

Continental Grid Vision Needed

✱ IMAGINE NO ELECTRICITY EXISTED in the United States. Suddenly, a lab discovers the utility of coursing electrons, and the age of electricity is launched. Assume we immediately learned everything we now know about how to generate electricity using the sun, wind, nuclear power, hydro-power, natural gas, geothermal resources and coal. Planners would quickly conclude that a network of wires would be needed to link production facilities with power users, and rural resources with urban centers. Imagine that our brightest engineers and scientists were tasked with designing and building a grid that accomplished all that and did so, not only economically and efficiently, but also in a manner that minimized reliance on resources that might be harming the environment. On top of that, the grid must be flexible enough to accommodate future evolutions of power technology, including the advent of plug-in hybrid vehicles, hydrogen power and new energy storage devices.

Now open your eyes and take a fresh look at the transmission grid as it exists today, with many elements approaching or exceeding their planned lifetime. We are talking about equipment deployed before a man walked on the Moon, before cell phones and the Internet, when Frank Sinatra was in his prime.

How do we get from what we see today to where we would want to be if we were to design a transmission grid from scratch?

Complicating the question is that the challenge must be met "on the run," while phasing out obsolete and aging plant.

Grid leaders convened to ponder such questions in Washington in June at a GridWeek conference organized by the Department of Energy and corporate sponsors. In advance, I emailed attendees a questionnaire and received a

respectable number of responses. Asked to rank the severity of challenges confronting the grid on a scale from 1 to 10, with 10 being "most severe," the attendees gave responses that averaged at 8.

For a question asking attendees to judge the likelihood of a major power outage in the next five years, with 10 being "most likely," the average of the responses was 8.

Regarding America's awareness of the problems facing the grid, with 10 being "most aware," the average of the responses was 3.

The industry faces an educational and political hurdle of the first order – educating the public about a complex, costly problem at a time it is rightfully concerned about the threat of terrorism and the war in Iraq.

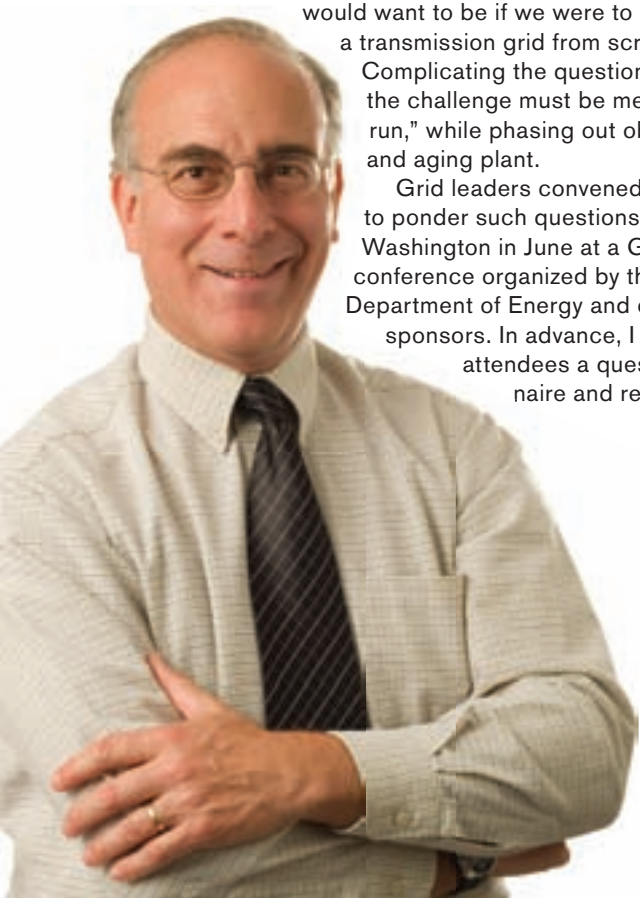
But sizable investments are flowing – and it would be a sin if they proceeded without a coordinated vision of a desired outcome. In October, the PJM board approved \$2.1 billion in transmission additions and upgrade, including a 500-kilovolt, 230-mile line in the Delmarva Peninsula. American Electric Power has proposed a \$3 billion, 765-kilovolt, 550-mile line and Allegheny Energy wants to build a \$1.4 billion, 500-kilovolt, 210-mile line.

A total of \$31.5 billion is expected to be invested in transmission between 2006 and 2009, up 58 percent from 2002 through 2005, according to the Edison Electric Institute.

Is all this activity well-coordinated for the best outcome? That question cannot be answered affirmatively without the articulation of a clear national vision for our grid. That is why Michael Morris, chief executive of American Electric Power, wants to launch a campaign to build "an interstate highway grid."

Just as America built an extensive network of highways spanning the continent after World War II, it now must undertake a project of similar scope to strengthen and modernize the electrical backbone of the nation. "It is time that a national energy grid be built," Morris recently told the Utility Perspectives conference convened in Boston by Quanta Services. "This nation is woefully short of 24/7 power plants and transmission."

Individual actors will do their part, as AEP, PJM and others demonstrate. But their efforts must be part of a broader, coordinated effort. Imagine your morning commute if we still relied on two-lane highways. Imagine the economic, social and environmental gains to be realized by taking our power grid out of its two-lane time warp.



Michael Morris



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