

## Backgrounder:

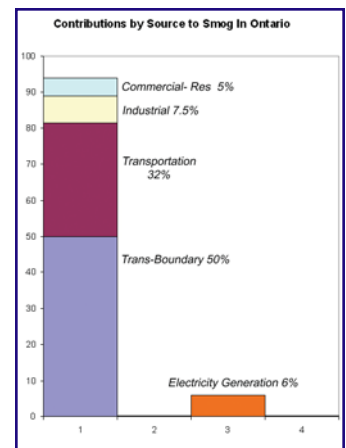


# Energy Professionals on coal myths and facts

## Shutting down the fossil stations will significantly improve Ontario's air quality.

Flows of air from the U.S. are responsible for over 50 *per cent* of the pollution burden in Ontario, and almost all of the smog alerts declared for the GTA. On average, taking into account trans-boundary pollution, closing the fossil stations would decrease the sulfur dioxides (SO<sub>x</sub>) and nitrous oxides (NO<sub>x</sub>) in Ontario's air by about four and six *per cent*. In urban areas, with their preponderance of transportation emissions—emitted much closer to ground level, where we do much of our breathing—the difference will likely be unmeasurable.

Transportation emissions are the largest source of direct and chronic exposure to air pollution. Control studies by the Centers for Disease Control in Atlanta showed calming traffic by 22 per cent reduced respiratory hospitalizations by 42%.



## About half of Ontario's airborne pollutants come from across the border.

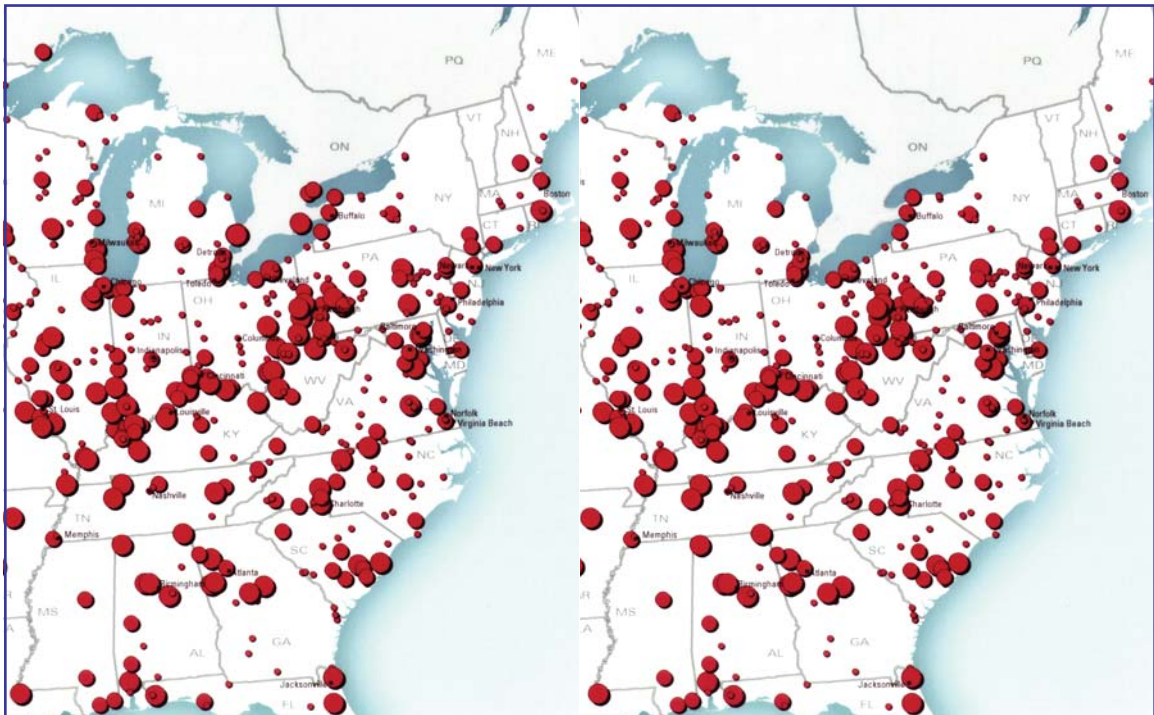
It depends on where you are. For instance, if you live in Windsor, about 90 per cent of NO<sub>x</sub> and VOCs (volatile organic compounds), the main ingredients in ozone, come from the U.S. The percentage decreases as you travel east:

London: 70 *per cent*  
Hamilton: 60  
Toronto: 50  
Peterborough: 40

and so on. A similar pattern is seen in SO<sub>x</sub>, starting at 80 *per cent* in Windsor. The direction the wind is blowing will also have an important effect in the transboundary mix.

## Coal fired generating stations are the single largest source of pollution

Coal fired generating stations are generally the largest point source of emissions wherever they occur; however, transportation emissions are by far the largest source of air pollutants and smog in urban areas, as well as the province, even when transboundary contributions are considered. The Ministry of Energy routinely reports that motor vehicles in the province are responsible for about 63 *per cent* of nitrogen oxide emissions, about 30 *per cent* of VOCs and 85 *per cent* of CO.



Coal-fired generation

Ontario plants removed

Ontario's coal-fired generating stations are primarily targeted by natural-gas lobbyists such as the Ontario Clean Air Alliance as being the greatest source of pollution. The facts show they are not.

**Natural gas is a clean, efficient, reliable energy source.**

Natural gas is a non-renewable fossil fuel which produces air pollution when burned. It burns more cleanly than coal under current technologies at the point of combustion. However, the mining, refining, and distribution of natural gas result in significant emissions of greenhouse gases, while the production and transportation of coal is relatively emission-less. Some studies have found that in comparing the production, transportation, and burning of coal as opposed to natural gas, it's a wash.

Furthermore, the burning of natural gas produces its own variety of particulates—the villains in recent well-publicized studies of the number of hospital admissions attributable to pollution. Those particulates tend to be below the two micron level, and much more irritating to fragile lungs than the particulates from coal. Since natural gas has the reputation (in Ontario) of being a "clean" energy source, smokestacks tend to be lower than for coal-burning stations, meaning the particulates are dispersed more locally, and in a more concentrated fashion.

**Increasing the amount of electricity generated using natural gas will be affordable.**

Almost no one other than natural-gas corporations believes this. It is more and more recognized that North America is heading into a natural-gas supply crisis. Contributing to the crisis are:

- ◆ Increasing dependence in the U.S. and Mexico on natural-gas fired electricity generation

- ♦ Decreasing reserves in North America, such that it will be more and more difficult over the next 10 years to supply natural gas at the current levels of consumption, let alone provide for the expected consumption increases

While much is made of advances in the production and transportation of liquefied natural gas (LNG) as a remedy for shortages, the building of LNG terminals is highly controversial. Furthermore, as was seen in Bolivia recently, it is by no means certain that the countries with natural gas will continue to want to ship it to North America.

The price of natural gas over the last few years has been quite volatile—63 *per cent* higher in 2003 than in 2002, for example. Replacing Ontario's coal-fired generators with natural-gas generators would require 1.2 *per cent* of the currently-diminishing North American supply. This would not decrease price volatility.

### **Coal stations can be replaced with renewables**

You can't replace coal stations with windmills; in fact, with windmills you always need a substitute source of power for when the wind's not blowing.

In response to a Request for Qualifications for companies to propose renewable generation projects, the government received notice of over 4,400MW of projects—over 14 times the 300MW being sought. But this is very early in the process, and all these notices of interest—this is before any projects have been accepted—will not translate into finished projects. In the U.K., a similar bidding process has resulted in a 10 *per cent* successful completion rate for the projects accepted.

It is beyond imagination that other renewable sources could be used to replace Ontario's 7,700MW of coal-fired generation. If it is replaced, it will be replaced with natural gas.

### **Ontario's coal-fired generating stations are irremediably dirty.**

Ontario Power Generation has invested nearly 2 billion dollars in cleaning up emissions at its fossil facilities: scrubbers at the Lambton station, low NO<sub>x</sub> burner modifications, selective catalytic reduction in our largest plants, low sulphur coal, gas conversions. OPG operates some of the cleanest plants in the northeast and would continue to evolve as "clean coal" technologies mature.

Existing technologies can reduce the amount of SO<sub>x</sub> by 99 *per cent*, NO<sub>x</sub> by 90 *per cent*, and mercury by 50 *per cent*. Other mercury-reduction technologies are available or are being developed that may achieve reductions of up to 90 *per cent*.

### **Coal is a "19th century power source"**

According to the National Energy Board, coal accounts for 91 *per cent* of hydrocarbon reserves (excluding oil sands and oil shale) in North America. As of 2001, it was estimated by the NEB that current North American coal reserves could provide about 236 years of production, whereas the corresponding reserves to production ratios for oil and gas were estimated to be

10 years and nine years respectively. The National Energy Board anticipates that coal prices will decline by one per cent per annum until 2015 and then remain stable to 2025.

Once supplies of natural gas have been used up (or the remaining supply is simply too expensive to use), much coal will still be available for use.

The mad rush to close Ontario's coal-fired generation stations is unwise economically, unwise environmentally, and unwise for public health. For the most part, it will turn out to be a switch from publicly-owned fossil-based generation to privately-owned fossil-based generation.

In the long term, we will continue to need to make use of fossil fuels for at least part of our generating needs; moving away from current levels of emissions would involve:

1. Switching to a generation mix that uses coal-fired generation only to satisfy peak electricity demand. This includes:
  - ◆ maximizing hydroelectric resources to meet base-load demand;
  - ◆ building more nuclear generation to meet residual base-load demand;
  - ◆ maximization of Ontario's wind power resources and the integration of wind energy into the grid on a must-run basis;
  - ◆ maximization of low-impact hydroelectric resources in Ontario;
  - ◆ integration of wind power and hydroelectric power to take advantage of Ontario's pumped storage generation potential.
2. Application of technologies that
  - ◆ increase the efficiency of coal-fired generation
  - ◆ reduce harmful emissions produced by the combustion of coal
  - ◆ reduce the carbon intensity of the fuel used in the combustion process (eg. through the mix of biomass).
3. Maintaining a public industry structure that that uses demand-side initiatives to reduce power consumption. The Society believes that 10 *per cent* reductions in peak demand and total energy consumption in Ontario by 2020 are achievable.
4. Investing in research and development to increase Ontario's conservation potential and maximize the energy potential of Ontario's indigenous resources.