

# LESSONS LEARNED

## THE MINNESOTA 400 KV/DC 427 MILE PROJECT

by J. L. Ward

**T**his article's subject matter is the 427 mile-long voltage transmission line built to deliver electricity produced in North Dakota to southeastern Minnesota near Minneapolis-St. Paul. This project, undertaken in the mid-1970's illustrates the need to adequately prepare the public before starting a large project.

In Eastern Minnesota, much of the rural and suburban area receives its electricity from two Rural Electric Association Wholesale Co-ops, The Cooperative Power Association (CPA) of Edina which serves southeastern Minnesota and the southern Twin-Cities suburbs and the United Power Association (UPA) of Elk River, which serves northeastern Minnesota starting with the Anoha County suburbs. Neither co-op serves large cities. They generate or buy power and transmit it to 34 local Rural Electric Cooperatives serving some 300,000 customers in Minnesota and parts of Wisconsin.

The major power supplier to the wholesale co-ops, the U.S. Bureau of Reclamation, cut back on the amount of electricity it was selling to the co-ops because of the growth in towns the Bureau serves. The Bureau operates hydroelectric generators in the Dakotas where it's electricity is produced. Because of this cutback, co-ops decided to build their own generating capacity.

The co-ops developed a project to utilize low sulphur lignite coal near Underwood, North Dakota in the vicinity of the Garrison reservoir on the Missouri River. The project includes a 100 megawatt generating station and a lignite coal mine. The coal is surface mined. A 427 mile long 400 KV, direct current transmission line was planned to transport the electricity to a conversion station near Delano, Minnesota west of the Twin Cities of Minneapolis-St. Paul. The conversion station is designed to change the 400 kv, direct current electricity to 345 kv, alternating current. A 28 mile AC line was

planned east to Anoha County and a 76 mile 345 KV/AC line from Delano to Mankato.

The co-ops filed their environmental impact statement for the project in August of 1974. Approval was subsequently obtained from the various state and federal agencies. However, there were many court battles, agency hearings and political maneuvering in the months and years following the initial approval.

The Rural Electrification Administration in Washington approved the project and authorized funding. The original cost of the project was estimated to be \$632 million dollars. In 1976, before construction of the transmission line really got underway, cost estimates had increased to \$957 million dollars. Final costs were reported to be over \$1.3 billion.

The transmission lines were originally scheduled to be completed in the fall of 1976. Work actually began in October 1977 after a long series of legal battles plus a ruling by the Minnesota Supreme Court that cleared the way for the co-ops to proceed with the project.

**T**he transmission line was designed for a 160 foot wide right-of-way. There are about 1600 towers with 40 foot by 40 foot bases, ranging in heights up to 180 feet and averaging 145 feet. Approximately 695 of these towers are on the Minnesota segment of the line which averaged four towers per mile of right-of-way. The Minnesota segment crosses land owned by about 450 separate land owners.

The acquisition of right-of-way was to be by granted easement. Landowners were sent easements to be signed along with an offer that averaged from \$12,000 to \$15,000 per mile for the 160 foot easement or \$600 to \$780 per acre. The easements guaranteed access to construction and maintenance crews, but they did not prohibit tillage of the land. The land oc-



*Jesse L. Ward is a Senior Land Data Coordinator in the Right-of-Way Group of Texas Electric Service Company in Fort Worth, Texas. He holds a B.S. Degree in Agricultural Engineering from Texas A&M University. He has served with the USDA Soil Conservation Service as an Agricultural Engineer and Work Unit Conservationist. He has been with Texas Electric Service Company since 1954 holding several positions before assuming his present assignment in 1978. Ward is a member of Chapter 36.*

cupied by each tower base, 1600 square feet, is all that is lost from production.

Some property owners accepted the amounts offered. But many forced the issue to condemnation through the utilities right of the use of eminent domain proceedings.

After condemnation started, appraisals for land in the western counties of Minnesota when first acquisitions were made, rose to an average of \$15,440 per mile and later in the eastern counties to an average of \$42,011 per mile.

By late February 1978 only 57 of the needed 176 miles in Minnesota had been acquired by voluntary means. It was stated that much of the land would have to be "taken" through court condemnation proceedings. To protect farmers who wanted to settle voluntarily, private contracts were drawn up with the co-ops.

**T**he project faced strong opposition from the beginning. Routing for the right-of-way was the primary reason for opposition. As previously mentioned, many hearings before various public

*(see Lessons, pg. 10)*