Into the light

When the lights went out on August 14, I have to admit that I was among the not so few who feared that maybe it wasn't an accident. The events of two years ago have changed how safe many of us think we are.

And while loss of productivity concerned many, safety was the main concern. Tips of how to secure food and water supplies, keep cool, and care for family members and pets were filling our newspapers and airwaves.

When the dust settled and the lights came on, we learned more about what caused the black out. Fifty million people across Ontario and the northeastern United States were plunged into darkness after a single coal-fired power plant near Cleveland went off-line at about 1:30 that afternoon, it seems.

Reports said that Ontario, unable to separate from the North/South grid in time, was on the receiving end of cascading transmission failures. Our nuclear power plants were knocked off-line, and it took technicians several days to bring them back online.

But commonplace occurrences can knock the power out of the plant, an energy engineer told me. The power system is easily disturbed, it turns out.

So this should not have happened, he said. If a nuclear reactor is shut down for more than four hours, it will mean that the reactor cannot be started again for three to four days. The key is to keep the reactor on line. "Normally, we would only expect one reactor at a generating station to go down at a time and then there is still power available. I have not seen an explanation as to why they could not stay on line during this emergency."

Which leads to a question: If this is a well-known fact among energy providers, what is being done about it? Certainly we have seen this before.

In April, a power plant in Sarnia was idled by a grass fire near three, high voltage feeders (a transmission system is made up of several of these). All the feeders went out and the load switched to the 4th feeder, which could not handle it, and the power went out at a number of chemical plants and refineries.

And I experienced the ice storms of 1998 that had power lines down and transmitters out for up to four weeks in some areas of Quebec and eastern Ontario. Quebec obviously learned from the dark days of January 1998, spared skidding into darkness with us last month, having put $3 billion into upgrading its power grid. When its neighbours' systems went down like dominoes, Quebec's was still up and running. There is a lesson to be learned.

Though it has not been determined that there was an engineering failure, PEO has offered its support to the Eves government "in whatever proactive steps [the] government might take to address this event." In a letter dated August 25, 2003, our CEO, on behalf of the President, outlines two areas in which PEO can be of assistance. The letter reads, in part:

"1. PEO's job is to regulate the engineering practice of members of the profession. This includes the practice of engineers involved in power systems, including power generation, transmission and distribution, and systems operations, protection and maintenance. If during the course of the government's investigation it appears there might have been professional misconduct by a PEO licence holder, PEO would need to investigate the facts in accordance with our normal complaints and discipline procedures. PEO investigators have background in power systems, and in power generation, transmission and distribution, which would enable them to determine the root causes of whatever engineering problem there might be and make recommendations to improve engineering practice in these areas.

2. PEO has been developing a concept of 'engineering governance'. The inability to restore the power system in Ontario in a timely manner suggests the possibility of policy failure traceable to a lack of engineering governance within the entities responsible for delivering a reliable electricity supply. In an investigation of governance within these entities, PEO would look at such issues as whether:

- There is a person at the board level responsible for engineering-related issues;
- The board understands the engineering challenges and roles facing the entity;
- Directors are required to "balance the books" in terms of engineering impacts on stakeholders;
- An annual engineering audit is performed and reported to stakeholders;
- There are systems in place to ensure that engineering is managed properly; (and)
- The board knows when engineering is being properly managed."

The letter points out other issues to investigate, including whether "there are policies in place to protect engineers who exercise their duty to report and whistleblowers generally." The entire letter is well worth the read. Check out our website at http://www.peo.on.ca/publications/government/Letter_to_Eves_Power_Aug24_03.pdf.

Surely, a reliable power supply in as rich and technically advanced a province as Ontario isn't too much to ask. I, for one, applaud PEO's efforts to secure it for all of us.

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