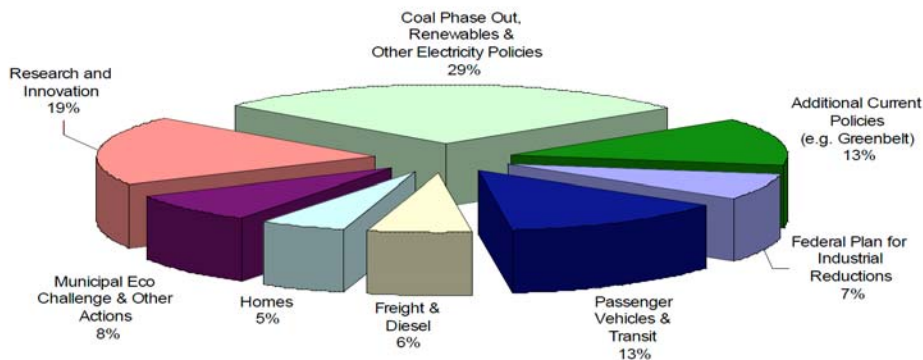


Backgrounder: Power Workers' Union - Position on Greenhouse Gas Emissions December 2009

Ontario's current approach for reducing greenhouse gas emissions (GHG) from the electricity sector will expose the province to unnecessary reliability risks and significantly increase the cost of electricity for Ontarians. The province's first target calls for reducing greenhouse gas emissions to 6 per cent below 1990 levels by 2014. The province's single largest initiative towards this target is the closing of Ontario's coal-fuelled generating stations by 2014. This represents 50 per cent of the 2014 target. By 2020, Ontario plans to reduce greenhouse gas emissions to 15 per cent below 1990 levels. The graph below shows that closing the coal stations will represent about 30 percent of the 2020 target.

Ontario's plan calls for these coal stations to be replaced by building more natural gas and renewable generation, such as wind and solar and spending more on conservation. This government's assumption is that this will give Ontario's economy a carbon advantage. **The PWU believes there are better and more effective ways to reduce GHG and protect the environment while ensuring a strong, competitive economy.**



Source: Go Green: Ontario's Action Plan on Climate Change, August 2007, Ministry of the Environment

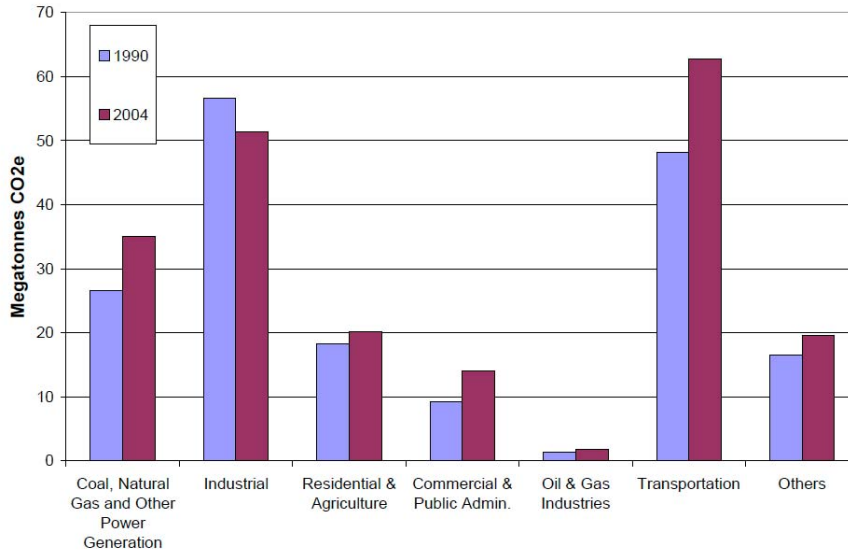
Canada's and Ontario's Greenhouse Gas Emissions in Perspective:

Canada's GHG emissions represent about 2% of global emissions even though Canadians make up only 0.5% of the global population.¹ Canada's large land mass, climate, widely distributed overall population density and economic structure are factors. Exports of coal, oil and natural gas currently account for approximately 82% of Canada's GHG emissions. Over 40% of Canada's economic output is exported to the U.S. and 40% of these exports are energy intensive, resource-based commodities (including more than half of Canada's oil and natural gas production).²

¹ *Indicators of Well-being in Canada, Environment-Greenhouse Gases, Natural Resources Canada.*

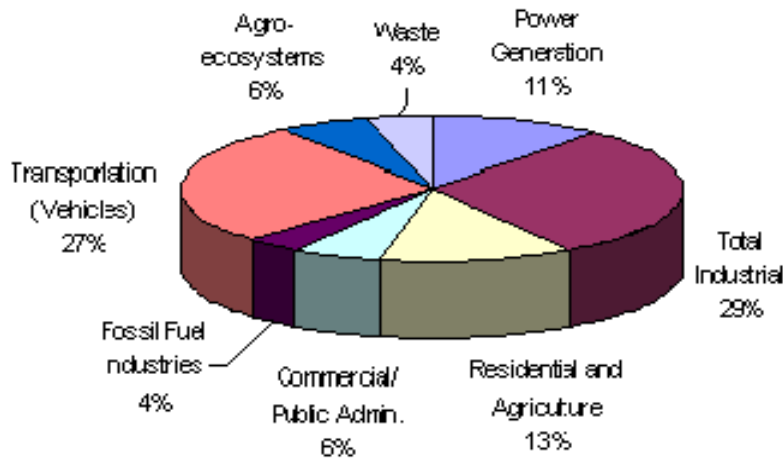
² *Canada's Fourth National Report on Climate Change, Government of Canada 2006*

On a provincial basis, Alberta is the largest emitter of greenhouse gases followed by Ontario. Ontario's GHG emissions by sector for 1990 and 2004 are shown in the following graph.³



The graph below shows that power generation accounts for 11 percent of Ontario's emissions. In Ontario, nuclear and hydroelectric generation supply over 70 percent of the province's electricity creating one world's lowest carbon systems.

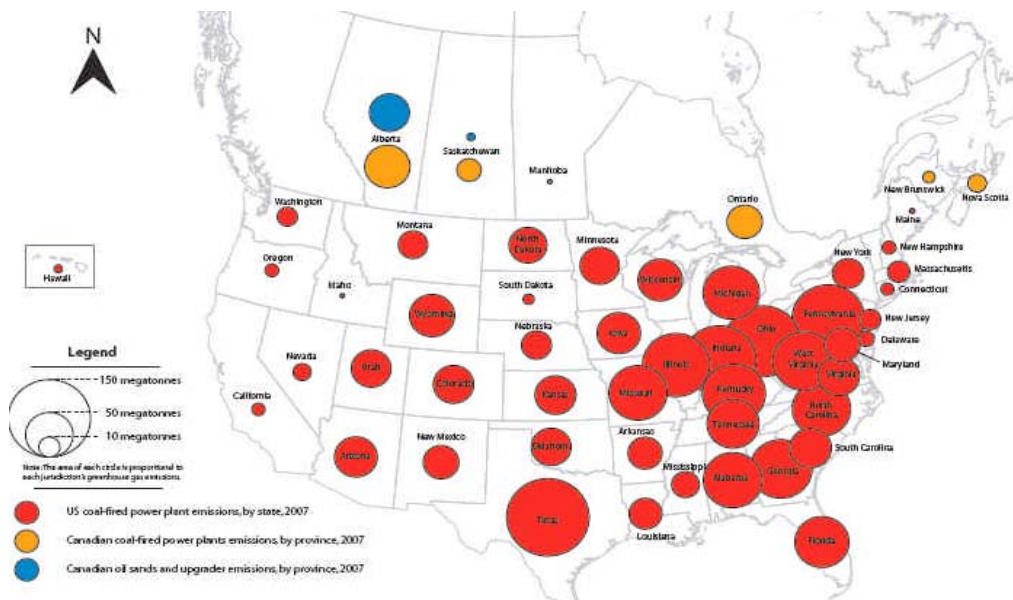
GHG Emissions



Source: Air Pollution Sources in Ontario, Environment Canada

³ Ontario Greenhouse Gas Emission Targets, Technical Brief, June 2007, Ontario Ministry of the Environment.

Alberta's oil sand operations represent a large source of the province's GHG emissions. Surprisingly however, the map below demonstrates that the emissions from Alberta's oil sands are much smaller compared to those from coal generation in many U.S. states.



Source: Canadian Association of Petroleum Producers, June 2009

Options for Reducing Greenhouse Gas Emissions:

Equipment Upgrades: Boiler, turbine and heating, ventilation and air conditioning system performance upgrades improve plant performance. These efficiency improvements result in better fuel use and this reduces GHG emissions. In 2004, turbine upgrades on Unit 7 at Ontario's coal-fuelled Nanticoke Generating Station, increased its Maximum Continuous Rating from 475 MW to 495 MW.⁴ Utilizing waste heat from the combustion process also improves efficiency thereby reducing emissions. For example, many of Denmark's coal-fuelled generating stations produce both electricity and heat and therefore have double the efficiency of many North American coal stations.

Biomass: Agricultural and forestry biomass wastes, such as oat husks and wood slash are carbon neutral. Denmark, Sweden and Finland use biomass wastes to fuel their coal and natural gas-fuelled power plants. Using biomass has helped these countries meet their Kyoto targets and create jobs in their agriculture and forestry sectors.

⁴ Energy efficiency and technological improvements, e8 at www.e8.org

Carbon Capture and Storage (CCS): CCS uses technology to capture carbon dioxide (CO₂) from large point sources such as coal and natural gas generating stations. The CO₂ is then injected and stored in geological formations. Canada hosts one of the first commercial examples of CCS in the world at Weyburn, Saskatchewan where U.S. generated CO₂ is injected into the ground to enhance oil recovery.

Carbon Cap and Trade (CCT): CCT, also called emissions trading, uses economic incentives to achieve reductions of pollutants of concern. Government typically sets a limit or cap on the amount of a target pollutant that can be emitted. Emitting entities are issued emission permits and allowances or credits allowing them to emit a specific amount of the pollutant. The total amount of the allowances and credits cannot exceed the cap. One carbon credit is equal to one tonne of carbon. The creation of credits must meet a rigorous validation process set by the trading scheme. There are two types of carbon credits—offsets and reduction. Credits are created through clean energy projects such as hydro as well as through collection and sequestration of carbon; e.g. cultivation practices and reforestation. The PWU advocates the qualification of nuclear and biomass projects for credits.

These activities will cost emitters trillions of dollars. The PWU believes that cap and trade revenues from Ontario's electricity sector should be reinvested back into the sector for: biomass supply infrastructure; technology development e.g., nuclear; carbon capture and storage; worker training and adjustment compensation; and expanded electrification (such as electric vehicles). Costs not mitigated by these actions can be expected to negatively impact operating and capital revenue requirements.

The PWU has been participating in federal, provincial and the Western Climate Initiative (WCI) Carbon Cap and Trade policy forums. There are several North American CCT schemes being considered including: the WCI (includes western U.S. states and several Canadian provinces e.g. Ontario); Regional Greenhouse Gas Initiative (RGGI- Northeastern and mid-Atlantic states with eastern Canadian provinces as observers); American Clean Energy and Security Act of 2009 (Waxman-Markey Bill) and various Senate initiatives; Environment Canada's GHG offset system for Canada; National Roundtable on the Environment and the Economy's (NRTEE-advocating a unified Canadian pricing policy to achieve maximum emission reductions at the least economic cost); and Ontario's discussion paper "Moving Forward: A Greenhouse Gas Cap and Trading Scheme for Ontario."

New CANDU Reactors: According to the Canadian Nuclear Association, the use of CANDU reactors has avoided 2.4 billion tonnes of CO₂ emissions since 1972. Building new CANDU reactors is a proven effective way to help maintain and improve on Ontario's low carbon electricity system footprint while providing significant long-term stimulus to the economy. Any delay in building the new Darlington reactors means more CO₂ emissions will come from fossil fuel generation much of which will be imported from U.S. coal plants.

Natural Gas, Renewables and Conservation: Ontario's natural gas generation capacity now exceeds that from its coal generation, with more gas capacity to be added. Ontario is switching to this higher cost, price volatile fuel for two reasons: natural gas generating plants emit somewhat less CO₂ per MW than coal and are expected to only be used to meet peak demands. However, if wind and solar generation are not available as forecast, and conservation targets are not met, CO₂ emissions will spike dramatically due to the increased reliance on these natural gas-fired plants. This situation will be further aggravated if new reliable, GHG emission free nuclear capacity is not built in Ontario.

Recent reports from Denmark and Germany show that wind generation does not deliver either the anticipated electricity or environmental benefits. Consumers also pay up to three times more than Ontarians for electricity because of the higher costs of these investments. To date, Ontario has not been able to verify the results of its investments in conservation. Renewable generation and conservation will not deliver enough electricity to meet the base-load electricity needs of a growing Ontario economy, increasing population and continued electrification of the economy (transportation). The fallback will be electricity imports from high emission U.S. based coal-fuelled generation.
