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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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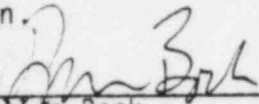
In the Matter of: )  
COMMONWEALTH EDISON COMPANY )  
(Braidwood Nuclear Power )  
Station, Units 1 and 2 )

Docket Nos. 50-456 OL  
50-457 OL

OFFICE OF SECRETARY  
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INTERVENOR'S ANSWER TO COMMONWEALTH EDISON COMPANY'S  
MOTION FOR SUMMARY DISPOSITION ON PLEADINGS

The enclosed Appendix was omitted from the mailing of July 10, 1985,  
and should be attached to Intervenor's Motion.

  
C. Allen Bock  
Attorney for Intervenor  
Bob Neiner Farms, Inc.

CERTIFICATE OF SERVICE

I hereby certify that copies of the above were served on the persons  
listed below by depositing same in the United States mail, first-class postage  
prepaid, this 11th day of July, 1985.

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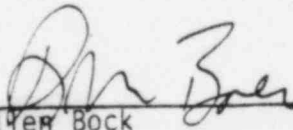
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#### APPENDIX ONE

The attached article by John J. Daugherty in IEEE Spectrum, Vol. 22 #1, January 1985, supports Intervenor's argument that applicants' load growth projections are speculative at best and are potentially in considerable error. Likewise, the article points out an interesting proposition in regard to electric power delivery systems. This information potentially erodes the basis for the conclusions of the "Getty Affidavit."

were able to take advantage of these features.

The beauty of this revolution in test equipment is that productivity and quality, two attributes of great importance for all engineers as well as for their company managements, are enhanced.

## **John J. Dougherty on power and energy: How much power from what sources?**



*"In the twenty-first century the United States may be buying nuclear power plants from France."*

Electric utilities are faced with two major interrelated problems: How much additional power will be needed between now and the turn of the century? And how will it be generated? Nearly all other problems can be considered subsets of these two issues.

During the economic recovery of the last 12 months in the United States, kilowatthour consumption of electricity increased at a rate of 7 to 8 percent. Although this use cannot be considered as a return to the pre-1973 load growth pattern, because it follows a flat load growth in the previous year, it seems clear that electricity consumption is tied closely to the Gross National Product. This means that growth rates higher than those being used in most national projections can be anticipated. But over the last decade electricity has continued to increase its share of total energy consumption and is likely to continue that pattern, leading to the need for large new sources of electric energy.

What is the status of nuclear power and coal? In the United States, many nuclear plants have been completed and put on line in the past decade, but others have been canceled or put on hold and may never be completed. Still others are scheduled to come on line in the next five years, but there are no new orders for nuclear power plants. If the United States continues on this path, this once promising source of abundant electricity will be lost as a domestic option. The infrastructure to design and build such plants will dissolve, and it will be difficult to build it again.

Such a scenario makes plausible the possibility that in the twenty-first century the United States may be buying nuclear power plants from France or other overseas sources where the nuclear option is alive and well.

What about coal? The United States still has several hundred years' supply, but the question is whether it can be mined and

with Hewlett-Packard for 21 years in various positions and was operations manager for logic systems product lines from 1976 until his present appointment. Mr. House is a member of *Spectrum's* editorial board. ♦

transported either as bulk fuel or electricity. And coal is not without its problems. Conventional combustion of coal is threatened by such issues as that involving acid rain. Because of the steps that must be taken to protect the environment, the once relatively simple coal generating station is becoming much more complex to build and less efficient to operate.

New ways have been developed to use our coal resources. Gasification processes have provided relatively clean fuel from coal, as typified by Southern California Edison's combined cycle prototype plant at Daggett, Calif. Advances have also been made in fluidized bed combustion, which promises a coal-fired generating station with less impact on the environment. Both types of plants could burn a variety of fuels with almost equal ease, which brings up yet another question. It has been suggested that wood, classified as a renewable energy source, be burned and then be replenished by reforestation. However, in the United States, it would take twice the entire arable land in the country to supply biomass products to satisfy the U.S. appetite for electricity.

Fuel cells offer an attractive way to convert hydrocarbon fuels into electricity in an environmentally acceptable way. The first operating fuel cell in a utility system was under test in Japan at Tokyo Electric Power Co. during 1984 and performed well. The proliferation of the technology is not imminent, however.

It is also clear that such sources as solar, wind, and low-head hydro are not going to provide even a significant fraction of energy any time soon. Until a totally new energy source becomes available (such as fusion), countries like the United States will be dependent on both coal and nuclear power to satisfy electric energy needs.

What about electric-power delivery systems? How might these systems change in the years ahead? The recent trend toward higher distribution voltages will probably continue as load densities increase. Similar increases in transmission voltages should occur, but it now seems unlikely that a new transmission "overbuild voltage" will be deployed before the turn of the century.

### **About the author**

John J. Dougherty (F) is vice president of the Electrical Systems Division of the Electric Power Research Institute in Palo Alto, Calif. He had previously been with the Philadelphia Electric Co. for more than 24 years serving in various capacities before becoming engineer-in charge of the Energy Distribution Research Section. Mr. Dougherty is chairman of the IEEE Transmission and Distribution Committee and is a member of *Spectrum's* editorial board. ♦

**John J. Dougherty** *Electric Power Research Institute*