

Midwest ISO to address potential of new line technologies

Midwest ISO plans to hold a seminar May 7 in its St. Paul, Minn., office to highlight two technologies it believes could be used for new transmission projects in the Midwest ISO area.

The technologies, both developed in Russia, are high surge impedance loading (HSIL) transmission line design and magnetically controlled reactors (MCRs, *ETW*, 3/8). Neither of these technologies has been applied yet in the United States, and this will be the first seminar in this country focusing exclusively on them.

The Midwest ISO has a number of areas where transmission line loading is limited by impedance rather than thermal ratings, and the ISO believes that new transmission lines needed in the region could benefit from HSIL design. In addition, use of MCRs could increase the transient performance transfer capacity of the existing transmission system.

"The intent of the seminar is to get ... engineers from our area who are looking at new projects to consider this technology as a possible option in line design and reactive compensation," Midwest ISO Reliability Studies Technical Manager Dale Osborn told *Electric Transmission Week*.

Osborn noted that the Mid-Continent Area Power Pool in the upper Midwest and Great Plains is characterized by long distances between generation and load. "[HSIL] addresses long-distance transmission very well," he explained. "It gives you about 35% more transfer capacity on a line than traditional line designs currently being used." Transmission towers can also be slightly smaller and less expensive, he added.

An example of where HSIL could be used is the proposal to deliver 2,000 MW of new generation (500 MW of coal and 1,500 MW of wind) from North Dakota to the Minneapo-

lis area. Midwest ISO is working with the Upper Great Plains Transmission Coalition to develop transmission options for this project. Coalition members are Basin Electric Power Cooperative, Montana-Dakota Utilities, Minnkota Power Cooperative, Missouri River Energy and Heartland Consumers Power District.

Osborn said that while some transmission issues could be solved by going to higher voltages, in some places, there are maximum voltage constraints and some utilities do not want to use higher voltages. "There aren't many options," he said. "This is a good option. It's been proven in Russia, China and Brazil."

Another issue with long transmission lines in the 345-kV to 500-kV range existing or planned in Midwest ISO is that they generate a significant amount of reactive power that needs to be compensated. Osborn said that MCRs could be a solution to this problem.

The Midwest ISO seminar is being organized in close collaboration with San Anselmo, Calif.-based Expanding Edge LLC, the exclusive U.S. marketing representative for the HSIL and MCR technologies. Expanding Edge General Manager Mark Galperin said he believes both technologies should find acceptance in the United States since they offer the ability to expand transmission capacity over existing rights of way without increasing voltage.

Three researchers in power engineering from Russia, including principal MCR developer Alexander Bryantsev and HSIL pioneer George Evdokunin, have been invited to address aspects of the technologies such as the electrical and mechanical aspects of HSIL line technology and MCR field experience.

Galperin said the presentation of mechanical aspects of HSIL will cover transmission safety concerns in the Midwest ISO region, such as icing

and galloping of lines.

Midwest ISO also plans to offer a course on reactive power compensation and voltage stability in St. Paul May 3-6, immediately preceding the seminar. The course will be given by Carson Taylor of Bonneville Power Administration, assisted by Robert Schluetter from Michigan State University and Dale Osborn. This course was previously held in March at Midwest ISO headquarters in Carmel, Ind.

Information on the seminar and course can be found at training_registration@midwestiso.org.

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