

# Green Scene: Lights out for Burrard Thermal?

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The Burrard Thermal plant on the north shore of Moody Arm. *V. Otton photo.*

The provincial government recently reminded the City of Port Moody it intends to close the Burrard Thermal Generating Plant next spring. I hope the City of Port Moody will object to such a foolhardy decision.

Burrard Thermal is a large natural gas-fired plant with a 912 MW (megawatt) capacity which could produce up to 7% of the electricity generated by BC Hydro. In the late 1990s, the plant was running full-out to produce electricity for the Californian market during their Enron-engineered electricity “shortage”. Not surprisingly, local residents complained about this large plant running year-round simply to produce profits for BC Hydro. Since then, it has been used more sensibly as a source of power only during peak demand periods of winter when it’s cold and dark, i.e., the period of highest electricity consumption in BC. It also serves us as a standby plant ready to supply electricity in the event of emergencies elsewhere in the system or during extremely low-water years.

Most of our electricity comes from the far north of BC over lengthy transmission lines. These transmission lines are vulnerable to extreme weather events such as ice storms or, in the summer, forest fires. Many kilometers of beetle-killed wood lie between the Bennett generating station on the Peace River and the people and businesses of the lower mainland. With BC now experiencing more prolonged and dry summers due to climate change, the risk of catastrophic forest fires is increasing.

In the 1990s, landslides damaged transmission towers near Revelstoke Dam and stopped electricity transmission from this plant. Burrard Thermal was needed to provide electricity during this emergency. In 2008, ice formation on the Peace River curtailed electricity generation at the Bennett Dam. Once again, Burrard Thermal came to our rescue. This time, 5 out of its 6 generating units were needed to replace the electricity supply temporarily disrupted from the Peace River.

During 1994-2001, Burrard Thermal went through a number of upgrades to reduce its air emissions. These included the addition of selective catalytic reduction units which reduced nitrogen oxides production by 90%. In fact, Burrard Thermal is now the cleanest natural gas plant in BC (there are four others, all smaller) with regard to nitrogen oxides emissions – in fact, it may even be the cleanest such plant in North America.

It is important to remember Burrard Thermal is a single-cycle natural gas plant which burns with an efficiency of about 35%. These days, when new natural gas plants are built they are typically combined-cycle plants which have higher efficiencies. However, combined-cycle plants are much more expensive to construct. No major utility would build a combined-cycle plant and then keep it only on standby. Having a single-cycle plant serve as a standby to deliver firm and reliable electricity is the most sensible approach.

It is important for all major utilities to have the ability to produce firm power (i.e., not derived from intermittent sources such as wind, solar or run-of-river) when needed during peak demand periods or under emergency conditions. Thus, many major utilities maintain standby gas plants. Ontario has one which it keeps on a standby basis at a cost of over \$80 million per year. The cost to keep Burrard Thermal on standby is a bargain \$14 million. BC Hydro presently has a 275 MW standby plant in Campbell River – this is a privately-owned plant for which BC Hydro pays \$55 million a year simply to keep on standby. This smaller plant would not have been able to produce sufficient electricity during the 2008 emergency nor is it especially close to the lower mainland where most of the population of BC resides.

Without standby plants, major utilities must purchase electricity on the so called “spot” market during periods of inadequate supply. During the winter months, when demand is high so are the costs to purchase electricity – prices can reach over \$1000 per MW hour. With gas supplies expected to remain abundant over the next few decades, the cost to generate electricity from gas is expected to remain relatively low, around \$40 per MW hour.

While it would seem ideal if all our electricity could be generated from non-fossil fuel resources, it is abundantly clear that building big dams such as Site C also have environmental consequences. The BC Clean Energy Plan calls for 93% of our electricity to be derived from renewable resources. This still leaves a comfortable fraction for natural gas, the cleanest burning of the fossil fuels. I think there is a strong case to be made for keeping Burrard Thermal in operation as a standby plant; I hope the City of Port Moody supports keeping this source of tax revenue and jobs as it also provides benefits to everyone in the lower mainland.