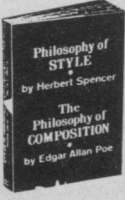


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GENERAL SCIENCE
Major Power Grid Will Prevent Blackout

► REPETITION of the massive power failure in New York and New England last November can be avoided only by a major overhaul of the electrical systems of these states.

This is the essence of a report published by the American Public Power Association.

At least three deficiencies stand out as basic causes of the Northeastern black-out.

One was the lack of a major transmission line, capable of carrying high voltage and linking all the private and public utilities. Northeastern states do not have a backbone line because their electrical system evolved piece by piece rather than as a regional plan, said Miss Virginia Reid, a member of the APPA team that investigated the failure.

If a major line had been available to Easterners, emergency power could have been delivered from the Virginia area to affected states. The power was here, said Miss Reid, but it could not be delivered.

The APPA recommended a major grid under Federal regulation, if not Federal ownership, to assure adequate connections between the various power companies.

A second, related cause of the failure was lack of Government authority to establish minimum standards in the design and operation of interconnections.

Since the Northeastern system is no more than a network of many small companies each of which joined at its own convenience, there has been no overall supervision of the size and efficiency of the links, said Miss Reid. In contrast, the West Coast has fewer utility companies and bigger links with more voltage between them.

APPA recommended that the Federal Power Commission be given the power to police the quality of interconnections in regional power plants.

A third underlying cause of the failure was the alternating current used in the Northeast, as well as over most of the United States. Rather than flowing in a direct stream, the electrical energy pulsates, making it mandatory that all local companies within the system pulsate to the proper rhythm. If one current gets out of phase, it throws the next utility out of whack and a "cascading" effect takes place. This is what happened last November.

One of the ironies of the power failure was that Consolidated Edison system in New York City, largest of the Northeastern utility companies, had enough reserve electricity in a steam plant to service its entire area, Miss Reid said. But it could not get the steam up fast enough. APPA recommended development of more hydroelectric power plants.

Part of the Northeast's problem may be solved by construction of an Atlantic backbone transmission line, proposed by the Yankee-Dixie Power Association. The line would carry high voltage, and extend 3,000 miles from Appalachia to Boston.

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