

OUR POWER SYSTEM GRID: A CHAIN ONLY AS STRONG AS ITS WEAKEST LINK

In the early afternoon of August 14th, I received a call from my mother, telling me that her new clothes washer and dryer had been delivered. She asked if I would drop by and install them. Like the dutiful son that I am, I cut work early and went to her house. Being a professional know it all and, of course, the publisher of this illustrious electrical magazine, I decided to skip the manual and proceed directly to connection — first the plumbing, then the electrical.

The manual did warn not to operate both units simultaneously on the same 15 amp circuit with the regular household load, but only idiots actually read and pay attention to the manual, right?

Sure enough, 10 seconds into the first cycle and, boom, 50 million people were plunged into darkness. I am hereby apologizing profusely to everyone affected — The cause? A mixture of negligence and pride, of course.

Ah, if life were only this simple...

If not this explanation, then why the blackout? As you will read in this issue, a joint U.S.-Canada task force has been struck to determine the cause(s) and to recommend solutions that will prevent a re-occurrence, just like after the first great blackout of 1965 and then again after the second great blackout in 1977.

My hope is that the Task Force will investigate more than the 'who did what and when' of this latest historic event. The clues for them to follow I hope will demonstrate that any chain is only as strong as its weakest link and our North American power system has some pretty weak links, some technical, regulatory, some political, and some economic.

For many years now, this magazine has been interviewing and giving voice to a host of industry experts who have been warning that such large system failures are not only possible but more than likely inevitable. There are several convergent reasons for such dire predictions.

TECHNICAL REASONS

We all understand and appreciate the wisdom that when dealing with an automobile, predictive maintenance is wiser than repair and repair is wiser than running it into the ground. We know that even the best engineered systems break down and the less maintenance a system has, the faster the pace toward breakdown. So what can we expect from generation and T&D systems that are, in some places, 30 to 50 years old? In fact, large parts of our North American grid are regularly at risk from overloading because of increased demand and there is not enough being done to build, renovate, maintain, and repair an aging power grid. Why is it this way? In a word, investment. Why?

REGULATORY REASONS

Industry analysts for years have blamed the lack of investment in transmission networks on a patchwork of U.S. federal and state rules.

The medley of transmission grid rules makes it more difficult for regional grid operators to quickly coordinate when

unexpected problems arise in their regions, like power plant outages.

Unlike the power generation side of the electricity business, transmission lines remain tightly regulated, scaring off investors with meager returns.

POLITICAL REASONS

North American governments are unwilling to commit to new generation construction, choosing instead to whistle past the graveyard, somehow believing that continually increasing electricity demand can be satisfied with energy conservation, windmills, distributed generation, cogeneration, self generation. While each of these things on their own can make a small contribution to overall generating capacity, they are all together not going to be able to keep up with continually increasing demand, and at the same time replace up to 30 per cent of all installed generating capacity which is now seriously in need of decommissioning.

Politicians are not interested in assuming the responsibility that is theirs. You will notice that when the lights went out for 50 million people, the public did not turn to private generators for an explanation. And there were no politicians who would survive by telling their constituents to call someone else because it was not their responsibility.

ECONOMIC REASONS

If we have a grid that is founded on the economic policy of 'power at cost', then we will have a system that: is overbuilt, carries huge debt, has low rates, is mostly in public hands and is very, very reliable.

If we have a grid that is founded on the economic principal of 'power for profit', we will have a grid that stressed because it is: under built (therefore creating a tight marketplace and high prices), has low debt-to-equity ratios, high rates (supply and demand), is privately owned and government regulated (for better or worse) and there will be reliability problems because the poor investment will lead to maintenance and repair problems.

In the greatest of capitalist traditions, it will be a matter of minimum in and maximum out, all in the interest of maximum profits and return on investment — not necessarily the public good.

The next time the lights go out, the public can choose to either blame politicians, private and public generators, regulators, corporate decision makers and Wall Street for being negligent or it can choose to blame someone like me who can't install and run a washer/dryer properly.



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