

WHEN “T” STANDS FOR “PERMANENT”: WHY NUCLEAR POWER IS NOT A TEMPORARY SOLUTION TO OUR ENERGY WOES



Courtesy of DOE/NREL, Credit - Warren Gretz

Amidst the many gorgeous buildings at McMaster University, named after great academics and contributors to the pursuit of higher education, there is a building called T-13. T-13 is a plain, gray, single storey, rectangular building located on the outskirts of campus. Its exterior is reminiscent of what I imagine a bomb shelter looks like, while the interior is a handful of large, dull, white rooms with old desks and mismatched chairs. The lighting, wireless internet, acoustics, and plumbing in T-13 are often questionable at best, and it is a generally depressing place to spend your day.

Why is this building so unsightly in comparison to the rest of the university?

Because the “T” in “T-13” stands for “temporary”. T-13 was built under the belief that it would merely be a temporary building, presumably as a storage room or as a few emergency offices for the ever-increasing university.

Of course, that was over 10 years ago.

T-13 is now used as a regular lecture hall, a testing centre, and it was the location of University Technology Services’ offices for a substantial period of time.

Because there is no real economic or practical incentive to tear T-13 down, it operates just like any other permanent building at McMaster University, except for the fact that it was never intended to be a permanent building.

When examining the future of a nuclear power plant, it seems eerily similar to that of T-13. Nuclear power is often promoted as being a temporary solution to our energy needs until renewable, clean sources of energy like solar power and wind power become cheaper, more efficient, and more widespread. According to the US Energy Information Administration, in 2006 approximately 86% of the world’s energy was provided by fossil fuels (2007). Pro-nuclear activists argue that nuclear power can replace these fossil fuels with a source of energy that does not produce any carbon emissions, and thus help abate our current climate change crisis.

But the inherent problem with nuclear power is that it cannot work as a permanent or temporary provider of energy. It cannot be a long-term provider of energy because the uranium required to produce nuclear energy is a non-renewable resource. While the Nuclear Energy Agency estimates that there are enough uranium deposits known to exist or expected to be discovered to provide nuclear energy for at least a century, this is only under the condition that the world continues to use nuclear energy at its current consumption rate (2008). If the international community begins to shift to using nuclear energy in a far more widespread capacity, it is quite possible that we will quickly exhaust our supplies of uranium.

Further adding to the temporality of nuclear energy is the problem of nuclear waste. Currently, no nation has been able find a permanent solution to eliminate or permanently store its nuclear waste (Palfreman 2010). In 2007, the Government of Canada commissioned the Nuclear Waste Management Organization (NWMO) to implement a long-term, safe plan for dealing with Canada's nuclear waste (Kalvins 2010). NWMO's current goal is to begin the construction of a deep underground repository to store nuclear waste. This project will take an estimated two or three decades of construction and will cost \$16-\$24 billion (Kalvins 2010). But financial and time hurdles aside, the major roadblock to this repository is the fact that there is no safe place to build it.

Many environmental groups, Aboriginal activists, and individual communities are extremely resistant to the idea of a deep repository storing such dangerous waste due to concerns over the detrimental effects to human, animal, and ecological health if an accident were to occur in the transportation of waste to the repository, or in the repository itself. It is quite clear that due to the fact that nuclear energy is non-renewable and has no foreseeable means of dealing with the waste it produces, it cannot be a permanent solution to our energy woes.

Since it cannot be a permanent source of energy, nuclear power is touted as being a good temporary, clean source of energy that we can use to help wean us off fossil fuels. But like T-13, there is nothing very temporary about current nuclear programs, and to believe that governments will implement a nuclear program on a temporary basis is almost ludicrous. The construction and maintenance of a nuclear power plant is a very time consuming and expensive investment. It takes billions of dollars and years of legislation, design, planning, and construction to build a nuclear power plant (Winfield 2006). Nuclear plants also consume large amounts of time and money in maintenance and waste management costs. In 1997, four reactors in Pickering were found to be inefficient and unsafe to the point that they had to be temporarily shut down. 8 years of maintenance work and over \$2.26 billion has currently restarted only two of the reactors (Winfield 2006).

Since a nuclear plant is such an enormous investment, it is one that any government would want to see live out its full potential. It is idealistic to believe that a government would shut down a fully-functioning nuclear plant after only twenty or thirty years of operation to produce a solar or wind farm, after decades of time and money went into the making and maintaining the power plant. Further adding to a government's unwillingness to end its nuclear program is the decommissioning process required to safely close a power plant. Decommissioning is a thirty-year process that produces large amounts of waste, and is extremely costly. It is estimated that it will take \$7.474 billion to decommission the existing reactors in Ontario alone (Winfield 2006). Governments are constantly seeking re-election, and as such, rarely think past four or eight year terms. It would be unprofitable and inefficient for a government to opt to end a nuclear program if it were not absolutely imperative for them to do so.

If this nation, or the world, decides to go nuclear, we will be sticking with nuclear until the waste or the lack of uranium becomes too big of a problem to ignore, just as how McMaster University will continue to keep T-13 up until it absolutely runs out of space for buildings and needs to build a permanent building over it.

Governments around the world unequivocally depended on, and will continue to depend on fossil fuels and oil-dependant automobiles until the pollution and carbon emissions become too problematic to ignore, and history will repeat itself with nuclear power. Nuclear power is simply a bad band-aid solution to one environmental problem that will create another one in a hundred years or so.

Rather than investing billions of dollars and decades of time investing in a source of energy that will only create more long-term environmental problems, nations should be researching and developing technologies that harness solar power, wind power, and other renewable, clean sources of energy that can satisfy our energy needs on a permanent basis. While it would be too idealistic to argue that we should stop nuclear programs altogether, and decommission the plants we currently have, nuclear energy programs should not be widely expanded, even on a temporary basis. Because like T-13, this temporary fixture will quickly find itself becoming a permanent problem.

Source: <http://www.sassweb.ca/3bb3/volume1-0/nuclear-volume1-0/when-t-stands-for-permanent-why-nuclear-power-is-no-temporary-solution-to-our-energy-woes>