

Did Green Energy Shut Down Coal – The Facts

The Website of the Premier of Ontario repeatedly makes the claim that building green will shut down coal generation, and improve the health of the people.

Office of the Premier, Dalton McGuinty – January 21, 2010

The McGuinty government has signed an agreement that will bring more green energy and new jobs to Ontario. ...

“ Thanks to today's announcement, we will be delivering **more green energy for Ontarians** to use -- and more green energy products for North America to buy. With this step, Ontario is becoming the place to be for green energy manufacturing in North America. ” Dalton McGuinty – Premier of Ontario

“ This is a huge achievement for Ontario and we look forward to more **green energy success stories**. These projects will help **clean up our air and replace dirty, coal-fired generation** as well as bring more green-collar jobs to communities across the province. ” Brad Duguid – Minister of Energy and Infrastructure

Quick Facts

- Over 1,200 megawatts of new renewable projects, representing \$2.8 billion of investment, have started up in Ontario since 2003.
- Ontario is Canada's leading province in wind and solar power.
- The Green Energy Act will create 50,000 new jobs in the green energy sector.
- **CO2 emissions from coal-fired power generation are 73 per cent lower than 2003 levels**, with four more units coming offline in fall, 2010.

Office of the Premier – October 12, 2005 – Speech from the Throne

Your government is determined to **protect Ontarians' health by cleaning up the air they breathe** and protecting the water they drink.

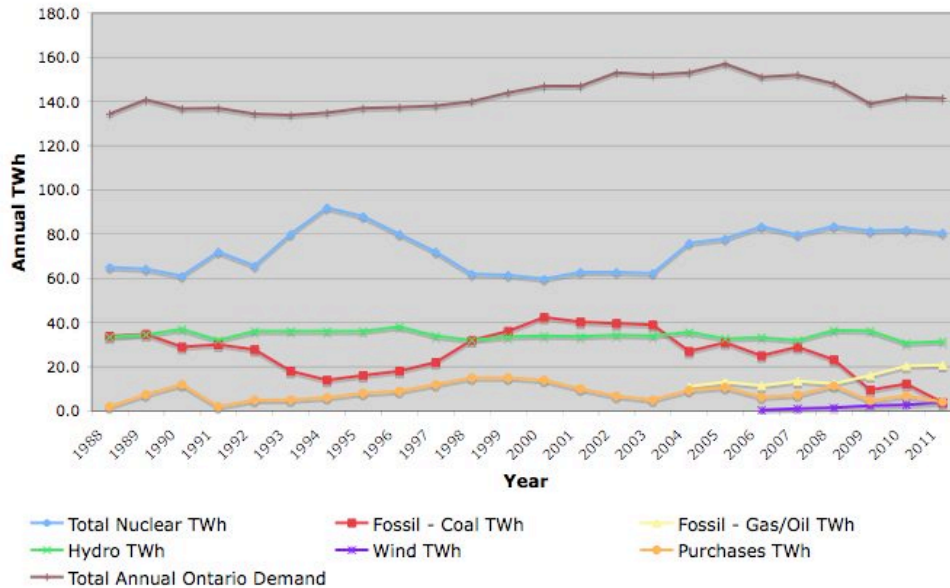
It will **replace coal-fired electricity generation with cleaner forms of energy**, with the last coal-fired plant slated to close in early 2009.

Office of the Premier – Sept 24, 2009 – Green Energy Act will Attract Investment, Create Jobs

- **Ontario is Canada's leading province in wind power**, producing enough electricity to power more than 300,000 homes -- or a city the size of Markham.
- **The Green Energy Act will aid Ontario's commitment to eliminate coal-fired power by 2014** -- the single largest climate change initiative in Canada.
- Ontario has gone from 10 turbines in 2003, to more than 670 spinning today and will have 975 by 2012.

But do the facts support these claims? Sometimes a picture can replace a thousand words of rhetoric.

Ontario Electrical Generation



This chart collects data from the reports of Ontario Hydro, Ontario Power Generation, Bruce Power, the Independent Electricity System Operator, and Sygration, which produces a value added service to the IESO data, to show the actual truth. Although it may speak for itself, here's the words for those who wonder what the chart shows.

In the late 1980's, Ontario had an electrical system that met the province's electrical needs with some 60 TWh from nuclear plants at Pickering and Bruce, and with some 35 TWh each from hydro and coal. In the early 1990's the Darlington nuclear generating station came on line, and the nuclear contribution climbed over 90 TWh, dropping coal's contribution to about 15 TWh.

However, government influences took their toll. The Darlington generating station had been committed in 1977, with a projected cost of \$5 billion. After the plant was committed, the incidents at Three Mile Island in 1979, and Chernobyl in 1984 influenced public opinion. Although construction was well underway, when the Liberal government of David Peterson came into power in 1985 they delayed the start up of Darlington for more study. Interest rates had risen to nearly 20% in those days, and the cost of the delayed plant rose to about \$14 billion, in significant part due to interest accumulation. Further, the start up was also delayed somewhat due to technical issues with a revised design and additional regulatory scrutiny of the new design. When Darlington did start up in the early 1990's, the consumer electricity costs increased as these interest-inflated costs were applied to consumer bills. The government had been replaced just prior to the

final start up, to the NDP party under Bob Rae in 1990. To cut costs of hydro bills, cost cutting measures were introduced, electricity rates were frozen, senior Ontario Hydro staff were given an offer for early retirement to cut costs, and many experienced staff left, leaving Ontario Hydro in somewhat of a survival mode, with reduced maintenance and expertise. Partly as a result, performance problems started to appear.

In the 1990's the performance problems became apparent, and again the government changed to the PC government of Mike Harris in 1995. A decision was taken to shut down Bruce A and Pickering A Nuclear generating stations, and to focus efforts of staff under a new leadership team brought in from the United States to improve the newer reactors at Pickering B, Bruce B, and Darlington. Nuclear generation output dropped back to 60 TWh, and coal output rose to 40 TWh, increased somewhat due to the growing electrical load in the province. The government decided to breakup the monopoly of Ontario Hydro intending to decrease costs through competitiveness, leasing Bruce Nuclear Stations to Bruce Power, and inviting offers from other suppliers to build new natural gas fired generation.

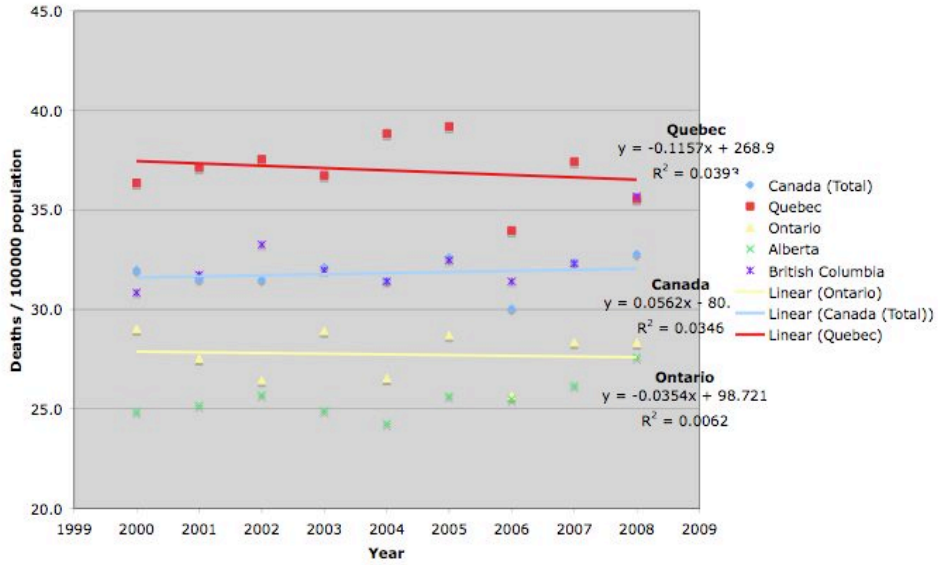
Again the government changed, and in 2003, the Liberal Party under Dalton McGuinty came to power, with specific promises to shut down the coal generating stations by 2007 to improve the health of the population, and to increase the supply of renewable energy. As Unit 1 and 4 nuclear reactors at Pickering A, and Unit 3 and 4 at Bruce A came back into service in 2003 and 2004, along with the first of the new natural gas fired generators, the coal output did drop from 40 TWh to about 25 TWh as shown on the chart.

But, then, an unpredicted event occurred – the province of Ontario, along with most of the rest of the world, started to go into a severe recession, and the electricity demand dropped by some 15 TWh. Combined, the drop in electrical demand, the return to service of 4 nuclear reactors, and the new natural gas generators dropped the need for coal generation to a very low value by 2011.

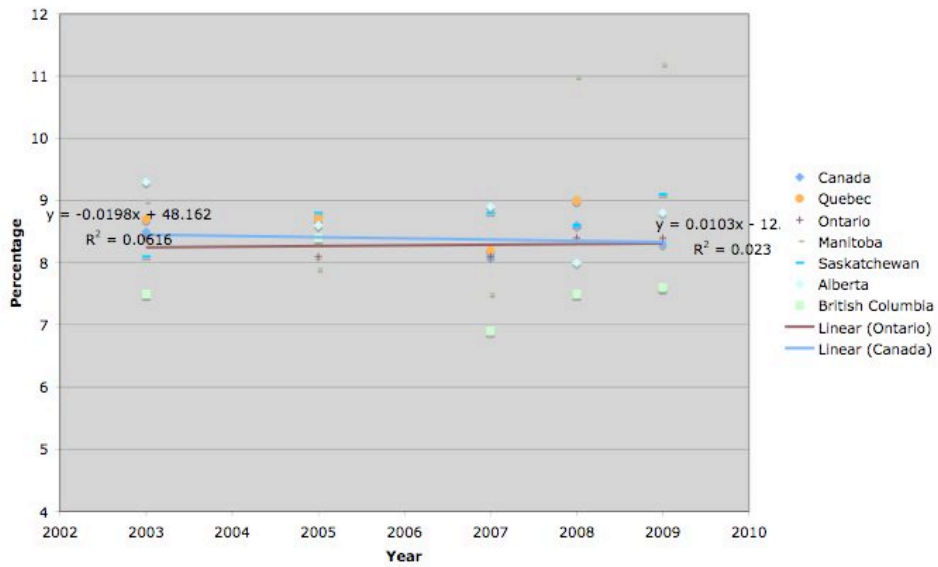
But, was it the new renewable generation that shut down coal? Hardly, the chart shows that the small contribution of some 4 TWh for the renewables in Ontario, permit only a tiny fraction of the reduction in coal output. In fact, most of the wind generation is generated when the system demand is low in spring and fall, and at night, with the poorest production during times of system peak, requiring an alternative to the wind must be maintained.

As to the health claims, Statistics Canada shows tables of deaths due to chronic respiratory illness from 2000 to 2008, and the fraction of the population affected by asthma from 2003 to 2010. This data does not show an appreciable decrease in either deaths due to chronic respiratory disease, or in asthma rates in Ontario when the coal generation dropped from 40 TWh per year to a low value, and in fact, show that other factors are more predominant since for example Quebec, even though it has no coal fired generators, and is not prone to the northward sweep of the Ohio Valley fumes that come into Ontario, actually has a higher respiratory death rate and asthma rate than Ontario.

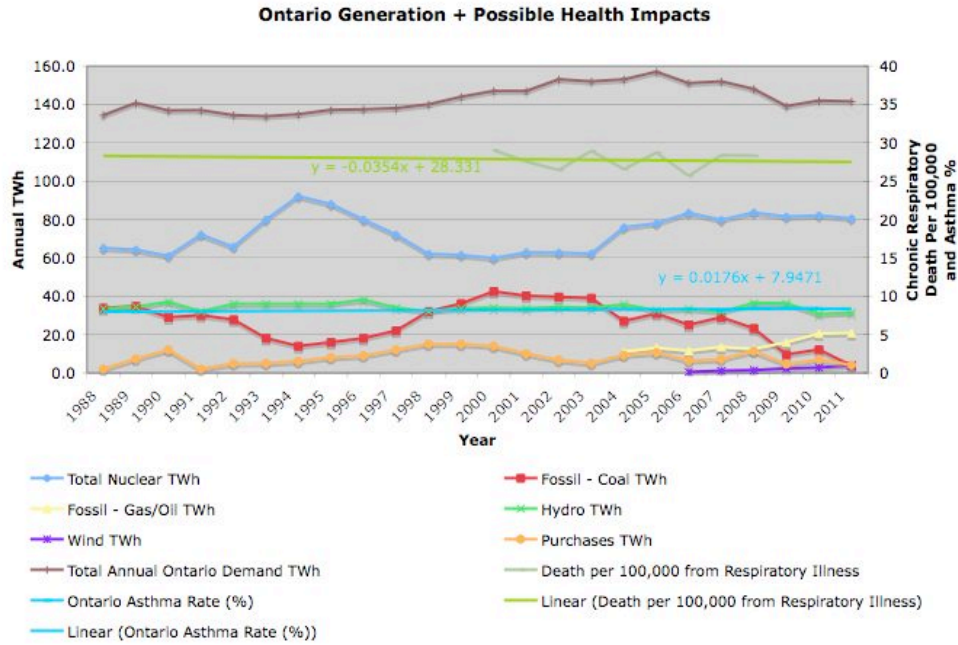
Chronic Respiratory Diseases Death Rate



Asthma Rates in Canada



All of this data is shown together in a final chart, generation, and available public health rates.



Letting the facts speak for themselves is often a good way to come to the underlying truth. Hopefully this will help.

William K.G. Palmer
February 5, 2012