



Power Plant Decisions

by Kerstin Muth

The future of the Thunder Bay Generating Station has been experiencing a see-saw ride in recent years. A plan to convert from coal to natural gas was cancelled in 2006. Now another plan for conversion was put in jeopardy a few weeks ago.

It is a complex task to analyse all of the inter-dependent criteria involved, including future supply and demand, financial costs, system stability and emergency scenarios.

Another criterion in deciding the future of the Thunder Bay Generating Station is how it will be utilised and the resultant environmental impacts.

Currently, the main source of the region's electricity is hydroelectric with some wind, biomass, natural gas and solar. The maximum generating capacity is about 1000 MW, excluding coal which is to be phased out by 2014. The Northwest has a fairly green energy mix producing low levels of greenhouse gas (GHG) and toxic emissions. Planned biomass, hydroelectric and solar projects will increase maximum capacity to about 1300 MW.

The supply of renewable energy is variable. For example, hydroelectric supply depends on water flow. In the dry years of 2003 and 2007 hydroelectric supply was reduced to about 50%. Electricity is imported (or exported) to (or from) the region as supply and demand requires via three grid interties.

The future Thunder Bay Generating Station could operate as a peaking plant when there is high demand or at times of low regional capacity. There would be a relatively low level of electricity production and minimal production of GHG emissions however, the 300 MW facility would often be underutilised.

At the high end of the electricity production spectrum the power plant would operate frequently at high levels and would be a significant source of electricity for increasing industrial demands, such as mining.

The average power demand last year for the Northwest region was about 500 MW, ranging from an average daily low of 303 MW on October 4 and a high of 768 MW on January 20. Industrial demand is expected to increase but the extent and timing is difficult to predict. The number of future mining projects will depend on negotiations with First Nations communities, environmental assessments and the status of the global economy. If most proposals proceed as planned, power demands could climb to about 1300 MW for the region. The Ring of Fire alone could require up to 300 MW of electrical power. Supplying such an

increase largely through natural gas will result in significant GHG emissions. It may be the cleanest fossil fuel, however full fuel cycle analyses show renewables produce far fewer GHG and toxic emissions than natural gas.

In 2007 Ontario set GHG emissions targets for 6% below 1990 in 2014, 15% below by 2020 and 80% below by 2050. Emissions in 2009 were 6.5% below 1990 levels and if this can be maintained the 2014 target can be met. The reduction is largely due to the phase out of coal for electricity generation combined with a downturn in the economy. The next stage will bring new challenges in continuing to reduce emissions in the electricity sector as well setting ambitious policies for reductions in the transportation and industry sectors.

In 2009 Arctic North Consulting prepared a report for the David Suzuki Foundation titled “Climate Change and Canadian Mining, Opportunities for Adaptation”. The report quotes the Mining Association of Canada which stated in 2004 that they are “...firmly committed to being part of the climate change solution. Our Association takes climate change and the reduction of GHG emissions very seriously”.

Natural gas has become a larger part of Ontario’s energy supply mix. As a GHG-producing fossil fuel it has be used efficiently. Some natural gas plants are designed to cogenerate both heat and power. Others are designed as peaking plants. New technology allows them to run efficiently and adjust power quickly and thus are a good complement to wind and solar.

Changes in energy supply facilities are opportunities to make innovative changes that bring us closer to a low-GHG future. Energy supply for the mining industry and plans for the Thunder Bay Generating Station should be a part of this future. *Kerstin Muth is a member of Environment North*