwise supports delivery of programmes on the ground.

The GTA Clean Air Council, the Toronto Atmospheric Fund, and the Clean Air Partnership seek to establish the Greater Toronto Atmospheric Fund (GTAF) with financial support from senior levels of government and the private sector. The mandate of the new organization is to accelerate reductions of eCO₂ and smog precursor emissions across the Greater Toronto region by working on the ground through public and private partnerships and joint ventures to incubate, scale up, finance, aggregate, and deliver local initiatives in the energy, water, waste, and transportation sectors.

The operation of the GTAF will also build on GTA-wide municipal emissions reduction initiatives undertaken by the CAP and the GTA Clean Air Council funded previously by the MOE, such as the "Emissions Reduction Best Practices for Municipalities" programme.

In sum, the establishment and operation of the Greater Toronto Atmospheric Fund (GTAF) will create a regional climate change and clean air agency that will strategically and systematically accelerate emissions reductions from the approximately 100 million tonnes of eCO₂ baseline emissions that originate in the region. The GTAF will increase the effectiveness of existing municipal, provincial, and federal programmes, incubate effective new initiatives, and aggregate emissions across the region. Finally, it will create a regional laboratory in which new initiatives can be incubated, tested, and scaled up in other parts of Ontario or nationally.