Excerpt from **10 Electric Utility Technologies to Watch in 2004**

By Bill Koch

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Each year since 1995, we've asked our technical editor to pay particular attention to new technologies as he makes his monthly calls to utility industry suppliers and their electric co-op customers, and as he attends trade shows and conferences and monitors new product releases. What technologies are changing the industry? What new products and services are co-ops purchasing so they can continue to deliver the best possible electric service to their members?

Here are the results of Bill Koch's research—*NEXTECH 2004*. Each of the 10 reports is followed by a list of all the suppliers we could identify for that technology. We hope the information is useful and will help make 2004 a successful year for you and your co-op.

—Frank K. Gallant, Editor

BROADBAND OVER POWER LINES

Broadband over power lines is about speed: high-speed Internet access that's always on and available to each and every co-op consumer. Most utility experts consider this technology to be "pre-commercial." There are no widespread applications yet, but interest is high.

Simply stated, BPL is data transfer using existing power lines. The technology allows home and office PCs, telephones and other equipment to exchange information at speeds comparable to digital subscriber lines (DSL) or cable modems. Users gain access to the Internet simply by plugging into an existing electrical outlet. The signal travels over the home or office wiring, through the service drop and onto the distribution line to a substation or fiber-optic point-of-presence (POP), where it connects with the Internet.

The technology works well inside buildings, and it also works—on a small scale—on utility distribution grids, since data and electricity can share the same wire by running on different frequencies.

But overhead power lines and connected equipment were never designed for this purpose. Power networks are an obstacle course of capacitors and switches that can weaken data signals. Distribution transformers can make those signals disappear. Vendors are trying various ways to meet these challenges, but technical concerns about radio frequency interference and data disruption

remain. It is not yet known how BPL will perform serving many subscribers in dense populations or along lengthy, sparsely populated rural distribution lines.

Current Link, the broadband services business of Current Technologies, LLC (www.currenttechnologies.com) , has field trials under way at utilities serving Washington, D.C., and Cincinnati. The 100 subscribers in each trial area are connected and using the service, according to Joe Cufari, Current Link's vice president for business development.

Co-ops have also expressed interest in the technology, and both NRECA and the National Rural Telecommunications Cooperative are keeping an eye on BPL developments.

Cullman Electric Cooperative in Cullman, Ala., recently teamed with International Broadband Electric Communications, Inc. (www.ibec.net) to do a BPL trial in a residential subdivision. Mike McWaters, Cullman's vice president of member services and community development, reports that 20 members agreed to participate at no charge, and several of them are already hooked up.

Connection to the system requires a power line modem for each computer or other Internet device. Every outlet in the house is "hot," and the member gets Internet access at speeds that equal or exceed DSL. So far, McWaters says, there have been no interference problems.

"Theoretically, the technology is workable over any distance," says International Broadband's Scott Lee, although he adds that the signal must be regenerated at least every half mile.

A comprehensive BPL technology and business review by NRECA and NRTC concluded that BPL is still a work in progress, with a number of technical and economic issues yet to be resolved. At a recent conference in Cincinnati, NRECA's Cooperative Research Network and NRTC suggested that cooperatives monitor this emerging technology as more commercial products become available and a viable business model develops.

Suppliers of broadband over power line systems and services include: Amperion, www.amperion.com ; Current Technologies, www.currenttechnologies.com ; EBA PowerLine Communications, www.ebaplc.com ; HomePlug Powerline Alliance, www.homeplug.org; ICG Communications, www.icgcomm.com ; International Broadband Electric Communications, Inc. (IBEC), www.ibec.net ; Main.net Broadband PLC Solutions, www.mainnet-plc.com ; Power Line Communications Association, www.plca.net; Plexeon Logistics, Inc., www.plexeon.com.

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