

MYTH

All energy sources have downsides.

Fact

While there are some reasonable concerns around wind turbines (noise and wildlife issues), or solar panels (energy intensive to construct), the impact is relatively small compared to nuclear.

Nuclear generators are prone to insolvable infrastructural, economic, social, and environmental problems. They face immense capital costs, rising uranium fuel prices, problems with reactor safety, waste storage, radiation, water pollution, weapons proliferation, and vulnerability to attack.

Indeed nuclear impacts are growing as the quality of accessible uranium ores decline, requiring larger and more wasteful mines, and the concrete and steel required for reactor construction increase substantially in the wake of more stringent safety regulations and terrorism concerns.

MYTH

Renewables aren't ready to meet all our electricity needs.

Fact

Here's how Ontario could go 100% renewable:

* Energy conservation and efficiency to substantially reduce demand. Ontarians use 50% more energy than New Yorkers. With a little effort we can waste much less.

* Maximize the efficiency of our natural gas consumption through combined heat and power plants (small and large scale).

* Procure more renewable resources: on- and off-shore wind power, biomass, solar and hydro.

* Water power imports from Quebec can provide billions of kilowatt hours of clean, safe electricity

MYTH

Demand for electricity is rising.

Fact

Actually, demand for electricity is falling. Ontario's peak demand for electricity has fallen 10% since 2005 and is predicted to continue to fall in the coming decade. This demonstrates the enormous potential of conservation and load shifting.

MYTH

But think of all the jobs we'd create with the nuclear rebuild projects.

Fact

Nuclear power is the most expensive and capital intensive way to create jobs. A transition towards labour-intensive renewable energies and efficiency programs would be a more rational and successful way to create jobs.

Ontario could retool its suffering manufacturing industry to become a leader in constructing solar panels and wind turbines for domestic and export markets. Jobs in installing, operating, and maintaining renewable energy systems tend to be more local in nature and would benefit a broad range of communities. Furthermore, thousands of Ontarians could be employed weatherizing homes and buildings across the province, reducing our climate footprint while saving energy and associated costs.

Internationally, the growth of renewables is outpacing forecasts and creating millions of new jobs. In the U.S., the renewables and energy efficiency industries generated 8.5 million jobs, over \$900 billion in revenue and more than \$100 billion in industry profits in 2006 while providing an important stimulus to the shrinking U.S. manufacturing sector. And it continues to grow around the world. This is job creation on a massive scale.

MYTH

Renewables aren't cost competitive yet.

Fact

Oh yes they are! With the exception of solar energy (which isn't far behind), renewables and efficiency are much cheaper than re-building our aging nuclear reactors.

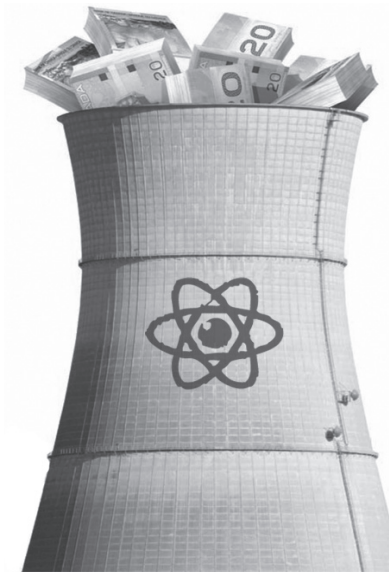
Cost Comparison of Energy Supply:

- Energy Efficiency: 3¢ per kwh
- Natural Gas Combined Heat & Power: 6¢ per kwh
- Hydro electricity from Quebec: 4¢ per kwh
- Wind: 11.5¢ per kwh
- Nuclear Re-Builds: 19-37¢ per kwh
(does not include liability, waste, stranded debt or decommissioning)



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NUCLEAR ENERGY Myths & Facts

The Ontario Government intends to extend the life of the Pickering Nuclear Station by 5 years, while also rebuilding 4 reactors at Darlington and 6 reactors at Bruce. Together these projects will cost tax and ratepayers tens of billions of dollars, and lock us into a nuclear future until at least 2050.

MYTH

Ontario uses a lot of nuclear energy... We need it as a base-load.

Fact

Base-load demand can be met at lowest cost by energy efficiency. Ontario is one of the most wasteful users of electricity in the world – we use 50% more energy and 27% more electricity per person than people in New York State.

Our base-load needs can be supplied by an integrated combination of wind, water, biomass, solar, and natural gas combined heat and power plants. When the wind turbines aren't turning or sun isn't shining, we will need to increase the output of the other options. Water power imports from Quebec are a great solution to provide the province with clean, sustainable, and low-cost energy

MYTH

Ontario is desperately short of electricity. We could have another blackout at any time.

Fact

Despite phasing out our coal plants, Ontario has actually been a net exporter of electricity over the past 7 years. We've brought on a lot of new generation capacity (natural gas and wind), and combined with efficiency measures, demand within Ontario has fallen 10% since 2005.

The 2003 blackout had nothing to do with supply in Ontario – it was caused by a transmission line malfunction in the United States. But it took Ontario longer to recover because our nuclear plants are slow and cumbersome to restart. We were without power much longer than people in the U.S. where the problem originated.

Is this the best way to meet our electricity needs?

MYTH

How are we going to deal with climate change without nuclear?

Fact

Investing in nuclear energy to deal with climate change is like smoking cigarettes to lose weight – a new problem is created while the initial one is not resolved.

While electricity generated from nuclear power entails no direct emissions of CO₂, the nuclear fuel cycle does release CO₂ during mining, fuel enrichment and plant construction. Uranium mining is one of the most CO₂ intensive industrial operations, and as demand for uranium grows, CO₂ emissions are expected to rise as core grades decline.

Furthermore, nuclear is the slowest and most expensive solution for addressing climate change. Fortunately there are many faster, lower-cost and greener options to meeting all our electricity needs – a mixture of energy efficiency and renewable energy that offers a quicker, lower cost and more realistic and sustainable approach to reducing CO₂ emissions.

Nuclear Energy: Myths & Facts



MYTH

If green energy is indeed cheaper than nuclear, why doesn't the provincial government get it?

Fact

Two reasons. The first is the power of old ideas and old ways of thinking. Conventional wisdom of the past was that the lowest cost options to meet our electricity needs were a combination of very large coal and nuclear power plants plus high-voltage transmission lines to bring the power to the electricity consumers. However, due to improvements in energy efficiency and renewables, the conventional wisdom is no longer true. The lowest cost Made-in-Ontario options to meet our electricity needs are now energy efficiency and small-scale distributed generation.

The second reason nuclear power is still considered is because it is fuelled by special interests. The 2 biggest electric power companies in Ontario – Ontario Power Generation and Bruce Power – are nuclear power companies. And one of the most powerful unions in the province is the Power Workers Union. As long as debt payments are guaranteed by Ontario's taxpayers, insurance companies and pension funds make lots of money on issuing loans for the construction of nuclear power plants.

MYTH

But nuclear plants have to compete with other energy sources - that's how capitalism works.

Fact

The real costs of nuclear energy are consistently misstated, incomplete and externalized. Nuclear power cannot be sustained without huge government subsidies and handouts from its very inception.

Every nuclear project that has been built in Ontario has had huge capital cost overruns that have been passed on to Ontario's electricity consumers or taxpayers – aka. corporate subsidies. Ontarians are still paying the stranded debt for past nuclear mistakes and will be for years to come.

On the other hand, renewable and gas-fired power companies are not allowed to pass their capital cost overruns on to electricity consumers or taxpayers.

Specifically, the ON Government signed over 10,000 contracts for renewable and gas-fired electricity and not one of these contracts allows these suppliers to pass their capital cost overruns on to consumers or taxpayers.

We need to make it illegal for nuclear power companies to pass their capital cost overruns on to Ontario's consumers and taxpayers. No more special deals. Let the free market decide if nuclear is fit to survive.

MYTH

'New' nuclear will avoid the mistakes of the past.

Fact

The cost of rebuilding the Pickering A Unit 1 was almost 5 times greater than what the experts predicted. Since the unit was restarted in 2005, its performance has been abysmal. In 2007 its annual capacity utilization rate was only 39% despite the fact that we were promised that it would have an 85% capacity utilization rate.

In Finland a "state of the art" reactor is being built by Areva. It is billions of dollars over budget and completion has now been delayed, with operation estimated to begin as late as 2020. Similarly, New Brunswick's Point Lepreau Nuclear Generating Station recently rebuilt its reactor; the project took 3 years longer than anticipated and was \$2 billion over budget. Bruce Power also recently rebuilt 2 reactors which came in \$2 billion over budget.

Now Ontario Power Generation (OPG) wants a 30% rate increase to fund the rebuilding of the Darlington Nuclear Generating Station as well as the maintenance that will be required to keep the Pickering Nuclear Generating Station open until 2019.

MYTH

Modern nuclear power plants are safe. We haven't had any accidents in Canada.

Fact

We did in Chalk River, ON in 1956. And then there was Three Mile Island, Chernobyl and Fukushima. Over 100,000 people are still displaced from their homes around the still very dangerous Japanese nuclear station, and they will likely never be able to safely return. Costs for that cleanup are estimated to be a quarter trillion dollars and will take 100 years.

Although the nuclear industry claims it is "emission" free, in fact it routinely releases millions of radioactive curies annually, referred to by the industry as "incidents". Furthermore, nuclear plants leak and release millions of gallons of cooling water contaminated with radioactive tritium into the environment, threatening drinking water and fish

habitat. Like all radioactive materials, tritium is a known carcinogen and mutagen, as well as interfering with normal fetal development. These effects are known to occur even at low exposures.

Radioactive contamination does not respect borders, and nuclear power plants as well as uranium mines threaten the health and well-being of all surrounding nations and environments. There is strong evidence of a positive association between low-level exposure to radiation and cancer mortality.

Security threats at power plants are colossal. Although security at civilian airports has been enormously improved, security at nuclear power plants is virtually unchanged, even though these facilities constitute potential weapons of mass destruction and, as such, are inviting targets for terrorists.

Ask the insurance industry why they won't insure nuclear plants. It falls to governments (e.g., taxpayers) to once again foot the bill for nuclear liability coverage.

MYTH

Why not diversify with nuclear AND green energy?

Fact

With spending committed to multi-billion dollar nuclear plants, and a resultant need to run these plants as close to capacity as much as possible to justify these expenditures, all other options are squeezed to the sidelines.

We have a choice to make now – either be stuck with nuclear energy until 2050 and beyond, or make a transition to green energy. We cannot do both.

MYTH

Nuclear power plants have nothing to do with nuclear weapons.

Fact

Nuclear power plants produce plutonium and other by-products that are essential ingredients of nuclear bombs. Any country with a nuclear reactor can in theory produce a nuclear weapon. CANDUs (Canada's technology) produce the isotope plutonium 239, making the production of nuclear weapons relatively easy for host countries. India manufactured nuclear weapons from Canadian nuclear technology in the 1970s. Additionally, depleted uranium, a by-product of the uranium enrichment process, is used in weaponry including nuclear weapons.

MYTH

Nuclear power is green and the waste is no big deal.

Fact

Extremely toxic radioactive wastes are an unavoidable byproduct of nuclear power plants. A notable example of this is plutonium 239 which remains radioactive for half a million years. Producing long-lived radioactive waste with no solution for its disposal will leave serious and irreversible environmental damage and degradation for generations to come, which is contrary to the principles of sustainability in addition to being irresponsible.

Furthermore, there are 200 million tons of sand-like uranium tailings in Canada, mostly in Ontario and Saskatchewan. These radioactive wastes will remain hazardous for hundreds of thousands of years. They contain several of the most powerful known carcinogens including radium, radon gas, polonium and, thorium. Storing these materials in a safe undisturbed state for thousands of years will be extremely difficult and is something we have zero experience doing.

MYTH

We know how to store nuclear waste.

Fact

Even though nuclear power has been operational for nearly fifty years, no country in the world has solved the long-term problem of how to store and maintain radioactive waste. All nuclear waste in Canada is stored temporarily on-site of each nuclear facility until a more permanent solution is found. We currently store 50,000 tonnes and counting.

The Nuclear Waste Management Organization's (NWMO) desired plan for dealing with their waste is to bury it 500+ meters in the ground, somewhere to be determined, sometime in the future, to remain forever, potentially on the shores of Lake Huron, and hope it never leaks or burns.

Anti-nuclear advocates believe the best solution is to both store it onsite, above-surface, making it retrievable should we find a solution in the future, and to stop making any more nuclear waste.

