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April 20, 2005

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ONTARIO BOARDS OF HEALTH

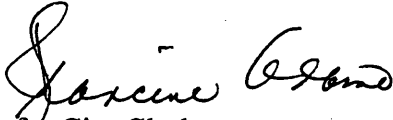
City Council on April 12, 13 and 14, 2005, adopted, without amendment, Board of Health Report 3, Clause 1, headed "Curbing Transboundary Air Pollution".

In adopting the Clause, City Council adopted the following staff recommendations in the Recommendations Section of the report (March 16, 2005) from the Medical Officer of Health:

- (1) recommend that City Council request the Premier of Ontario to give high priority to transboundary air pollution matters, including:
 - (a) assessing the impacts of continued operation of old coal-fired power plants in the U.S. on the health of Ontario residents and environmental quality;
 - (b) assessing the potential health and environmental impacts of the proposed U.S. *Clear Skies* legislation on Ontario; and
 - (c) making the health and environmental impacts of transboundary pollution known to appropriate elected officials and government agencies in the U.S., and request that these impacts be mitigated as quickly as possible;
- (2) forward this report to the federal Minister of the Environment, and the Ontario Ministers of Health and Long-Term Care, Environment, and Energy for their information and action as appropriate;
- (3) forward this report to all Ontario Boards of Health, the Association of Local Public Health Agencies, the Ontario Public Health Association, the Ontario Medical Association, the Ontario Clean Air Alliance, and Toronto's Roundtable on the Environment; and

- (4) authorize and direct the appropriate City officials to take the necessary action to give effect thereto.

Yours sincerely,


for City Clerk

encl.

F. Adamo/mt

Sent to: Premier of Ontario
Minister of Health and Long-Term Care
Minister of Environment, Environmental Canada
Minister of Environment
Minister of Energy
Association of Local Public Health Agencies
Ontario Public Health Association
Ontario Medical Association
Ontario Clean Air Alliance
Toronto's Roundtable on the Environment

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Consolidated Clause in Board of Health Report 3, which was considered by City Council on April 12, 13 and 14, 2005.

1

Curbing Transboundary Air Pollution

City Council on April 12, 13 and 14, 2005, adopted this Clause without amendment.

The Board of Health recommends that City Council adopt the staff recommendations in the Recommendations Section of the following report (March 16, 2005) from the Medical Officer of Health:

Purpose:

To provide an update on efforts to curb transboundary air pollution from coal-fired power plants in the United States.

Financial Implications and Impact Statement:

There are no financial implications arising from the adoption of this report.

Recommendations:

It is recommended that the Board of Health:

- (1) recommend that City Council request the Premier of Ontario to give high priority to transboundary air pollution matters, including:
 - (a) assessing the impacts of continued operation of old coal-fired power plants in the U.S. on the health of Ontario residents and environmental quality;
 - (b) assessing the potential health and environmental impacts of the proposed U.S. *Clear Skies* legislation on Ontario; and
 - (c) making the health and environmental impacts of transboundary pollution known to appropriate elected officials and government agencies in the U.S., and request that these impacts be mitigated as quickly as possible;
- (2) forward this report to the federal Minister of the Environment, and the Ontario Ministers of Health and Long-term Care, Environment, and Energy for their information and action as appropriate;

- (3) forward this report to all Ontario Boards of Health, the Association of Local Public Health Agencies, the Ontario Public Health Association, the Ontario Medical Association, the Ontario Clean Air Alliance, and Toronto's Roundtable on the Environment; and
- (4) authorize and direct the appropriate City officials to take the necessary action to give effect thereto.

Background:

The United States of America (through its Justice Department), eight state governments and a number of environmental nongovernmental organizations in the U.S. are engaged in a lawsuit against nine coal-fired power companies operated by the American Electric Power (AEP) Corporation. The plaintiffs contend that AEP made major modifications to their plants, thereby increasing pollutant emissions, but have not added modern emission control technology to their facilities, in contravention of the U.S. *Clean Air Act*.

At its meeting of February 1, 2 and 3, 2000, City Council authorized the City Solicitor and the Medical Officer of Health to submit an application to become a *Friend of the Court (Amicus Curiae)* in the U.S. legal action against AEP. In September 2001, the American court granted Toronto *Friend of the Court* status. The court case has advanced to the stage where a trial date has been set for June 2005. The City Solicitor anticipates being able to make a submission to the Ohio District Court (Southern District, Eastern Division) on behalf of the City of Toronto that supports the position of the American government and citizen plaintiffs. This phase of the litigation will examine violations of the U.S. *Clean Air Act* by the nine coal-fired power plants subject to the lawsuit.

This report was prepared in consultation with the City Solicitor and provides an overview of the legal case and its relevance to Toronto as well as highlights from the more detailed report "Curbing Transboundary Pollutants: Protecting Health through Legal Action" (Attachment 1).

Comments:

Coal-fired power plants are significant contributors of smog pollutants, green house gases and mercury. A major American study concludes that fine particle pollution from U.S. coal-fired power plants cuts short the lives of nearly 24,000 people each year, including 2,800 from lung cancer. While a similar analysis is not available for impacts on Canadians, it is known that air pollution in Toronto gives rise to considerable illness and reduced life expectancy. Each year, about 1,700 premature deaths and 6,000 hospitalizations of Toronto residents are attributable to air pollutants, a portion of which originates from old and dirty coal-fired power plants still operating in the U.S.

In addition to the health burden, a recent study examining the economic consequences of mercury toxicity on the human brain determined that the resulting lost productivity attributable to mercury emissions from U.S. power plants cost the U.S. economy \$1.6 billion each year.

As much as half of the pollution that Torontonians experience during smog alerts comes from American sources. Coal-fired power plants on both sides of the Canada-U.S. border are significant contributors to poor air quality. Of particular concern are older plants built before the availability and widespread use of modern pollution control equipment. Toronto's concerns are heightened by actions to extend the life of many old American plants without investing in pollution control technology or phasing out coal burning altogether. In contrast, Ontario has committed to phasing out the use of coal at its power plants by 2007. Furthermore, provincial regulation is in place that requires the Lakeview power plant located in the Greater Toronto Area to stop using coal to generate electricity by April 30, 2005.

The U.S. *Clean Air Act* was enacted to protect air quality and promote public health, and to ensure that pollution from new and modified emission sources would be controlled by state of the art technology. Congress "grandfathered" old plants built prior to enactment of the *Clean Air Act* such that they were not required to implement state of the art pollution controls unless the plants were modified. "Modification" is defined as any physical change in a facility, or its method of operation, which increases the amount of any air pollutant emitted by that facility. Modifications were to exclude routine maintenance, repair and replacement. Plants are known to have extended their normal operating lifetime by replacing major components such as boilers. The *Clean Air Act* requires that when such major modifications are made to plants, modern pollution control technology must be used to limit plant emissions.

The legal case against AEP is at the stage where the American government and citizen parties are submitting information to the courts and preparing for the trial phase. The City Solicitor, in conjunction with the Medical Officer of Health, is monitoring the current situation and will determine the best time and mechanism for submitting information to the courts in support of the plaintiffs. The court case focuses on nine of AEP's coal-fired power plants upwind from affected communities, including Toronto. These plants were built before the introduction of the U.S. *Clean Air Act* and have undergone major reconstruction, resulting in an increase in their annual air emissions. The hourly pollutant emission rates per unit of electricity produced from these American plants are considerably greater than the emission rates from Ontario coal-fired plants that also impact on Toronto's airshed.

If the court rules that AEP violated the *Clean Air Act*, then the next phase of the legal proceedings will determine what the remedy should be. The participation of the City of Toronto will be particularly relevant at that stage of the litigation since it will help establish what AEP needs to do to comply with the *Clean Air Act*, reduce emissions, and thereby lessen its adverse impact on communities downwind.

It is estimated by U.S. sources that ensuring compliance with the *Clean Air Act* would reduce nitrogen oxides (NO_x) and sulphur dioxides (SO₂) from the plants subject to litigation by about 75% to 90%, depending on the facility and pollutant. Such major reductions in emissions from these point sources would lessen transboundary pollution levels currently reaching southern Ontario. By participating in the lawsuit as a *Friend of the Court*, the City of Toronto hopes to bring to the attention of the American court its concern about health impacts associated with old and dirty power plants still operating in the U.S. A successful outcome from the litigation could lead to significant improvements in Toronto's air quality year round, and likely reduce the frequency and severity of smog episodes.

Although the current litigation that Toronto is involved in is still before the courts, a very recent decision regarding similar litigation involving old coal-fired power plants in Illinois is relevant. On March 7, 2005, the U.S. Department of Justice, the U.S. EPA and the State of Illinois announced the settlement of their major *Clean Air Act* case alleging that the Illinois Power Company (and its successor Dynegy Midwest Generation) violated the New Source Review provisions of the *Clean Air Act*. New Source Review provisions require that grandfathered plants install modern pollution control technology at the time that modifications are made to a plant which would otherwise result in increased pollutant emissions. The U.S. federal government and other parties first initiated their lawsuit against Illinois Power in 1999. The recent settlement will reduce SO₂ and NO_x emissions from five Illinois power plants by 54,000 tons each year through the installation of \$500 million worth of pollution control measures. In addition, Dynegy will pay a \$9 million civil penalty and spend \$15 million in projects to mitigate the harm caused by unlawful emissions (U.S. EPA, 2005).

While the recent settlement with five major coal-fired power plants in Illinois is a very encouraging decision that reinforces the need to comply with the intent of the *Clean Air Act*, including the New Source Review requirements, the current debate in the U.S. Senate over proposed amendments to the *Clean Air Act* through implementation of *Clear Skies* legislation is cause for concern. The new *Clear Skies* legislation, if passed as proposed, would permit old and dirty coal-fired power plants to operate for many more years (likely until 2018) before they would be phased out or required to install best available pollution control technology. Because of this concern, the Ontario Medical Association and many Ontario Medical Officers of Health have recently requested the Senate Committee reviewing the *Clear Skies* legislation to forward it to the Foreign Relations Committee so that it may be assessed with respect to transboundary issues and possible adverse impacts on Canadians.

Given the prevailing winds that blow from the southwest, coal-fired power plants in the U.S. adversely impact on air quality in communities throughout Ontario, not just Toronto. As such, there is a need for the Premier of Ontario to give high priority to transboundary air pollution matters and advocate for mitigation of U.S. pollution sources as quickly as possible.

Conclusion:

The City of Toronto continues to participate as a *Friend of the Court* in a U.S. case against AEP, which operates many coal-fired power plants. The court case focuses on nine old AEP plants built before 1970 that continue to operate without having invested in modern pollution control equipment, contrary to the intent of the U.S. *Clean Air Act*. If the court rules that AEP must comply with the *Clean Air Act*, significant reductions in power plant emissions are likely, resulting in improvements to Toronto's air quality and better protection of the health of its residents. In a separate but related development, the U.S. Congress recently held hearings on *Clear Skies* legislation, which proposes to amend the *Clean Air Act*. Concerns have been raised that if the new *Clear Skies* legislation comes into effect as proposed, older coal-fired power plants could continue to operate for many more years without being required to install state-of-the-art pollution control technology. There is a need for the Premier of Ontario to give high priority to transboundary air pollution matters.

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(Attachment 1 – Curbing Transboundary Air Pollution: Protecting Health Through Legal Action was forwarded to all Members of the Board of Health with the agenda for its meeting on April 4, 2005 and forwarded under separate cover to all Members of City Council for its meeting on April 12, 13 and 14, 2005. Copies are on file in the City Clerk's Office.)

CURBING TRANSBOUNDARY AIR POLLUTION:

Protecting Health Through Legal Action

**Dr. David McKeown
Medical Officer of Health
Toronto Public Health**

March 2005



Reference: Toronto Public Health. *Curbing Transboundary Air Pollution: Protecting Health through Legal Action*. A report from Dr. David McKeown, Medical Officer of Health. Toronto, Ontario: 2005.

Authors: Monica Campbell, Karen Clark and Franca Ursitti.

Acknowledgements: This report was prepared in consultation with Graham Rempe of Toronto's City Legal Division. The strategic advice of Dr. Fran Scott and Gene Long is gratefully acknowledged.

Distribution: This report is available on the City of Toronto's website at: www.city.toronto.ca/health.

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Executive Summary

This report provides an overview of the concerns associated with coal-fired power plants in North America, and particularly those plants that adversely impact Toronto's air quality and the health of its residents. Pollution from coal-fired plants contributes significantly to smog, acid rain and global warming, and also to the contamination of fish through deposition and biotransformation of mercury in the aquatic ecosystem.

Of particular concern are the older plants in the U.S. midwest that were in operation prior to the enactment of the U.S. *Clean Air Act*. These plants generate considerably more pollutant emissions per unit of electricity produced than coal-fired plants in Ontario that are upwind of Toronto. Toronto's concerns are heightened by actions to extend the life of many American plants without investing in modern pollution control technology. This trend is contrary to the requirements of the *Clean Air Act*. It is also contrary to commitments and actions in Ontario directed at phasing out coal-fired electricity production.

The U.S. federal government, several states and other organizations in the U.S. have launched lawsuits against power plants that failed to install pollution control technology, despite making major modifications that resulted in increased pollutant emissions. It is estimated by U.S. sources that compliance with the *Clean Air Act* would reduce nitrogen oxide and sulphur dioxide emissions from old coal-fired power plants by about 75% to 90%, depending on the facility and the pollutant.

In 2001, the City of Toronto applied for and was granted *Friend of the Court* status in the U.S. court deliberating on the case involving the American Electric Power (AEP) Corporation and its contravention of the *Clean Air Act*. The court case has reached the stage where a trial date has been set and the City of Toronto anticipates an opportunity to file a submission to the court in support of the U.S. government plaintiffs.

If the court rules that AEP violated the *Clean Air Act*, then the next phase of the legal proceedings will be to determine what the remedy should be. The participation of the City of Toronto will be particularly relevant at this stage of the litigation since it will help establish what AEP needs to do to comply with the *Clean Air Act*, reduce emissions and thereby lessen its impact on communities downwind. A successful outcome from this court case could result in significant improvements in Toronto's air quality year round, and likely reduce the frequency and severity of smog episodes.

This report also touches upon the proposed U.S. *Clears Skies* legislation. If passed as proposed, this new legislation may delay significant reductions of pollutant emissions from coal-fired power plants until 2018.

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1. Background

As much as half of the pollution that affects the air Torontonians breathe during smog events comes from sources in the United States (MOE, 2001) and a significant number of these sources are coal-fired power plants (CEC, 2004). In the United States the emissions from large facilities such as power plants are regulated under the *Clean Air Act* (CAA). When the *Clean Air Act* came into effect in the 1970s, existing power-generating facilities were “grandfathered” such that the new emissions limits did not apply to them at that time. However, the Act did mandate that “grandfathered” plants adopt strict emissions limits (using best available technology) at the time modifications are made to a power plant that would otherwise result in increased pollutant emissions.

The U.S. federal government, several American states and environmental nongovernment organizations have launched a number of lawsuits against power companies who have made major modifications to their plants and have increased emissions but have not added best available emission control technology to their facilities. Emissions from these plants have increased over time (Corrigan et al, 2005) and are contributing to the transboundary pollution that reaches the Toronto airshed.

In January 2001, City Council authorized the City Solicitor to file an application to be made a *Friend of the Court* (*Amicus Curiae*) in the U.S. action against the American Electric Power Service Corporation (AEP). The lawsuit against AEP was launched to force the company to comply with the *Clean Air Act*. AEP operates many power plants in the United States and the emissions from several plants adversely affects air quality in Toronto. In September 2001, the American court granted Toronto *Friend of the Court* status.

By participating in this lawsuit, Toronto provides support to the U.S. government and citizen parties to the litigation, and brings to the attention of the American court the City’s concern about the health impacts associated with air pollution from old and dirty power plants still operating in the United States. Toronto’s concern is heightened by AEP’s actions to extend the life of these plants without investing in modern pollution control equipment. This trend is contrary to the intent of the Clean Air Act. It is also contrary to the commitments and actions in Ontario directed at phasing out coal-fired power production by 2007.

Recognising that Ontario residents, including those in Toronto, are also affected by emissions from Ontario’s coal-fired power plants, City Council endorsed the provincial government’s plan to phase-out Ontario’s five coal-fired power plants by 2007. City Council requested the Premier to develop a strategy to phase-out Ontario’s coal-fired power plants based on a combination of measures including energy conservation and efficiency, ecologically sustainable renewable electricity supply sources, and small scale high-efficiency natural gas-fired co-generation power plants, rather than by nuclear power.

2. Concerns for Health from Power Plant Pollution

Coal-fired power plants in North America are significant contributors of common pollutants that comprise smog, as well as significant contributors of mercury and greenhouse gases. These pollutants are associated with serious environmental and health impacts. A major American study concluded that fine particle pollution from U.S. power plants cuts short the lives of nearly 24,000 people each year, including 2,800 from lung cancer (Abt Associates, 2004). In addition, thousands of Americans were reported to suffer from asthma attacks, hospitalizations, emergency room visits and non-fatal heart attacks attributable to fine particle pollution from power plants.

A specific analysis of the health impacts associated with power plant emissions is not available for Toronto residents. However, the burden of illness in Toronto has been calculated for exposure to five common air pollutants, to which emissions from both Canadian and American coal-fired power plants are a contributor. In 2004, Toronto's Medical Officer of Health released a study that determined that about 1,700 premature deaths and more than 6,000 hospital admissions of Toronto residents each year are attributable to acute and chronic exposure to common air pollutants. These estimates of increased risk of premature death are based on acute exposures to nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO) and ozone (O₃), as well as chronic exposure to fine particles (PM_{2.5}). The study also noted that less serious health outcomes such as chronic bronchitis, asthma attacks and emergency room visits affect tens of thousands of people in Toronto each year.

The Ontario Public Health Association, in its review of health concerns associated with coal-fired power plants, noted the negative impacts on health associated with climate change and the significant contribution of power plant emissions to greenhouse gases (OPHA, 2002). It was also noted that coal-fired power plants are one of the leading sources of mercury emissions in North America (CEC, 1997; OPHA, 2002). Mercury is deposited onto water bodies where it is converted to methylmercury, enters the aquatic food chain and bioaccumulates in fish. This has resulted in many Canadian provinces and American states issuing species-specific fish consumption advisories that limit the amount of fish that can be safely eaten on a regular basis. Pregnant women, women of childbearing age and young children are particularly vulnerable to the effects of mercury exposure that include neurodevelopmental effects.

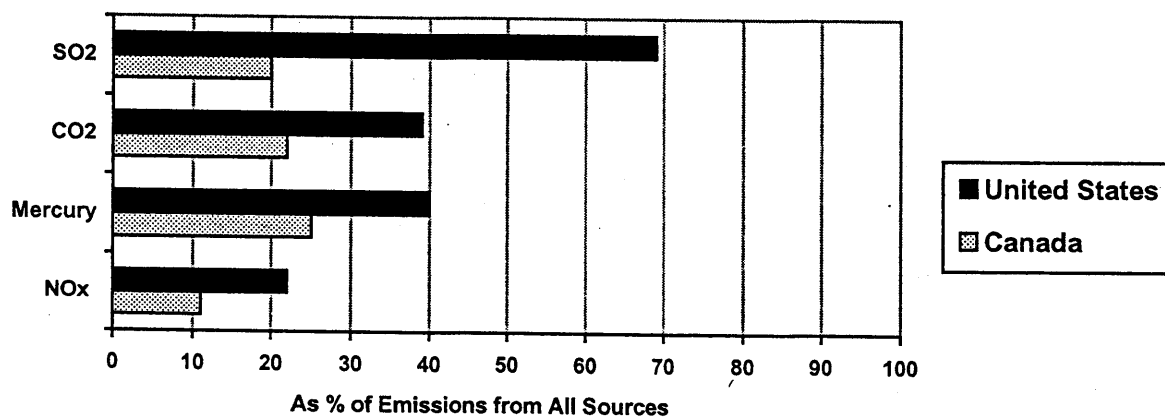
In addition to the health burden, a recent study examining the economic consequences of mercury toxicity on the human brain determined that the resulting lost productivity attributable to mercury emissions from U.S. power plants cost the U.S. economy \$1.6 billion each year (Trasande et al., 2005). This study based its economic impact estimate on actual mercury levels in cord blood at the time of delivery of new babies. Thousands of children are born each year with mercury levels so high as to be associated with the loss of intelligence (IQ). The resulting loss of intelligence persists over the lifetime of these children, leading to diminished economic productivity (Trasande et al., 2005). Based on 1999 data, about 40% of U.S. emissions from anthropogenic sources are emitted by coal-fired power plants alone.

3. Emissions from Coal-Fired Power Plants

Coal-fired power plants are significant sources of air pollution. Emissions from power plants vary depending on plant size, fuel type and quality, plant efficiency and emissions controls. The major pollutants emitted from coal-fired power plants are nitrogen oxides (NO_x) including nitrogen dioxide (NO₂), sulphur dioxide (SO₂), mercury (Hg), carbon dioxide (CO₂), and particulate matter (PM₁₀ & PM_{2.5}). Particulate matter is emitted directly from the plant stack, and also forms from stack emissions of NO_x and SO₂ that are transformed in the air to nitrates and sulphates that make up particulate matter. Ground level ozone (O₃) is not emitted directly from power plants but is generated from NO₂ and volatile organic compound (VOC) emissions in the presence of sunlight.

In 2002, the American electricity-generating sector accounted for a large percentage of total national emissions from all sources. As such, 69% of SO₂, 22% of NO_x, 40% of Hg and 39% of CO₂ total national emissions resulted from electricity production (CEC, 2004). In comparison, the electricity-generating sector in Canada accounted for approximately 20% of total SO₂ emissions from all sources, 11% of NO_x, 25% of Hg and 22% of CO₂ (Figure 1).

Figure 1:
Comparison of Canadian and American Emissions
from the Electricity Generating Sector (2002)



Source: Commission for Environmental Cooperation of North America, 2004

The production of electricity in the United States is far more reliant on burning coal than in Canada. Coal-fired plants generate 50% of the electricity produced in the United States, whereas in Canada, coal plants generate 19% of electrical power. A recent inventory of power plants compiled by the Commission for Environmental Cooperation (CEC) identifies 23 coal-fired power plants (5 of which are in Ontario) operating in Canada, and 376 coal plants operating in the U.S. in 2002 (CEC, 2004).

CEC's document, *North American Power Plant Emissions*, reports on power plants operating in Canada, Mexico and the U.S., including the individual plant electrical generation capacity, and emissions of NO_x, SO₂, Hg and CO₂. The geographic distribution of emissions from power plants reveals that the greatest emissions are from the American mid-west and southeast states where the greatest numbers of coal-fired plants are located. Toronto, located downwind from several of these states, is impacted by the coal-fired plant emissions as they are transported across the Canada-United States border. Appendix 1 illustrates the transboundary flow of pollutants into Ontario.

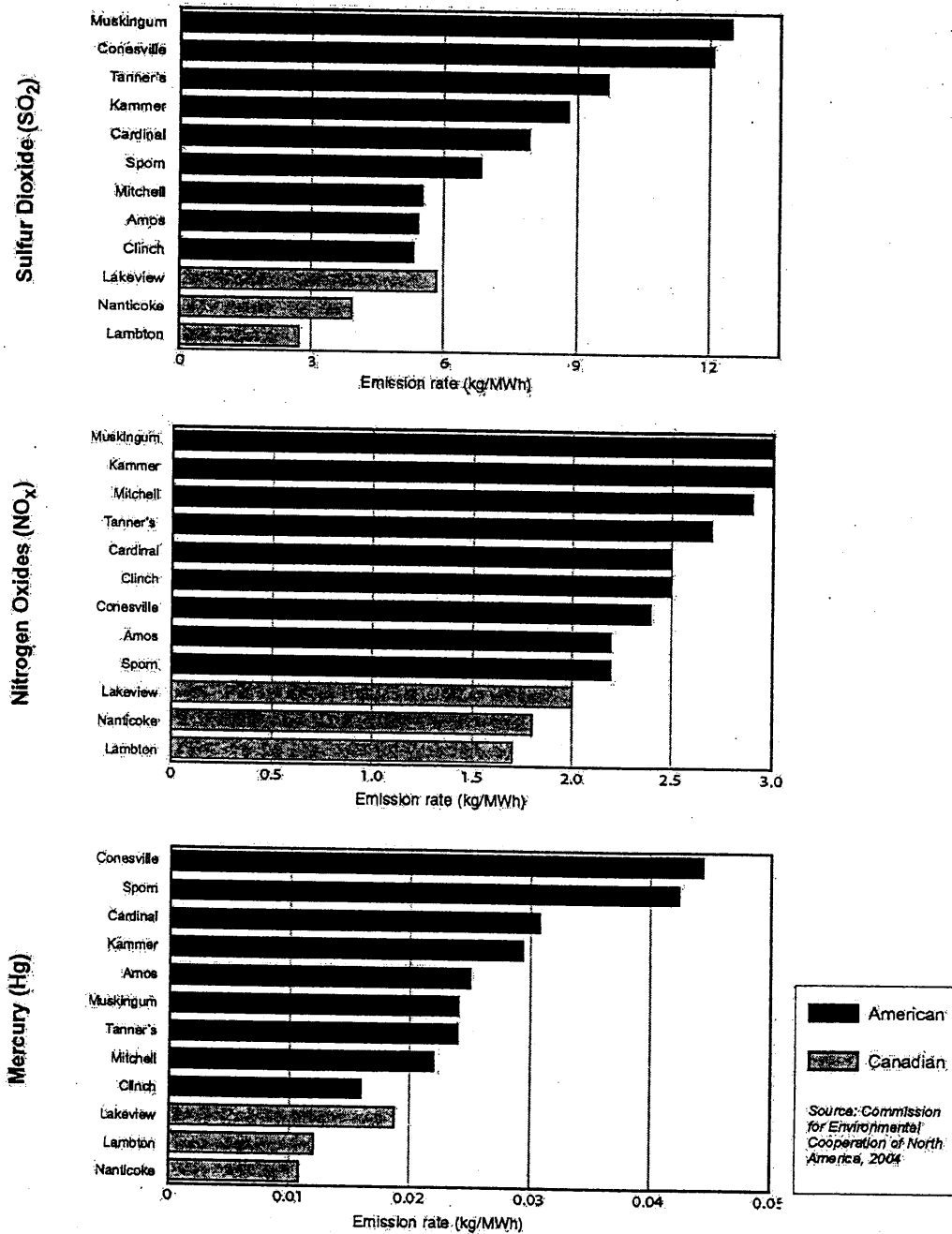
There are nine AEP coal-fired power plants that are part of the current litigation by the American plaintiffs that the City of Toronto is involved in. These plants are: Muskingum River, Conesville and Cardinal plants in Ohio; the Amos, Mitchell, Sporn and Kammer plants in West Virginia; the Tanner's Creek plant in Indiana; and the Clinch River plant in Virginia. In Ontario, the emissions from three of its coal-fired power plants – Nanticoke, Lakeview and Lambton – impact on Toronto's airshed. To illustrate the quantity and nature of emissions from American and Canadian sources, Appendix 2 provides the total emissions and emission rates for NO_x, SO₂ and Hg in 2002 for the nine U.S. plants and the three Ontario plants upwind of Toronto. These power plants vary considerably in size, based on the total amount of electricity generated in 2002 (Table 1).

**Table 1:
Comparison of Coal-Fired Plants by Power Generated (2002)**

Power Plant	Location	Electricity Generated (million MWh)
Amos	West Virginia	18.0
Conesville	Ohio	10.2
Mitchell	West Virginia	9.2
Cardinal	Ohio	8.6
Muskingum River	Ohio	8.4
Tanner's Creek	Indiana	5.9
Sporn	West Virginia	5.4
Clinch River	Virginia	4.6
Kammer	West Virginia	4.0
Lakeview	Ontario	2.5
Lambton	Ontario	10.5
Nanticoke	Ontario	22.2

Overall, Ontario's three plants generate fewer emissions relative to the amount of power produced compared with the American plants upwind of Toronto. As shown in Figure 2, Ontario's Lakeview plant (which is very close to Toronto) emits considerably more pollutants than either the Lambton or Nanticoke plants. However, the pollutant emission rates for the Lakeview plant are much lower. The Lakeview plant is required, through provincial regulation (O.Reg. 396/01), to stop using coal to generate electricity by April 30, 2005 whereas the American plants continue to operate.

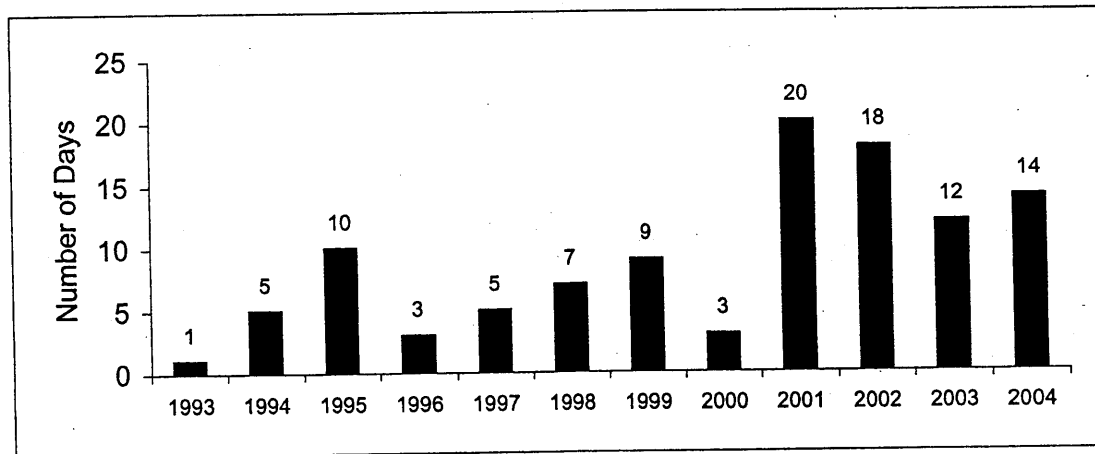
Figure 2.
Comparison of Pollutant Emissions per Unit of Power Among Canadian and American Plants (2002)



Toronto, like most of southern Ontario, experiences many days of poor air each year when the air quality is so deteriorated that a smog advisory (also known as a smog alert) is issued. Smog alert episodes can occur year round, however, they are most common in the summer months when the presence of sunlight enhances the production of ozone from nitrogen oxide and VOC precursors emitted from the combustion of fossil fuels, including coal. Smog alerts are also triggered by elevated levels of fine particles, which also arise from the combustion of fossil fuels. It is recognized that the transportation sector in Toronto is a major source of local air pollutants. However, the added contribution of transboundary pollution from American coal-fired power plants impacts air quality year round, and likely increases the frequency and severity of smog events in southern Ontario, including Toronto. It is now common to experience about 15 to 20 smog alert days each year in Toronto (Figure 3).

The transboundary sources in the mid-western states (commonly referred to as the Ohio Valley) add to the pollution from local sources. It is because the City of Toronto shares a regional airshed with these states that the Ontario Ministry of Environment estimates that up to 50% of Ontario smog originates in the United States, particularly during smog alert episodes (MOE, 2001). Consequently, one can expect that actions taken to achieve reductions in emissions in the Ohio valley would result in improvements to the air quality of downwind communities such as Toronto.

Figure 3:
Smog Alert Days in Toronto ^(a)



- (a) A smog advisory or smog alert is issued when the Air Quality Index (AQI) is forecast to or reaches an AQI value of 50 or greater for several hours. By 2003, the Ontario MOE improved the accuracy of its AQI by including $PM_{2.5}$. This resulted in somewhat more frequent smog alert advisories than would have been issued previously.

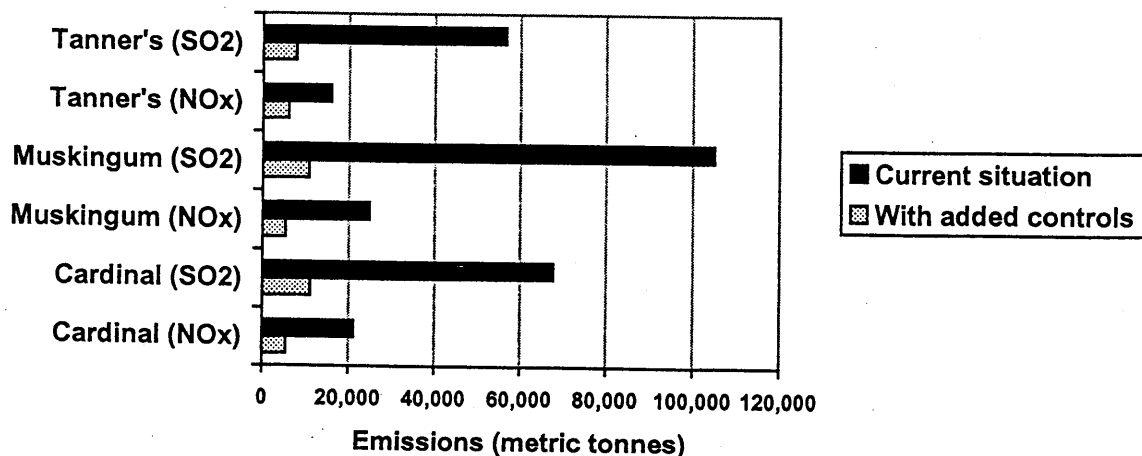
4. Regulatory Requirements Governing American Power Plants

A very important benefit of the U.S. *Clean Air Act* is that power plants built after its enactment in the 1970s are required to produce energy with far lower emissions than plants built prior. Coal-fired plants built before 1970 that are still operating account for the greatest amount of power plant pollution in the United States.

The Cardinal, Muskingum River and Tanner's Creek plants are examples of facilities that have been in operation before the enactment of the *Clean Air Act* and continue to operate now. The *Clean Air Act* did not require such plants to upgrade their emissions controls immediately, but did require, through its New Source Review provisions, that best available control technology be added at the time that modifications are made to the plant. For example, where steps are taken to extend the life of coal-fired power plants by replacing major components such as boilers, the *Clean Air Act* requires that state of the art control technology must be used to control plant emissions thereafter.

Estimates made by the U.S. Public Interest Research Group Education Fund (Wu, 2003) indicate that if the coal-fired power plants subject to the current litigation were to install emissions controls as required by the *Clean Air Act*, there would be enormous reductions in pollutant emissions. For example, SO₂ and NO_x emissions from all nine plants subject to the current litigation are predicted to drop from 75 to 90% if the appropriate pollution controls are installed (Figure 4 illustrates this for 3 plants). Such major reductions in these point source emitters would considerably lessen the transboundary pollution reaching southern Ontario.

Figure 4:
Projected Emissions Reductions with Additional Pollution Controls



Source: Adapted from Wu, 2003.

In a separate but related development, the U.S. Congress recently held hearings on *Clear Skies* legislation. This legislation proposes to amend sections of the *Clean Air Act*. The proposal includes a program for trading NO_x, SO₂ and Hg emissions among point sources such as coal-fired power plants. To enable trading, emissions caps are also proposed. Concerns have been raised by health and environmental organizations in the U.S. that the *Clear Skies* legislation may weaken, and in some cases, repeal sections of the existing *Clean Air Act*. One section that is in jeopardy is the New Source Review provisions.

If the new *Clear Skies* legislation comes into effect in the U.S. as proposed, older coal-fired power plants such as those impacting Toronto could continue to operate for many more years (likely until 2018) without being required to install best available pollution control technology (CEHN, 2005). This concern has led the Ontario Medical Association (OMA) and many of Ontario's Medical Officers of Health to request that the U.S. Senate Committee for Foreign Relations convene hearings on the *Clear Skies* legislation. The Medical Officers of Health have requested a review of the impact of the proposed *Clear Skies* legislation on the United State-Canada Air Quality Agreement and the associated health implications for Canadians (Appendix 3).

Given the prevailing winds that blow from the southwest, coal-fired power plants in the U.S. adversely impact Ontario's air quality, including that of Toronto. As such, there is a need for the Premier of Ontario to give high priority to transboundary air pollution matters. It is recommended that the Premier ensure that the provincial government assess the impact of continued operation of old U.S. coal-fired power plants on the health of Ontario residents and environmental quality. Furthermore, that the Premier ensure that the potential health and environmental impacts of the proposed U.S. *Clear Skies* legislation on Ontario is assessed. Lastly, that the Premier makes the health and environmental impacts of transboundary pollution known to appropriate elected officials and government agencies in the U.S., and request that these impacts be mitigated as quickly as possible.

5. Toronto Participation in the U.S. Legal Case

The City of Toronto is engaged in many initiatives to reduce the harmful effects of air pollution. Some examples of initiatives underway that fall within the City's jurisdiction include an idling control by-law, pesticide use reduction by-law, tree by-law, extensive energy retrofit programs, educational awareness campaigns, and many policies regarding transit, bicycle paths and diamond lanes. The control of emissions from power plants in Ontario and the U.S., however, is well beyond the authority of the City of Toronto.

It is for this reason that the City sought *Friend of the Court* status in the litigation commenced by the federal U.S. government, eight states and numerous citizens' groups against AEP. In September 2001, the City of Toronto was granted *Friend of the Court* status. This status allows the City to make submissions to the Ohio District Court at key stages in the proceedings. The legal case is scheduled to go to trial in June 2005. The City Solicitor anticipates being able to make one or more submissions to the court. These submissions would support the position of the American government parties, and would bring the impact of non-compliance with the *Clean Air Act* on Toronto and its residents to the attention of the court.

The U.S. *Clean Air Act* was first enacted in 1970. Its stated purpose was to "protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population". Through the Act, Congress sought to ensure that increased pollution from new and modified emissions sources would be controlled based on state of the art technology. Congress also "grandfathered" old plants that were built prior to the *Clean Air Act*, such that they were not subject to implementing state of the art pollution controls unless they were modified. "Modification" is defined as "any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source." "Modification" does not include "routine maintenance, repair and replacement".

It is the position of the plaintiffs and the City of Toronto that AEP carried out major modification of its facilities that resulted in a total annual increase in air pollution emissions from its facilities. AEP made major modifications to extend the life of its old power plants but did not follow any of the requirements of the *Clean Air Act*, including installing modern pollution control technology to reduce their emissions.

AEP is expected to argue that the *Clean Air Act* does not apply for two reasons. One is that AEP only undertook "routine" maintenance activities. Other power companies have argued that the life extending changes made to their plants are "routine" within the industry. The other argument is expected to be that there was no increase in the *hourly* rate of pollution, as opposed to the gross *annual* rate of pollution.

If during the trial, the court finds AEP is in violation of the *Clean Air Act*, then a further proceeding would likely be held to determine what the remedy should be. The impact of power plant emissions on the health of people downwind, such as Toronto residents is particularly relevant at the remedy stage of the litigation. This stage would establish what

AEP would have to do to come into compliance with the *Clean Air Act*, reduce its emissions and lessen the adverse impacts on downwind communities.

Although the current litigation that Toronto is involved in is still before the courts, a very recent decision regarding similar litigation involving old coal-fired power plants in Illinois is relevant. On March 7, 2005, the U.S. Department of Justice, the U.S. EPA and the State of Illinois announced the settlement of their major *Clean Air Act* case alleging that the Illinois Power Company (and its successor Dynegy Midwest Generation) violated the New Source Review provisions of the *Clean Air Act* (U.S. EPA, 2005). It is the New Source Review provisions that require grandfathered plants to install modern pollution control technology at the time that modifications are made to a plant that results in increased pollutant emissions.

The U.S. federal government and other parties first initiated their lawsuit against Illinois Power in 1999. The recent settlement will reduce SO₂ and NO_x emissions from five Illinois power plants by 54,000 tons each year through the installation of \$500 million worth of pollution control measures. In addition, Dynegy will pay a \$9 million civil penalty and spend \$15 million in projects to mitigate the harm caused by unlawful emissions (U.S. EPA, 2005).

6. Conclusion

As much as half of the pollution that Torontonians experience during smog alerts comes from American sources. Coal-fired power plants on both sides of the Canada-U.S. border are significant contributors to poor air quality. Of particular concern are older plants built before enactment of the U.S. *Clean Air Act* in the 1970s. Toronto's concerns are heightened by actions to extend the life of many American plants without investing in modern pollution control technology. This trend is contrary to the intent of the *Clean Air Act*. It is also contrary to the commitments and actions in Ontario directed at phasing out coal-fired power production.

Coal-fired power plants are significant contributors of smog pollutants, green house gases and mercury. A major American study concludes that fine particle pollution from U.S. coal-fired power plants cuts short the lives of nearly 24,000 people each year, including 2,800 from lung cancer. While a similar analysis is not available for impacts on Canadians, it is known that air pollution in Toronto gives rise to considerable illness and reduced life expectancy. About 1,700 premature deaths and 6,000 hospitalizations of Toronto residents each year are attributable to air pollutants, a portion of which originates from old and dirty coal-fired power plants still operating in the U.S.

The *Clean Air Act* was enacted in the U.S. in the 1970s to protect air quality and promote public health, and to ensure that increased pollution from new and modified emission sources would be controlled based on state of the art technology. Congress "grandfathered" old plants built before the Act was introduced such that they were not subject to implementing state of the art pollution controls unless the plants were modified. "Modification" is defined as any physical change in a facility, or its method of operation, which increases the amount of any air pollutant emitted by that facility. The *Clean Air Act* requires that when modifications are made to plants, state of the art control technology must be used to limit plant emissions.

The U.S. federal government, several states and environmental organizations in the U.S. have launched lawsuits against power plants that failed to install pollution control technology, despite making major plant modifications that resulted in increased emissions. In 2001, the City of Toronto was granted *Friend of the Court* status in the U.S. court deliberating on the case involving American Electric Power (AEP) Corporation.

This legal action focuses on nine of AEP's coal-fired power plants upwind from Toronto. These plants were built before 1970 and have undergone major reconstruction, resulting in an increase in their annual air emissions. The pollutant emissions from these American plants are considerably greater than the emissions from the Ontario plants that also impact on Toronto's airshed. This legal case is scheduled to go to trial in June 2005. It is anticipated that the City Solicitor will have the opportunity to file documentation in support of the plaintiffs, and to bring to the court's attention the adverse impacts on Toronto's air quality.

If the court rules that AEP violated the *Clean Air Act*, then the next phase of the legal proceedings will determine what the remedy should be. The participation of the City of Toronto would be particularly relevant at this stage of the litigation since it would help establish what AEP needs to do to comply with the *Clean Air Act*, reduce emissions and thereby lessen its adverse impact on communities downwind.

It is estimated by U.S. sources that compliance with the *Clean Air Act* would reduce nitrogen oxides and sulphur dioxides from the plants subject to litigation by about 75 to 90%, depending on the facility and pollutant. Such major reductions in emissions from these point source emitters would considerably lessen transboundary pollution levels currently reaching southern Ontario. By participating in the lawsuit as *Friend of the Court*, the City of Toronto brings to the attention of the American court its concern about the health impacts associated with old and dirty power plants still operating in the U.S. A successful outcome during these proceedings could result in significant improvements in Toronto's air quality year round, and likely reduce the frequency and severity of smog episodes.

The current litigation involving AEP is occurring at a time when *Clear Skies* legislation is proposed to amend the *Clean Air Act*. This new legislation, if passed as proposed, would permit old and dirty coal-fired power plants to operate for many more years (likely until 2018) before they would be phased out or required to install best available pollution control technology. Because of this concern, many Ontario Medical Officers of Health have recently requested the Senate Committee reviewing the *Clear Skies* legislation to forward it to the Foreign Relations Committee so that it may be assessed with respect to transboundary issues and possible adverse impacts on Canadians.

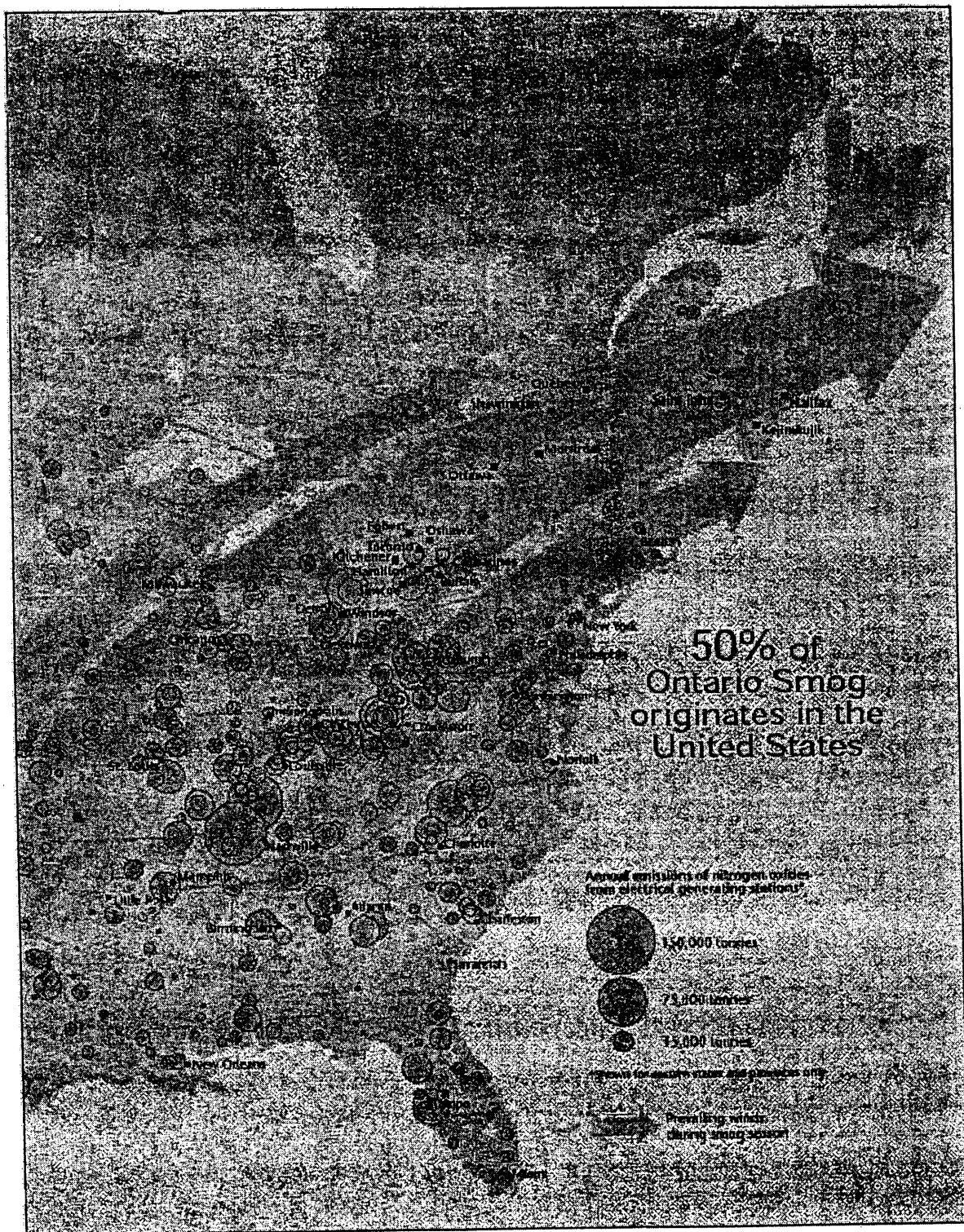
Given the prevailing winds that blow from the southwest, coal-fired power plants in the U.S. adversely impact on air quality in communities throughout Ontario, not just Toronto. As such, there is a need for the Premier of Ontario to give high priority to transboundary air pollution matters and advocate for mitigation of U.S. pollution sources as quickly as possible.

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Appendix 1.

Transboundary Air Flow into Ontario



Source: Ontario Ministry of the Environment, 2001, as reproduced with permission from *Canadian Geographic*, May/June 2000.

Appendix 2.
Pollutant Emissions from Canadian and American
Power Plants that Affect Toronto

Total Emissions (2002) ^a

Plant	Location	NO _x	SO ₂	Mercury
Lambton	Ontario	15,323	29,882	130
Lakeview	Ontario	4,934	14,336	46
Nanticoke	Ontario	38,204	86,710	241
Cardinal	Ohio	21,209	67,814	266
Muskingum	Ohio	24,802	104,805	198
Tanner's	Indiana	15,907	56,729	143
Conesville	Ohio	24,185	122,949	451
Amos	West Virginia	39,464	97,632	450
Mitchell	West Virginia	26,851	50,811	204
Sporn	West Virginia	11,961	36,511	230
Kammer	West Virginia	11,951	35,468	117
Clinch	Virginia	11,633	24,492	75

^a Expressed as metric tonnes

Emission Rate (2002) ^b

	NO _x	SO ₂	Mercury
Lambton	1.8	2.7	0.012
Lakeview	2.0	5.8	0.019
Nanticoke	1.7	3.9	0.011
Cardinal	2.5	7.9	0.031
Muskingum	3.0	12.5	0.024
Tanner's	2.7	9.7	0.024
Conesville	2.4	12.10	0.044
Amos	2.2	5.4	0.025
Mitchell	2.9	5.5	0.022
Sporn	2.2	6.81	0.043
Kammer	3.0	8.8	0.029
Clinch	2.5	5.3	0.016

^b Kilograms per megawatt hour (kg/MWh)

Source: Commission for Environmental Cooperation of North America, 2004.

Appendix 3.
Letter from Ontario Medical Officers of Health
Concerning U.S. Clear Skies Legislation

Tuesday, February 15, 2005

The Honorable Richard G. Lugar
Chairman, Senate Committee on
Foreign Relations
Dirksen Senate Office Building
Washington, DC 20510-6225
Fax: 202-224-0836

The Honorable Joseph R. Biden Jr.
Ranking Member, Senate Committee
on Foreign Relations
Dirksen Senate Office Building
Washington, DC 20510-6225
Fax: 202-228-3612

Dear Senators Lugar and Biden,

It is our understanding that the Senate Foreign Relations Committee has jurisdiction over domestic legislation that may have cross-border impacts, especially if there is the possibility that such legislation could contravene existing international agreements.

As Medical Officers of Health within the Province of Ontario, we are the communities' doctors and public health advocates. We are concerned that the proposed Clear Skies Legislation may increase air pollution and have a negative impact on the health of our communities. We are not aware of any analysis that has been done to determine the health impact of this proposal, particularly for those who live on our side of the Canada-United States border.

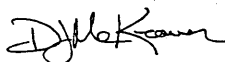
Regardless of emission reductions in our own communities, some Canadian regions are unlikely to attain the new Canada-wide air quality standards unless there is a significant decrease in the pollution that is transported into our country on the prevailing winds from the U.S. We are concerned that this problem may become worse under Clear Skies and especially worried about the impact of this legislation on U.S. commitments under the United States-Canada Air Quality Agreement and the Great Lakes Water Quality Agreement.

We respectfully request that the Senate Committee on Foreign Relations convene hearings on the proposed Clear Skies Legislation in order to investigate this issue. We would also very much appreciate the opportunity to send a representative to testify before your Committee.

Yours truly,



Dr. Howard Shapiro, MD MSc FRCPC
Acting Medical Officer of Health
Region of Peel
905-791-7800



David McKeown, MDCM, MHSc, FRCPC
Medical Officer of Health
City of Toronto



Rosana Pellizzari, MD, MSc, CCFP, FRCPC
Medical Officer of Health
Perth District Health Unit



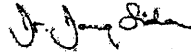
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Medical Officer of Health
Simcoe County District Health Unit

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Lugar & Biden Letter from MOHs - 2



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Medical Officer of Health
Algoma Health Unit



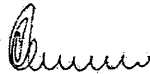
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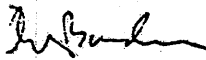
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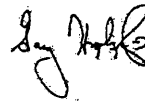
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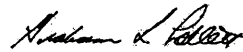
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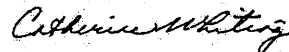
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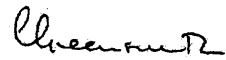
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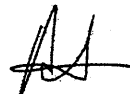
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Medical Officer of Health/Chief Executive
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Sudbury & District Health Unit

cc. The Honourable Pierre Pettigrew,
Minister of Foreign Affairs

