



## Update on Emissions Trading Policies and their Implications for Municipalities

### EXECUTIVE SUMMARY

Emissions trading is a policy tool that aims to allow reductions in harmful pollutants to be achieved in a cost effective manner. Local governments will be able to participate in emissions trading regimes by creating emissions reduction credits to sell, or as purchasers of credits to achieve their own emission reduction targets.

The provincial government has established an emissions trading system for nitric oxide (NO) and sulphur dioxide (SO<sub>2</sub>) emitted by electrical generators. The vast majority of these emissions come from coal-fired generating stations, so the new government's commitment to a coal phase-out by 2007 means that there will likely be little or no demand for credits from other sources, such as municipalities.

The federal government is currently in the process of establishing an emissions trading system for greenhouse gases, in line with Canada's ratification and implementation of the Kyoto Protocol. Local governments will likely be able to participate in this regime through the creation of 'offset credits.' Factors to take into account in terms of local government participating in the proposed greenhouse gas emissions trading regime, or future versions of the provincial NO and SO<sub>2</sub> trading system, are:

- **Ownership:** A local government must have clear ownership of the credits to be able to sell them or retire them as evidence of achievement of environmental targets. Any project that may create emission reduction credits and that involves partners should include a contractual agreement on the ownership of the credits.
- **Environmental benefits:** If a local government wants to achieve environmental gains, it may not want to participate in the emissions trading regime. Selling emission reductions credits will allow someone else to increase their greenhouse gas emissions above levels that would otherwise have been allowed. Buying credits from elsewhere rather than reducing emissions locally means that area residents won't benefit from the reductions in other air pollutants that are generally associated with greenhouse gas reductions.
- **Eligibility:** While the final rules have yet to be determined, some activities undertaken by local governments may be eligible to create 'offset' credits. Municipal governments will have an opportunity in 2004 to comment on proposed rules for the emissions trading and offset system.
- **Cost:** Municipal governments will only find it worthwhile to sell credits if they can achieve emission reductions at a cost per tonne less than the market price. Landfill gas capture and combustion projects will likely be cost-effective, but it is not clear if they will be eligible for credit creation. Other projects will have to be assessed on a case-by-case basis.

# Update on Emissions Trading Policies and their Implications for Municipalities

Emissions trading is a tool that aims to allow reductions in harmful pollutants to be achieved in a cost effective manner. Emissions trading is said to allow reductions in pollution to be achieved at the lowest overall costs, by permitting emitters with expensive reduction options to offset their emissions by paying for reductions by emitters with lower cost options (see Appendix A for an overview of emissions trading).

An emissions trading system has been established at the provincial level for nitric oxide (NO) and sulphur dioxide (SO<sub>2</sub>) emitted by electrical generators. The federal government is currently in the process of establishing an emissions trading system for greenhouse gases (GHG), in line with Canada's ratification and implementation of the Kyoto Protocol.

This memo assesses recent developments in emissions trading and related policy and their implications for GTA municipalities.

## **Local governments and Emissions Trading**

Local governments generate smog-causing and greenhouse gases through their use of fossil fuels and electricity in municipally-owned and operated buildings and facilities, water pumping and distribution, sewage treatment and vehicle fleets, as well as through methane-generating landfills.

They also indirectly control or influence an even greater quantity of emissions through land-use and transportation planning, building codes, development charges, ownership of local utilities and public transit agencies, as well as taxation policy.

Unlike the electricity sector (provincially) or large industrial emitters (federally), municipal governments do not currently face smog or greenhouse gas reduction limits mandated by senior levels of government and are unlikely to face such limits in the near future. Municipalities may still be affected by other clean air or Kyoto-related regulations and are indirectly affected by the emissions trading system in a three principal ways.

- 1) **The ownership of any credits** created, in whole or in part, through local government actions may be disputed. Because municipalities exercise indirect control or influence over significant quantities of greenhouse gas emissions, they have a particularly acute interest in establishing their ownership over emission reductions from potential projects. Local governments should ensure that their climate change or clean air actions aren't claimed as credits by one of their partners and sold without their consent as this undercuts the environmental benefit associated with the action (i.e. the purchaser of the credit is able to pollute more than would be the case if the municipality had claimed the credit and retired it rather than allowing it to be sold).

For example, if a municipality pays to capture methane at a landfill operated by a third party in order to reduce GHG emissions, its contract with the operator should prevent the operator from selling these reductions to another firm unless the local government explicitly decides to participate in this sale. These credits could prove to be very valuable for, as noted below, Canadian municipalities have already sold emissions

reduction credits for landfill gas capture projects worth millions of dollars to the federal government, prior to the emissions trading system being in place.

- 2) Many local governments have adopted **voluntary GHG or smog-causing emission reduction targets** and may be interested in buying pollution reduction credits as a cost-effective way to meet these targets. It should be noted, however, that buying credits created outside the local airshed prevents the community from benefiting from the reductions in smog-causing emissions that are often associated with reducing GHG emissions locally (as less fossil fuel is burnt).
- 3) Local governments may be able to participate directly in the emissions trading regime through **the creation of offsets** (credits) and selling these credits to businesses or the federal government. An offset is a “credit” awarded for emissions reductions undertaken by an organization that is not facing a legal “cap” on its emissions, which can then be sold to a firm whose emissions are capped. If these credits are sold, then the associated emission reductions cannot be used to meet municipal climate change or clean air targets as the purchaser will be able to pollute at a higher level than otherwise would have been allowed. As discussed below, the rules for creating greenhouse gas offset credits are still under development.

### **Ontario’s Emissions Trading Program**

Ontario established an emissions trading program for NO and SO<sub>2</sub> in 2001.<sup>1</sup> Under the existing system, Ontario-based fossil fuel fired electricity generators are limited to emitting 36 kilotonnes/year (kt/yr) of NO in 2002 and this limit declines to 28 kt/yr in 2007; sulphur dioxide limits were set at 157.5 kt/year in 2002, declining to 127 kt/yr in 2007.<sup>2</sup> Ontario Power Generation (OPG) actually emitted 42.327 kt of NO and 147.2 kt of SO<sub>2</sub> in 2002, with almost all of these emissions coming from the province’s five coal-fired generating stations.<sup>3</sup> In 2002, OPG received 35.999kt tonnes of NO allowances because 1 tonne of NO was allocated under the set-aside for renewable electricity and conservation to the Port Albert wind farm.<sup>4</sup>

Coal-fired generating stations currently produce roughly one quarter of the electricity in Ontario.<sup>5</sup> The new provincial government has promised to phase out the province’s coal-fired generating stations by 2007 in order to reduce air pollution and its related health impacts. The energy from these plants is to be replaced through a combination of:

---

<sup>1</sup> Ontario’s trading system is a hybrid model, which allows firms within the capped sector (electricity generators) to purchase credits from both firms whose emissions aren’t capped and from firms outside of the province. It was developed, at least in part, to meet the requirement for reducing NO emissions from coal-fired generating stations under the Canada-U.S. Ozone Annex, an international treaty which limits nitrogen oxide emissions from electricity generator in southern Ontario and the north-eastern United States. The federal Environment Minister and the U.S. Environmental Protection Agency have expressed concerns that this hybrid model does not meet the requirements of the Ozone Annex, but the government of Ontario has maintained that the trading regime does meet these requirements.

<sup>2</sup> Ontario Ministry of the Environment, *Emissions Trading and NOX and SO2 Emissions Limits for Ontario’s Electricity Sector*, available at [www.ene.gov.on.ca/envision/air/etr/index.htm](http://www.ene.gov.on.ca/envision/air/etr/index.htm) .

<sup>3</sup> Ontario Power Generation, *Toward Sustainable Development: Progress Report 2002*, p. 44.

<sup>4</sup> OPG subsequently retired 31,833 NO allowances and 11,665 NO credits; 10 per cent of these credits (1,160 NO credits) were retired as a gift to the environment, leaving 10,499 NO credits to be retired for compliance purposes. Data supplied by the Ontario Ministry of the Environment.

<sup>5</sup> Ontario Energy Board, <http://www.oeb.gov.on.ca/html/en/abouttheoeb/statsandmaps.htm> .

- Reducing provincial electricity consumption by 5 per cent by 2007 through conservation and energy efficiency programs;
- Increasing the share of renewable energy (wind, solar, low-impact hydro) to 5 per cent of supply by 2007 and 10 per cent by 2010;
- Bringing on-line new natural gas-fired generation and restarting some of the nuclear reactors closed in 1997 due to safety concerns.

These measures, if implemented successfully, will directly reduce smog-causing emissions far below the levels envisioned in the trading system. Energy conservation and renewable sources won't generate NO or SO<sub>2</sub>, while high-efficiency gas plants virtually eliminate SO<sub>2</sub> emissions and reduce NO emissions by over 90 per cent.

Therefore, even if the province was able to achieve only 40 per cent of its coal phase-out target by 2007 and did this entirely by replacing coal with natural gas (the option with the highest level of air pollution), emissions of NO and SO<sub>2</sub> would still be below the capped level. There would thus be no need for electricity generators to buy emission reduction credits and no market for would-be sellers of credits, unless the cap was substantially reduced. Reducing the cap to revitalize the trading system (an indirect policy tool which aims to lower emission levels) may not be an efficient use of policy tools, given that the source of these emissions (i.e. coal-fired generating stations) is being addressed directly.

In light of this policy shift at the provincial level, municipal governments may want to focus their attention on the federal government's proposed emissions trading program for greenhouse gases. Municipalities should still, however, clearly define ownership of any potential credits created through low-sulphur fuel purchasing policies or other environmental initiatives.

### **The Federal Government's Greenhouse Gas Emissions Trading Program**

Canada has committed itself to a six per cent reduction in greenhouse gas (GHG) emissions below 1990 levels within the 2008-2012 commitment period by ratifying the *Kyoto Protocol*. The Government of Canada is currently engaged in consultations and negotiations on the design of an emissions trading system to help it achieve this goal.

As part of the federal government's *Climate Change Plan for Canada*, some businesses (those classified as Large Final Emitters or LFEs) will face a regulated limit on their GHG emissions. To reduce the cost to business of meeting emissions-cutting targets, they will have access to an emissions trading system that will allow them to meet these targets by reducing their own emissions or by buying emissions permits from other parties in Canada or abroad.

Municipalities are not included within the Large Final Emitters Group. They will still be able to participate in the associated greenhouse gas emissions trading system, primarily through the creation of 'offset' credits (see Appendix B for background on the federal government's *Climate Change Plan for Canada* and the proposed emissions trading program for Large Final Emitters).

It should be stressed that this system is still under development and interested parties should contact the Large Final Emitters Group within Natural Resources Canada for more

detail and updated information<sup>6</sup> and the parallel process coordinated by Environment Canada on the design of the offset system.<sup>7</sup>

### **Local Governments and GHG Emission Reduction Credits**

Local governments can potentially participate in the GHG trading regime as producers and sellers of credits, or as purchasers of credits to meet their own requirements.

In terms of the impact on climate change, it makes no difference where a particular tonne of greenhouse gases is emitted, be it Toronto or Tokyo. Economically, the least cost path to emissions reduction can be best met if the next tonne of emissions reduction is the least expensive tonne available, no matter where it is located.

This is not true for smog-causing pollutants such as nitrogen oxides or particulate matter that have a local or regional impact. **Given that greenhouse gas and smog-causing emissions are usually produced by the same processes (i.e. burning oil, coal or gas), the clean air benefits of reducing greenhouse gas emissions locally should not be ignored.**

For example, a reduction in coal burning reduces carbon dioxide emissions (a greenhouse gas); whether this reduction happens in Ontario or Australia has no difference in terms of its climate change impact. The effect of the emissions of the other pollutants associated with coal (including sulphur dioxide, nitrogen oxides, particulate matter, mercury and other toxic substances) diminishes with distance from the source so it makes a difference to the health of Ontario residents if these reductions happen in Ontario rather than Australia.

Furthermore, the six per cent reduction in GHG emissions relative to 1990 levels required under the Kyoto Protocol is only a small first step on the way to the 50 or 60 per cent reduction that scientists tell us is necessary to halt climate change. Doing the minimum now may not be wise in the long-term and the policy mix which is the most cost-effective for getting us to a six per cent reduction (which presumably emissions trading will help us achieve) may not be the same as the policy mix that will get us to a 50 per cent reduction. For example, it may be most cost-effective in the short-term to buy credits on the international market rather than changing production methods in Canada in order to achieve the Kyoto target, but it these changes will ultimately be necessary to achieve a global reduction of 50 per cent.

Nevertheless, municipal governments may choose to participate in the emissions trading system. Municipal governments have already engaged in credit creation through the Pilot Emission Removals and Reduction Learnings Initiative (PERRL).<sup>8</sup> The first round of emission reduction purchases through PERRL in 2002 saw the federal government commit

---

<sup>6</sup> For more information, see [http://www.nrcan.gc.ca/lieg-ggei/English/reductions\\_en.htm](http://www.nrcan.gc.ca/lieg-ggei/English/reductions_en.htm) .

<sup>7</sup> See <http://www.climatechange.gc.ca/english/publications/offsets/index.html> .

<sup>8</sup> The Pilot Emission Removals, Reductions and Learnings initiative, (PERRL), provides Canadian entities with an incentive to take immediate action on climate change by buying verified greenhouse gas reductions and removals from qualified projects. As a pilot project, it is also meant to help both Canadian governments and private sector organizations learn about and better understand a number of important elements of emissions trading, a key policy measure which may be instrumental in helping Canada meet its climate change objectives. For more information, go to [http://www.ec.gc.ca/press/2003/030926\\_b\\_e.htm](http://www.ec.gc.ca/press/2003/030926_b_e.htm) .

\$4.5 million to five emission reduction purchase agreements.<sup>9</sup> Three of these five projects were municipal landfill gas capture and combustion (LFG) projects, for which the federal government paid the municipalities of Guelph, Peterborough and London between \$1.70 - \$3.75 per tonne for credits resulting from their landfill operations.

Landfill gas capture and combustion projects are a relatively easy and low-cost way to reduce greenhouse gases (each molecule of methane has over 20 times the climate change impact as a molecule of carbon dioxide). And yet because landfill gases are relatively easily dealt with through regulation, it is not yet clear if they will be included in the offset program at all or if they will be included, but at a discounted rate. The Federation of Canadian Municipalities has proposed that LFG projects be eligible for offset credit creation, but that the offset program cap this contribution at a lower level than the 8-10 Mt potential currently identified.<sup>10</sup>

Electricity conservation or renewable energy projects are unlikely to be eligible for offset credits because the associated GHG reductions will be achieved, and owned, by the electricity generator (who is already capped under the LFE system). Municipal governments have supported the adoption of other programs that create incentives for electricity demand side management and investments in renewable energy, and warned that electricity deregulation may undermine incentives for energy efficiency and conservation measures. Other areas identified by municipal governments for potential offset credit creation include the reduction of transportation emissions through the expansion of public transit and fuel switching or new technologies for municipal fleets, as well as reduced emissions through improved waste management and the preservation of urban lands and forests.<sup>11</sup>

Based on earlier policy discussions, the Pembina Institute for Appropriate Development has estimated that the probability of various types of municipal government projects creating GHG emission reduction credits under a domestic emissions trading system as the following:<sup>12</sup>

Type of Project	Probability of being eligible for credit creation
Landfill gas capture	Very high
Actions to convert non-forested land to forested land	High
Actions to prevent deforestation	Moderate to high?
Emission reductions from municipal vehicle fleets	Moderate?
Reduction of energy use in municipal building/facilities	Moderate?
Actions to reduce emission from personal and freight transportation in communities	Moderate?
Residential solid waste diversion	Low?
IC&I solid waste diversion	Low?
Actions to reduce emission from small industrial emitters	Very low?

<sup>9</sup> The first round of PERRL focused on landfill gas capture projects. In 2003, the focus of PERRL will be on buying credits from renewable electricity projects and it is expected that other sectors will be targeted in the future, including transportation and industry.

<sup>10</sup> Louise Comeau, *Kyoto Implementation: Emissions Trading And Offsets*, Memorandum to the Standing Committee on Environmental Issues (Federation of Canadian Municipalities, July 31, 2003).

<sup>11</sup> Ibid.

<sup>12</sup> Matthew Bramley and Robert Hornung, *The Implications of a Domestic Greenhouse Gas Emissions Trading System for Canada's Municipalities*, (Federation of Canadian Municipalities, February 2002).

**As many of these projects involve other partners, it is vital that local governments clarify the issue of ownership of any resulting emission credits.** A clause clarifying the ownership of any resulting emissions credits should be inserted into contracts related to any of the above activities.

Once the potential environmental benefits have been evaluated and the eligibility and ownership of credits determined (see Appendix B), the remaining criteria affecting municipal participation in emissions trading is cost-effectiveness.

Municipal governments will only find it worthwhile to sell credits if they can achieve emission reductions at a cost per tonne less than the market price. Carbon dioxide is currently trading in the \$1 to \$4/tonne range and this is expected to rise to about \$10 per tonne of carbon dioxide equivalent during the 2008- 2012 Kyoto compliance period.

It is, however, impossible to predict the final price with absolute certainty. To provide some predictability for investors, the federal government has agreed to pay for the cost of credits for Large Final Emitters in excess of \$15 per tonne.

Landfill gas capture and combustion projects – which are currently generating credits at a cost of under \$4/tonne – are likely to be cost-competitive but other actions will probably cost more.

## **Conclusion**

In summary, the key factors affecting local government participation in emissions trading regimes are:

- **Ownership:** A municipal government must have clear ownership of the credits to be able to sell them or retire them (i.e. remove them from the trading system) as evidence of achievement of environmental targets. Any project that may create emission reduction credits and that involves partners should include a contractual agreement on the ownership of the credits.
- **Environmental benefits:** If a local government wants to achieve environmental gains, it may not want to participate in the emissions trading regime. Selling emission reductions credits will allow someone else to increase their greenhouse gas emissions above levels that would otherwise have been allowed. Buying credits from elsewhere rather than reducing emissions locally means that area residents won't benefit from the reductions in other air pollutants that are generally associated with GHG reductions.
- **Eligibility:** While the final rules have yet to be determined, some activities undertaken by local governments may be eligible to create 'offset' credits. An offset is a "credit" awarded for emissions reductions undertaken by an organization that is not facing a legal 'cap' on its emissions, which can then be sold to a firm whose emissions are capped. Municipal governments will have an opportunity to comment on legislation establishing the emissions trading and offset system in 2004.
- **Cost:** Municipal governments will only find it worthwhile to sell credits if they can achieve emission reductions at a cost per tonne less than the market price. Landfill gas capture and combustion projects will likely be cost-effective, but it is not clear if they will be eligible for credit creation. Other projects will have to be assessed on a case-by-case basis.

## **Timelines and Opportunities for Input to the Federal system**

### **Large Final Emitters and covenant/trading system:**

- Negotiations with specific companies and sectors are on-going.
- Enabling legislation is anticipated in 2004.

### **Offsets:**

- 2004: release of design paper that sets out the proposed legal framework for the offset system for public comment.
- End of 2004: Legal framework approved by Cabinet.
- 2005: Projects begin to be reviewed for eligibility for generating offset credits in the 2008-2012 period.

## Appendix A: The Basic Theory of Emissions Trading

The following is a simplified model of emission trading to illustrate the potential cost savings.<sup>13</sup> Imagine that there are two firms and that each emit 100 tonnes of greenhouse gases per year (i.e. 200 tonnes total). Each firm is required by the government to reduce their emissions by 10 tonnes (20 tonnes total reduction).

Reducing its GHG emissions will cost Company A \$50/tonne (i.e. \$500 to reduce by 10 tonnes). Company B, on the other hand, can reduce its emissions at a cost of only \$10/tonne (i.e. \$100 to reduce by 10 tonnes). The total cost for the government-mandated 20 tonnes in GHG reductions is \$600.

With emissions trading, Company B has a financial incentive to reduce its emissions by 20 tonnes (which costs it \$200) because it can then sell 10 tonnes of emission reduction credits to company A for \$30/tonne (i.e. \$300), netting the Company B a \$100 profit. Company A is also better off, because it now has to pay only \$300 for emission reduction credits to meet its government-mandated target, rather than the \$500 it would have had to pay to reduce its own emissions.

Society as a whole is better off because it has spent only \$200 to reduce greenhouse gas emissions by 20 tonnes rather than the \$600 it would have cost without trading. The government, in turn, can consider asking the two companies to do more than they otherwise would they have (e.g. perhaps reduce by 30 tonnes overall instead of 20) because it has provided a mechanism to reduce the cost of compliance.

In practice, of course, the situation is more complicated. For example:

- There may be substantial transaction costs that reduce the financial attractiveness of trading (i.e. it may cost a lot to make a deal due to poor information, need for quantification of GHG reductions, etc.).
- Ownership of the reduction credits may be disputed, e.g. if a municipal landfill is capped, do the emission reduction credits go to the landfill owner or to the company operating the methane capture facility?
- The system still requires government investment in regulatory oversight and auditing, to ensure that the reductions are real, verified and unique and this increases the societal costs for the example above.
- Measures to reduce greenhouse gases generally reduce other air pollutants as well, so if the two firms are located in different areas, the ability of Company A to avoid reducing its pollution levels (or even increase them) may have an undesirable impact on local air quality.
- In the case of climate change, scientists are telling us that 50 to 60 per cent reductions in greenhouse gas emissions will be required to stabilize the climate. Hence it may be inappropriate to focus policy attention, through emissions trading, on the least-cost ways to get to a six per cent reduction by 2012 rather than on those policies that will achieve

---

<sup>13</sup> For a more detailed explanation of emissions trading, please see Pollution Probe's *Emission Trading Primer* available at [www.pollutionprobe.org/Publications/Primers.htm](http://www.pollutionprobe.org/Publications/Primers.htm) .

the deeper cuts in GHGs in the longer-term. In the example above, Company A doesn't make any changes to its production process to reduce GHGs, but in the medium- to long-term it will have to change if we are to successfully address climate change, and the sooner it begins making these changes the better.

### **Background information on emissions trading and local governments**

Matthew Bramley and Robert Hornung, *The Implications of a Domestic Greenhouse Gas Emissions Trading system for Canada's Municipalities*, report prepared for the Federation of Canadian Municipalities by the Pembina Institute for Appropriate Development (February 8, 2002).

Mike Butters, *Emission Trading Primer*, (Pollution Probe, November 2003).

Louise Comeau, *Kyoto Implementation: Emissions Trading And Offsets*, Memorandum to the Standing Committee on Environmental Issues. Federation of Canadian Municipalities, (July 31, 2003).

Don Dewees and Peter Victor, *General Analysis of Emission Trading and Its Effect in Ontario*, Report to the City of Toronto, Works and Emergency Services (May 27, 2002).

Al Seskus, *Canadian Municipal Carbon Trading Primer*, report prepared for the Federation of Canadian Municipalities by the International Centre for Local Environmental Initiatives (February 27, 2002).

Al Seskus, *Policy Recommendations for Canadian Municipal Greenhouse Gas Trading Primer*, report prepared for the Federation of Canadian Municipalities by the International Centre for Local Environmental Initiatives (January 11, 2002).

## Appendix B: The *Climate Change Plan for Canada* and Emissions Trading for Large Final Emitters

The federal government's *Climate Change Plan for Canada* puts forward five key instruments for achieving Canada's Kyoto target:

- **Emissions reductions targets for large industrial emitters** (also known as Large Final Emitters or LFEs) established through covenants with a regulatory or financial backstop that would create an incentive for shifting to lower-emissions technologies and energy sources, while providing flexibility for these emitters through emissions trading and access to domestic offsets and international permits;
- A **Partnership Fund** that will cost-share emissions reductions in collaboration with provincial and territorial governments, as well as municipalities, Aboriginal communities, non-governmental organizations, and the private sector to increase energy efficiency and reduce emissions in the most effective way;
- **Strategic infrastructure investments** in innovative climate change proposals such as urban transit projects, intermodal transportation facilities and a CO<sub>2</sub> pipeline;
- A **coordinated Innovation Strategy** that allows Canada to benefit fully from the innovation possibilities of our climate change agenda; and
- **Targeted measures** including information, incentives, regulations and tax measures that will help achieve our climate change objectives in specific sectors and program areas.

According to the 'business as usual' scenario developed by the federal government, Canada's GHG emissions would be 240 megatonnes (Mt) over the limit established through the Kyoto Protocol in the absence of actions to reduce these emissions. The Climate Change Plan for Canada includes 55 Mt from industry through the covenant/emissions trading and offset program and another the other measures are estimated to result in an additional 125 Mt in reductions. At the moment, up to 60 Mt in reductions are still not accounted for.

Currently, the Large Final Emitters Group of Natural Resources Canada, is developing the legislative framework that will outline the details of the LFE system including definition of the industrial emitters that will be subject to the policy.

Companies within the Large Final Emitter sectors will have the option of negotiating a covenant (a company-specific agreement) with the government or accepting emission reduction targets set out in the backstop legislation. Reduction targets defined by either a covenant or the backstop will be based on an emission intensity approach (emissions per unit of output) and will be set at a level that would result in a 55 megatonne (Mt) reduction in annual GHG emissions according to government forecasts. Emission intensity targets are being negotiated with each affected sector.

Emission reduction targets are expected to be negotiated with large firms in the following sectors:

- thermal electricity generation (coal, oil and gas);
- oil and gas (upstream extraction, oil and gas pipelines, gas utilities, petroleum refining);
- mining (both metal and non-metal);
- pulp and paper production;

- chemical production (industrial inorganic chemicals, industrial organic chemicals and chemical fertilizers and fertilizer materials);
- iron and steel production;
- smelting and refining;
- cement and lime production;
- glass and glass container production.

The total number of firms with emission reduction targets is expected to be between 650 and 700. These firms are expected to produce about half of Canada's total GHG emissions by 2010.

Large Final Emitters will also have access to a domestic emission trading system, domestic offsets and international permits. The federal government will also likely be purchasing emission reduction credits both domestically and internationally to help meet Canada's Kyoto commitment.

### **The Emission Permits and Trading System**

Under the proposed trading system, the Government of Canada will allocate emission permits to every company covered by the large industrial emitters approach. Each permit will give its holder the right to emit one tonne of greenhouse gas emissions (measured in terms of the CO<sub>2</sub> equivalent).

The permits will be allocated free of charge to a company in an amount equal to their emissions reductions target. Consequently, the amount allocated will not cover the emissions that the company would be expected to have in the absence of the program. Nevertheless, the firm would have to periodically remit enough permits to the Government of Canada to cover all of its actual emissions included under the backstop/covenant system. On average, it is anticipated that firms will receive 85 per cent of their business-as-usual emissions for free.

For example, a firm that was expected to produce 100 kilotonnes of CO<sub>2</sub> in a given year might receive 85 kilotonnes worth of credits for free from the federal government. To make up for the remaining 15 kilotonnes, they could:

- a) Implement in-house measures to reduce their emissions (e.g. install more energy efficient equipment or switch to a less polluting fuel source).
- b) Purchase credits from other companies in the LFE sector. Firms that find it financially attractive to reduce their emissions below the level covered by their allocation will supply permits for sale in the market. For such firms, the revenue from these permit sales would be more than enough to cover the cost of the associated emission reductions.
- c) Purchase credits from qualifying domestic emission reduction investments outside of the large industrial emitter sectors, referred to as offsets.
- d) Purchase credits from other countries that are participating in the Kyoto Protocol.
- e) Any combination of the above measures that equals 15 kilotonnes.

Of these, domestic offsets are probably of the greatest relevance to Canadian municipalities. There is, however, nothing to prevent municipalities from purchasing and retiring emission credits from companies in order to meet their own climate change goals even though this is not legally required.

## Offsets

An offset is a "credit" awarded for net GHG reductions or removals achieved by a project undertaken by an organization not classified as a Large Final Emitter. Offsets are intended to provide a market incentive to identify and develop projects that enhance removals or reduce emissions not covered by the backstop/covenant system.

An offset credit can be sold to Large Final Emitters to help them come into compliance with the backstop/covenant system, or can be used for other purposes such as compliance with voluntary targets adopted by local governments or corporations. In addition, it is envisioned that the government would be prepared to certify that the reduction meets the international standards set under the Kyoto Protocol so that they could be sold internationally.<sup>14</sup>

The federal government released a discussion paper on offsets and held 6 public consultation sessions across the country in June 2003. Environment Canada is currently preparing a report that will present a proposed design for the offset system. This design paper should be released in early 2004 for public comment, with a goal of establishing the legal framework by the end of 2004 so that projects could begin to be reviewed for eligibility in 2005.

While the criteria for offset projects to be approved and registered are still under development, they will likely<sup>15</sup> require that the emissions reductions be:

- **Real:** An emission removal or reduction is real if it is a reduction in actual emissions, resulting from a specific and identifiable action or undertaking (which is not merely a change in activity level), net of any leakage of emissions.
- **Measurable:** An emission removal or reduction is measurable if the actual level of GHG emissions with the project in place, and the level of GHG emissions in the reference (or baseline) case, can be quantified.
- **Verifiable/Verified:** An emission removal or reduction proposal is verifiable if the calculation methodology is accurate, transparent and replicable, and the raw data required to verify/audit the calculations will be made available. Following construction of the project and at the time of an emission reduction claim, an emission removal or reduction must be verified by means of a 3<sup>rd</sup> party audit, conducted by a professional engineer or certified accountant.
- **Surplus:** An emission removal or reduction is surplus if it represents a net reduction that is not otherwise required, for example through legal requirements at any level of government, affecting GHG emissions.

---

<sup>14</sup> Marbek Resource Consultants Ltd. and Stratos Inc., *Consultations On The Design Of A Greenhouse Gas Offset System For Canada – 2003*, Summary Report prepared for Working Group on Offsets - Government of Canada (October 2003).

<sup>15</sup> This list of requirements is based on the Marbek and Stratos discussion paper (ibid.) and the requirements used for certifying emission reduction credits under the federal government's Pilot Emissions Removals, Reductions and Learnings Initiative.

- **Incremental:** To be incremental the implementation and/or construction of the project must start after the date at which Canada enters into an agreement to purchase the rights to emission reductions generated by the project.
- **Sustainable:** Emission reduction/removal projects will be assessed on their potential to create a continuous stream of emission reductions through the period (2008-12). The potential for continued net emission reductions will be based on the physical, rather than economic characteristics of the activity.
- **Located in Canada:** All projects must be located in Canada and be calculated from a baseline of net emissions that would also have been emitted within Canada.
- **Unique:** A GHG reduction/removal is unique if it is only used once (e.g., a GHG reduction/removal cannot be reported as an improvement in the seller's GHG inventory and also sold to another entity as an offset credit for use in meeting a compliance obligation). The main mechanisms for ensuring that GHG reductions/removals are not used more than once for compliance will be implementation of the surplus requirement and the assigning of a unique serial numbers to each offset credit.
- **Clear Ownership:** The project proponent creating offset credits must ensure that all potential claims to ownership have been identified, and have secure and transparent ownership rights to the GHG reductions/removals they are claiming. Ownership will need to be carefully defined for reductions or removals that are supported by government assistance. There are two main approaches to ensuring clear ownership:
  - definition of ownership in the rules for the offset system, and
  - private contractual arrangements with recourse to the court system as a backstop.

Once domestic offset credits are approved and registered, firms covered by the LFE backstop regulation or a covenant will be able to trade these offset credits amongst themselves and/or use them to comply with their emission targets. The federal government may also purchase credits to meet Canada's Kyoto emissions reduction target.