Upwind Downwind: A Practical Conference on Improving Air Quality

February 25 & 26, 2002
Sheraton Hotel, Hamilton Ontario
Canada

Monday February 25, 2002 - AM

Honourable Minister Elizabeth Witmer
Special Address

During Minister Witmer's introductory speech, she described two main objectives that need to be addressed in regards to improving air quality. These objectives are:

1. Creating practical strategies to deal with air quality issues
2. Continued economic health

The key to a successful strategy is implementing local and regional initiatives that take the economy into consideration.

Steps Being Taken Towards:

- Implementing industrial self monitoring
- Improving Benzene and NO_2 emissions
- Implementing emissions trading
- Rewarding technologies that reduce emissions
- Outlining the importance of partnerships
- Further success with the Drive Clean program
- Current technology improvement, along with personal willingness to adapt to changes
- Educating the public
- Increased transit efficiency
- Cleaner energy
- Measuring success

Russell Perry, William McDonough and Partners
Building Designs for Sustainability

Russell Perry's presentation introduced the principles of sustainability and how they should be incorporated into the creation of buildings. He suggested that we begin moving beyond eco-effectiveness and eco-efficiency and begin "designing buildings as trees" so that they are self-sustainable.

William McDonough and Partners was founded 30 years ago, and some of their

major projects have included solar heated houses, a “Green Office” for the Defence Department and an entry in the 2000 World’s Fair in the City of Hanover.

During the design of any project a number of key issues should be taken into consideration, including:

- Project life cycle
- Using waste as resource
- Using current solar income
- Respecting diversity
- Blending the building with nature
- The concept of form follows evolution

Barry Jessiman, Health Canada
The Health Science behind Canada-wide Standards for Particulate Matter and Ozone

Barry Jessiman’s presentation gave an overview of health effects related to air pollution, which supported the development of the Canada-wide Standards.

The main finding from air pollution studies was that an increase in air pollution causes a related increase in health problems and death. Health effects are now being found at levels that were once thought to be safe. Ozone is one of these substances.

Studies have also shown that particulate matter has a negative health effect on the population. Negative impacts of $PM_{2.5}$, PM_{10}, black smoke and SO_4 are dependent on the size of the particulate matter.

Other important studies specifically tackled controversies of co-pollutants, personal exposures, weather, mortality displacement and determining threshold values of pollutants. The studies findings concluded that impacts are dependent on regional variation, particularly weather and co-pollutants. These studies identified a knowledge gap and new research will have a large impact on our understanding of pollutants and health impacts.

Dr. David Pengelly, McMaster Institute of Environment and Health
The Ontario Air Quality Index: Truth in Labelling?

Dr. David Pengelly addressed the linkages between the Air Quality Index (AQI) and death. A number of studies are being done with the Ontario Air Quality Index in order to determine if there is truth to labelling.

The AQI has levels set for SO_2, O_3, NO_2, Total Reduced Sulphur (TRS), CO, and suspended particles. The one pollutant with the highest index number at a given hour becomes the AQI reading. These set levels do not serve any mandatory function, but are there only to support and accelerate local air quality

improvement.

It was found that an estimated 92% if the premature mortality and hospitalization occurs when the Air Quality Index is in the “Very Good” or “Good” range for the City of Toronto. When the air quality is in the “Moderate” or “Poor-Very poor” range only an estimated 8% of the burden of adverse health effects occurs.

Why are AQI measurements misrepresented?

- Do not include fine particles
- Rely on a single driver pollutant
- Based on out of date criteria

What needs to be done?

- Add PM_{10} $PM_{2.5}$ to the AQI
- Replace descriptors of very poor to very good with low to high
- Update health messages
- Update regulatory standards
- Revise formula for cumulative effects

Conclusion:

The AQI is a very useful tool that needs to be developed and improved.

Dr. Brian McCarry, McMaster University
Clean Air Hamilton

Dr. Brain McCarry presented Clean Air Hamilton, which is the most recent phase of the Hamilton Air Quality Initiative (HAQI).

The Goals:

- To ensure that the City of Hamilton has the best air quality of any major urban area in Ontario
- To reduce GHG emissions by 20% from 1990 levels

The Objectives:

- To identify priority air quality issues
- Achieve an understanding of air quality issues
- Identify sources, evaluate impacts and recommend solutions
- Assess human health
- Identify further research

Steps have been taken to develop practical solutions to reducing air quality impacts. Current air quality activities for vehicles include supporting the Drive Clean Program, discouraging car idling, supporting car pooling activities, and promoting the use of green vehicles. Industrial initiatives include the implementation of pollution control technologies, plans to reduce steel industry emissions, developing energy conservation measures and promoting green building practices. Other activities included fleet-greening partnerships, a

community tree planting program, an international air conference, an electronic information network between the U.S. and Southern Ontario communities, a road dust study, a truck emissions research project, assessments of health impacts and method monitoring local improvements.

Barry Boyer, Buffalo-Niagara Institute for Local Governance and Regional Growth
Performance Measures for Buffalo-Niagara Region

Barry Boyer's presentation focused on addressing air quality at the regional scale. Regional co-operation can encompass different national, provincial, state and local governments. This regional co-operation helps to empower the regions and build strong local leadership.

A key point in the State of the Region Report was that measurement is vital to management and is one way to help control our destiny. Changes in reporting criteria or including certain criteria in reporting requirements can cause a change in the amount and types of pollution that are being emitted.

It is very important to work together vertically in the Hamilton region and create a better data network on a binational and regional basis.

Monday February 25, 2002 - PM

Reid Ewing-Rutgers University
Community Design and Traffic Management

Reid Ewing introduced the ideas and principles of community design in order to improve resource use, as well as to reduce our impact on the environment. Communities don't have many choices when it comes to urban planning and new housing.

We have to address the need to develop new markets for building downtown, green development and accessible transit.

Reid Ewing also presented new hybrids on land development. These hybrids illustrated that we have to escape conventional and traditional land use by integrating more modern elements. Communities, commercial centres, individual neighbourhoods and individual design elements are four levels where these new ideas can be applied. These hybrids look to the past and implement positive aspects of land use.

Some examples of U.S. projects to contain urban sprawl were examined. In some areas, the bottom-up approach was applied and they implemented incentives rather than mandates. The concept of Smart Growth was noted which

identified priority funding areas, community legacy, smart building codes, job creation, tax credits and clean up programs for existing areas.

Sue Zielinski, Moving the Economy
Sector Development in Sustainable Transportation

Sue Zielinski presented the concept of "New Mobility". New Mobility is where transportation meets new economy and is supported by a number of new industry clusters. The focus of New Mobility is to create living solutions for a constantly moving world that is more service orientated, sustainable, safe, knowledge based, and balances environment/economy.

To grow a new mobility industry we can use a four-point plan that includes:

Projects:

- Integrated mobility systems (IMS) (smart cards)
- Info-mobility network (practical traveller, transport industry)
- Goods movement
- Network of excellence for sustainable transportation (NEST)

Partnerships:

- New mobility exchange (NMX)

Research:

- MTE online best practices database
- New mobility study

Marketing:

- Emerging options

Joanne McCallum, McCallum Sather Architects Inc.
Building Design Concepts

Joanne McCallum's presentation focused on green building design, which included both site and building design. 40% of raw material and energy produced in the world are used in the building sector an are a main contributor to greenhouse gases, toxics and waste.

The key principles that guide green design building are emphasis on life cycle management, improved performance and implementing leadership during every design project. The design must be a multidisciplinary integrated process that differs significantly from the traditional design process. When choosing sites for a project, urban areas should be favoured where the restoration or rebuilding of these urban sites should be a priority.

Green Building Design should include:

- Life cycle analysis
- Examining performance through time

- Leadership
- Integrated focus on green design from beginning to end
- Land-use planning at the regional level
  - Focus on geology, wind, ground water etc. to determine an area that will have the least impact on the environmental
- Brownfield development – environmental restoration to human altered lands
  - Example - Burlington GO parking lot
- "Integrated design teams"

Mark Mitchell, Keen Engineering Co. Ltd.
How Green Engineering Improves Air Quality

Mark Mitchell discussed the necessity to find innovative and energy efficient ways of designing buildings in order to "touch the earth lightly". He described that by implementing green engineering it is possible to minimize and optimize use of resource, materials, consumption and create sustainable design.

Mark Mitchell introduced his "decision making matrix" in order to assess where and how green engineering could be implemented. His designs include a number of sustainable features that dramatically improve the quality of buildings.

Green engineering designs include:

- Daylight strategies that take advantage of sunlight to minimize the need for artificial light
- Natural ventilation strategies
- Creation of a central cooling plant
- Waste recovery system off a central steam plant
- Operable windows
- Wastewater infrastructure to treat water for the building

We have to realize that with green buildings, different should not be viewed as ugly. Before the traditional design process has begun, a depiction of energy movement during different seasonal climates should be completed to address any design problems that may arise. All issues and steps surrounding the development of the building should be addressed prior to development of architectural schematics.

Question Period Discussion Points

- Mausoleums have used air-cooling techniques for hundreds of years similar to the natural ventilation systems that are being used in green buildings.
- The issue of sustainable design in the U.S. is more advanced than in Canada. Europe however, is much further advanced than North America as a whole.

- We can use the idea of “leap-frogging” and take the concepts and initiatives developed elsewhere and contribute our knowledge to forward movement.

Christopher Morgan, City of Toronto
Air Quality and Sprawl

Christopher Morgan addressed the issue of urban sprawl in the GTA. Land-use planners are now presented with the huge task of dealing with urban sprawl in order to avoid extensive loss of countryside and greater degradation of air quality in the future.

More growth in Municipalities leads to:

- A residential density increase which leads to an increase in jobs
- Jobs and housing in different regions – increased travel
- Daily car activity increasing outside of job commute

A study is being undertaken to examine regional growth and the management of current development patterns. The study looks at the implications of continuing sprawl in order to determine the next steps and to look at alternatives. Information for the study has been extracted from a number of sources such as the NPRI for point source information, Mobile 5 for line sources, and meteorological information.

It was also stated that increasing air quality is much more complex than just source reduction. Poor air quality caused by pavement breakage and tire-ware contributes to PM_{10} much more than vehicle tail-pipe emissions do.

Conclusions:

- Planning improvements are necessary
- Any growth will incur air quality problems
- There is a need for more source education in order to understand the whole picture
- Municipalities must work together to deal with this issue

Mike Lepage, Rowan Williams Davies & Irwin Inc. (RWDI)
Regional Air Quality Modelling for Southern Ontario

Mike Lepage presented the use of models as a tool to predict how green designs will affect air quality. Regional air quality models help to define the size of the airshed and where emissions need to be controlled. Air models also provide data on the benefits of air quality improvement, help to sort out the complex source/receptor relationships as well as help develop multi-pronged initiatives to deal with issues.

The actual task of modelling is the process of taking a data inventory, using

meteorological models and chemistry and transport modelling to predict the outcome of an event or situation. These models can be applied on the local scale where they look at the impact near the source or they can be applied on the regional scale.

A case study of modelling in Calgary showed that if 75% of gas vehicles were replaced with electric vehicles, ground-level ozone was reduced by only 4-15% depending on the location. In many modelling case studies, a trend is seen where afternoon ozone levels are usually under-predicted and over-prediction occurs in the evenings. Models are never completely accurate because of all the variables involved but are able to provide us with a window into the future.

Reid Ewing, Rutgers University
Growth Management

Reid Ewing addressed the issue of growth management by discussing some of the main ideas and examining case studies of areas that implemented various strategies.

Two ideas for Growth Management:

- Incentives
- Bottom-up approach

Florida, Oregon and Maryland were the subject of three separate case studies to look at different methods of growth management and to compare each of their individual successes and failures. Reid Ewing evaluated each separate situation and concluded the following:

- Florida – Growth management and promoting sprawl through concurrency lead to the overall failure of this project, although there were some areas of success.
- Oregon – Developed urban growth boundaries and density targets, and while certain aspects of this growth management project worked, urban sprawl is still a problem.
- Maryland – Reached a level of success due to state funded activities to promote smart growth. There were many incentive programs that were effective in reaching their goals. One program gave monetary incentive to have people relocate close to their area of work.

Question Period Discussion Points

- Funding for programs such as the one in Maryland came from tax dollars. The Canadian system is much different and might not be able to fund similar projects through parallel systems.
- Although fear drives the smart growth initiatives only very few participate. More people become involved when quality of life issues are raised.

- Top leadership is key to the success of growth management.

Tuesday February 26, 2002 - AM

Daniel Cayen, Ontario Ministry of Environment
Environmental Management Initiatives

Daniel Cayen began his presentation on environmental management initiatives by stating that jurisdictions are becoming much more active in environmental management.

He discussed five strategic shifts:

- Government-wide vision and goals, shared implementation
- Strategies to improve environmental performance and accountability (move away from point source)
- Place-based approach and cumulative approach
- Regulatory and non-regulatory compliance tools and incentives
- Shared responsibility with all communities

Some of reasons for success with environmental management have been seen due to the establishment of a cabinet committee for environment and the creation of the position for Associate Deputy Minister. Strong investigation and enforcement have also played a key role.

Future Target Areas:

- Co-operative agreements
  - Identify and approach industry leaders to lead a pilot project that will go beyond compliance – incentives
  - Sign agreement for pilot project
  - Establish a continuous improvement loop
- Compliance assistance
  - Education and training to help achieve compliance
  - What regulations are and how to meet them
- Place-based approach
  - Techniques and tools introduced on a watershed basis – sources

Question Period Discussion Points

- Planned incentives for environmental management initiatives are favoured client service, consolidation for approvals for air (less need for amendments after process changes), a 5-year cycle for changes, and the acceleration of introduction for new technologies.

Fred Eisenberger, Green Venture Self Sufficient Home

Fred Eisenberger began his presentation by giving a brief overview of Green Venture, which is a not for profit organization. The group allocates their time and resources on a project by project basis.

Members of the community are constantly looking for practical information on implementing environmental initiatives. Green Venture provides the community with information that they can use in their homes.

They are taking this project one step further and are planning to show people what they can do rather than just tell them. They have acquired an estate at the east end of Hamilton that was donated to the city and remained vacant for several years. The plan is to turn it into office space and an environmental museum.

The first phase of the project will be to demonstrate wise water use, and also to illustrate how the proper renovations to a home can directly decrease utility bills. They are looking into other ideas to implement at the estate and are even considering the placement of windmills on the property to generate electricity.

Murray Paterson, Ontario Power Generation Wind Farms

Murray Paterson presented the idea of green power and briefly discussed the options available. Providing these alternate sources of energy to the community will help make a change to the electrical generation mix. The eco-logo certifies green products and power so that the community can make an active choice when purchasing products or energy.

Some of the main types of green power are:

- low impact hydro
- wind
- solar
- biomass

One of the main concerns with wind power is turbine interference with bird migration and also the generation of noise. The turbines turn very slowly and are situated in areas where they will have the least impact on migration and bird flight. The noise generation is minimal and should not pose a concern to the public.

The cost of these green technologies is a problem because they have a higher cost than more traditional forms of energy generation. This creates a smaller place in the market for them until they become more competitive.

The goal of Ontario Power Generation is to be an industry leader and to help the community move towards green energy in the future.

Bryan Young, Toronto Renewable Energy Coop (TREC)

Bryan Young began his presentation with look at the Waterfront windmill project for Toronto. A plan is in place to build two wind turbines on Toronto's waterfront on the grounds of the exhibition. Each individual turbine generates 1,400,000-kilowatt hours per year, which is enough electricity to feed 250 four-person homes.

This form of power generation is emissions-free and will be distributed to Toronto's hydropower grid. It will reduce the need for nuclear and coal-generated energy and will help in reducing CO_2 and other greenhouse gas.

TREC has a policy to work with market place and to create an urban-based community-owned turbine. There is a concern with market de-regulation coal generated energy may become more popular, due to lower cost for the consumer.

Don Marsales, Hamilton District Energy Project

Don Marsales introduced Hamilton's District Energy Project as being an energy source that is delivered through a piping distribution system. It provides heating and cooling to buildings near the central energy centre.

The project in Hamilton includes City Hall, Copps Coliseum, and several other buildings in the downtown area. Pipe infrastructure is a key component to deliver this energy and proximity to energy centre is important. The energy centre includes a natural gas burning engine, where the waste exhaust is used to heat water so there is less direct waste.

Each building connected to the district energy network has its own energy transfer system. It is a much smaller piece of equipment than the boilers and other equipment it replaces.

Municipalities benefit from district heating because it meets all emission requirements and provides a more efficient and reliable source of energy. Sometimes renewable energy sources do not provide a feasible solution to the energy needs of a municipality and more efficient alternatives are the best available solution.

Question Period Discussion Points

- The OPG is ultimately responsible for nuclear power debt and nuclear waste disposal
- Emissions trading is not big incentive for green power
- Communities are not always positive towards wind power - conducting tours to educate the public is one way of gaining their support
- Bird kills have been found to be less than one bird killed per turbine per

year – this problem is worse in California where the turbines are situated differently
- Windmills in Hamilton Harbour are a possibility – it would be a great idea to harness this resource and take advantage of the enthusiasm of the community

Dean Saito, California Bureau of Automotive Repair
New Trends in Vehicle Emissions

Dean Saito addressed the issue of California's mobile source emissions trends. He began by mentioning that State standards are allowed to be much more stringent than Federal standards in the U.S., which allows the individual States to develop their own emissions goals.

Reductions are needed in the following areas:

- Diesel sources
- In-use emissions
- Evaporative emissions
- Federal measures

Over 90% of Californian's experience unhealthy air quality at times. Mobile source emissions are a major contributor and motor vehicles have been shown to be a major source of cancer risk from air toxics. Also, evaporative emissions are very significant and more information needs to be gathered in this area to better understand their effect.

The objective is to achieve near-zero emissions for PM/NO_x by:

- Developing lower California standards for new stationary, and on and off-road diesel engines by 2002-2006
- Very low-sulfur diesel for all diesel engines by 2006
- A retrofit program for existing engines
- Implementing a plan that reduces diesel PM emissions and risk 75%

Ed Gill, Ontario Ministry of Environment
Vehicle Emissions Testing in Ontario

Ed Gill introduced the Ontario Drive Clean Program, which requires mandatory NOx, CO and VOC motor vehicle tail pipe testing for problem areas within Ontario.

Private sector operations run the testing and have their performance audited by the government. Facilities that do not accurately or fairly complete the testing receive suspensions or terminations from the Drive Clean Program.

The Drive Clean Program is being implemented in phases and will cover all Southern Ontario smog zone upon its completion.

Already, Phase 1 has been successful in achieving 11.5% reductions. Also, as more vehicles are being tested in the next phase, a higher rate of success is being seen within passenger vehicles.

Annual testing of heavy-duty vehicles is also a requirement, with a high rate of success in their category.

Car Heaven and the Mercury Switch Program are designed for end of life vehicles to reduce waste. The Mercury Switch Program promotes the removal of mercury switches from end of life vehicles to assist in reduce this toxin from our landfills.

Denis Corr, Ontario Ministry of Environment
Normal Use Vehicle Program

Denis Corr presented the Normal Use Vehicle Program that conducted research on the Honda Insight and Toyota Prius. These two models are hybrid vehicles and were examined to see how practical and useful they would be as "real" fleet vehicles.

There are three main types of electric/gasoline hybrid systems:

- Series – better distance
- Parallel – better power
- Split – better power and mileage

The results seen showed that these vehicles would be very beneficial to have on a fleet. Huge emissions reductions were seen with the hybrid vehicles, where the Drive Clean program showed little or no emissions under most categories.

Travel of up to 25,000 km/year in a hybrid vehicle would save around $1300.00 per year in fuel compared to a normal gasoline vehicle.

The hybrids also showed exceptional engineering in the engines and overall on the car. Two additional features were that they store energy when breaking that would otherwise be lost and the engine shuts off at stoplights to avoid idling emissions.

The conclusion was that these are very practical and useful vehicles in a fleet environment and will not only reduce emissions but save on fuel consumption and cost.

Isabell Berger, Erie County
Clean Fuels for Cleaner Cities

Isabell Berger introduced the concept of clean fuels and how this is being applied in Erie County and in other areas of the United States. Alternate fuels are appealing because currently the United States uses more fuel than they have, which creates a growing need to find feasible alternatives.

Some examples of alternate fuels are:

- Electricity
- Natural Gas (Liquefied or compressed)
- Hydrogen
- Propane
- Methanol
- Ethanol
- P-Series
- Biodiesel
- Solar energy

Fleet vehicles are one target of the Clean Fuels for Cleaner Cities initiative. One study showed that there was a high cancer risk in children associated with school bus exhaust, and yet nothing significant was done. These problems can be mitigated by providing bus fleets and other fleets with clean fuel vehicles.

Providing alternate fuel stations is necessary in order to establish a travel network. Alternate fuel will never become appealing unless the proper resources are provided in practical locations. Clean fuels are becoming more available in the market and we should take the opportunity to examine what benefits they can provide to our health and the environment.

Tuesday February 26, 2002 - PM

Art Williams, STAPPA and ALLAPCO
Partnerships and Continuous Networking, The New Way

Mr. Williams presented a brief overview of STAPPA and ALLAPCO. He discussed how they issue permits to cap air emissions in the United States and take a holistic approach to identifying a company's environmental impacts.

He recommended the following two web sites for more information: http://www.apcd.org and http://cleanairworld.org.

Mr. Williams discussed the positive relationships developed through partnerships with companies and governments such as NESCOM, which is a partnership of twelve north-eastern U.S. states working to address air quality issues. He also presented air pollution trends in the U.S. from the 1970s to the late 1990s.

President Bush's "Clear Skies" initiative to reduce NO_x, SO_x and other pollutants proposes reductions of 70% by 2018. Mr. Williams suggested this target was not enough to address air quality concerns and also criticized the initiative for not including CO_2.

Air quality issues can best be addressed co-operatively if groups continue to communicate, build trust and share resources and knowledge.

Sonya Kapusin, Southern Ontario Clean Air Network (SO CAN I)

Ms. Kapusin gave a background on how the network formed and its purpose, which is to exchange information and act collectively on air quality issues.

The goals and objectives of SO CAN I are as follows:

- Expand contacts and establish links
- Gain multi-stakeholder agreement
- Develop targeted strategies to improve air quality

The network is involved in the following:

- undertaking research projects
- advocacy on air quality issues
- common communication and outreach strategies for members
- hosting workshops

There are 30 individuals that are part of the network including municipal employees, public health and policy specialists. Members are mostly from southern Ontario with some representatives from the United States.

The network has a central co-ordinator and rotates responsibility to each community. There is also a web site to which information and a contact list is posted.

Ravi Mark Singh, Ontario Clean Air Alliance

Mr. Singh provided an overview of the Ontario Clean Air Alliance (OCAP). OCAP has 81 member organizations and represents six million people. Its purpose is to promote the phase-out of coal burning electrical generators. The success of OCAP is due to its very specific mission.

OCAP convinced the Ontario government to convert the Lakeview generating station to natural gas once it has been sold. The organization worked very closely with municipalities in this regard and the support of local government was very important in achieving this success.

Keith Stewart, Toronto Environmental Alliance

Mr. Stewart began his presentation by stating that 1000 people die prematurely in Toronto each year due to air pollution and 5,500 are hospitalized each year. The health care costs associated with air pollution are $150 million per year and $128 million in lost productivity.

Much of the action on air pollution is at the municipal level and the City of Toronto's efforts were highlighted. The City of Toronto has enacted anti-idling bylaws and has reduced energy use by eight percent. In 1997, the city adopted

a smog plan to make people aware of poor air quality days and the actions that should be taken on these days.

Mr.Stewart stressed the importance of citizen involvement and public education on air pollution issues. He also mentioned a report card that his group provides each year in regards to how government is doing in addressing air quality issues. The website is http://www.torontoenvironment.org.

Derek Coronado, Citizen's Environmental Alliance (CEA)

Mr. Coronado's presentation focused on the city of Windsor. In 2000, the City of Windsor and Country of Essex adopted a Smog Action Plan. The plan includes emergency measures and long-term strategies for improving air quality.

The CEA evaluates the progress of the city in meeting its commitments under the plan. Most of the grades have been F's (19), with seven D's and four C's. It was expected that the plan would influence council decisions but that has not happened. City council endorsed a project for a 500 MW power generation station though it will waste energy.

Mr. Coronado ended his presentation by stating that progress on air quality in Windsor has slipped and that governments are acting in contradiction of their commitments.

A website is available for more information: http://www.mnsi.net/~cea.

Open Floor Panel

Question: There are many horizontal linkages (i.e. between NGOs, between municipalities), how do we begin to work on making the vertical linkages with government?

Answer (Derek Coronado): It has been difficult at the provincial level over the past seven years. Linkages with the Federation of Municipalities and with the Federal government have been good (e.g. 20% of activities to meet Kyoto protocol commitment are at the municipal level). We've seen a reaction by industry against Kyoto and next year I expect you will see a counter-reaction from NGOs and health groups.

We need to be well organized horizontally and then build vertical relationships. RAP's are a good example of vertical integration. Clean Air Hamilton is a good example of a vertical partnership.

Comment (David Pengelly): We are hoping that government will relinquish the GST and PST on the use of green products and power. The Clean Air Renewable Energy Coalition (includes Sunoco/Shell and ENGO's) is pushing for tax incentives for renewable energy and a consumer tax credit.

An emerging issue is the deregulation of energy system and the privatization of electricity. We have to reinvent atmospheric dispersion models for each new

plant. We need a regional dispersion model for the province.

Comment (audience member): A regional model is being created with CPPI, OPG, and University of Toronto at a cost of $2 million.

Comment (audience member): The provincial legislature is looking at alternative fuels and there is a draft report on the issue on the Ontario legislature website.

Comment (Derek Coronado): I have the concern that we'll get many things that could be done, but no specific measures from the provincial government (e.g. policies such as the renewable benefits standard in the U.S). I am concerned that the government will focus on technology vs. policies on the market.

Comment (audience member): Children are our biomarkers; 10% of the population in Waterloo has asthma and many are children.

Comment (Ravi Mark Singh): I hope parents are listening to our message (about air pollution).

Comment (Derek Coronado): There is a loss of vision of the public good. We are turning clean air into a luxury good. Poor air quality is a market failure.