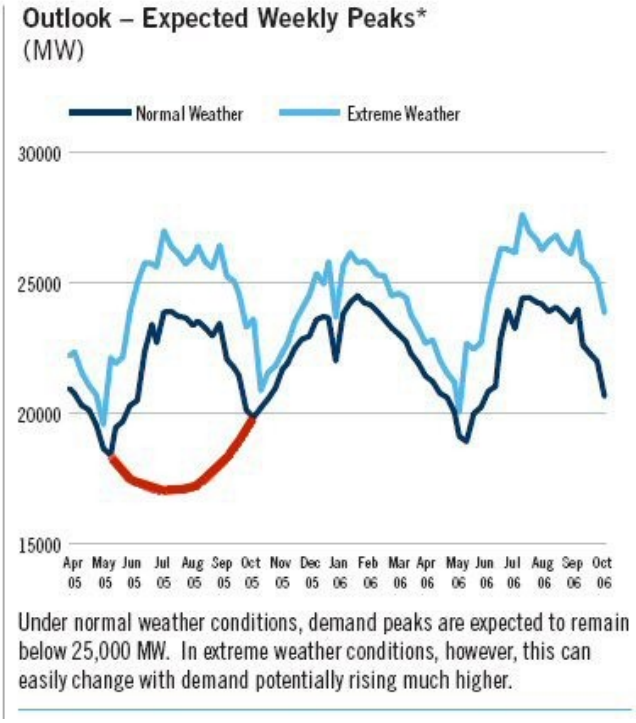


The graph shows the expected electric power demand for Ontario for 2005 and 2006. The graph has two annual peaks, one created by the power demand for air conditioning in the summer, and the other for providing heat and light in the winter.

Note that the maximum peaks are larger in the summer, and these summer peaks are increasing rapidly, with a significant difference between 2005 and 2006.

The red line shows what would happen if conventional air conditioning equipment were replaced by ***HEAT network*** cooling. Most of the grid load created by air conditioning is the result of the load from cooling large buildings, such as office buildings, and by whole-house air conditioning that is found primarily in new housing developments. Older houses are generally not air conditioned or use only room air conditioners, so they do not account for much of the total load. ***HEAT networks*** are very easy to install in new developments, and they are relatively easy to install in office buildings. Retrofitting to the existing housing stock is more difficult but since the electric power demand is primarily for the offices the bulk of the objectives can be easily and quickly achieved.

# Ottawa's Cold Winters Provide a Solution to Our Energy Problems

It may seem strange but our cold winters can provide the solution to how Ottawa and Ontario can solve our overloaded electric grid problem. In the process the solution would also reduce the Canadian production of carbon dioxide by over 250 million tons and cut the costs of heating and cooling our homes. For good measure it eliminates the hazards that would be associated with the use of nuclear or fossil fuels.

The solution is to use the cold winter air to chill the ground deep under our feet, and then recover that cold for summer air conditioning. Ground heat exchangers that inject and recover heat from the ground have been in use for decades. They use simple plastic pipes that typically run down to a depth of 100 metres or more. The technology is well established and such pipes last for 50 years or more without maintenance. That is about three times the lifetime of nuclear reactors, which require constant maintenance, and fuel supply, and support operations such as disposal of nuclear waste. The articles on ***HEAT networks*** provide technical details on how the ground cooling (and heating) systems function.

The 9000 megawatt difference would mean that Ontario would have surplus generating capacity in the summer, which could be sold to the US where the summer power demand is much greater than in Canada. In return, we could import power from the US in the winter, flattening the power load to the advantage of both countries. The difference will grow to over 12,000 megawatts within the governments' time frame unless action is taken.

Note that this solution does not require the construction of new electric power generators. We would achieve the objective by reducing demand. The ***HEAT networks*** do not themselves produce any electric power, but they would nonetheless eliminate much of the air pollution presently generated by electric power stations and they would completely eliminate the pollution caused by burning fuels to heat homes and offices.