

# ELECTRIC *from the publisher of POWER DAILY*

# TRANSMISSION

## WEEK

## Industry consortium develops 'intelligent' standards for future grid design; information available to all

The utility company where Don Von Drollen once worked had 57 automated meter reading systems, none of which could communicate with each other and none of which could be scaled up to serve the entire utility.

Von Drollen, now the technical integration manager for the Electricity Innovation Institute's Consortium for Electric Infrastructure to Support a Digital Society, said the situation he encountered was typical for utility operating systems.

The inability of components of the North American power delivery system to communicate with one another is an example of the utility industry's failure to take full advantage of the advances brought on by automation. Clark Gellings, vice president, power delivery and markets for the Electric Power Research Institute, which is affiliated with the Electricity Innovation Institute, said that despite annual investments in electricity transmission and distribution systems, much of the industry's hardware is more than 40 years old and operated mechanically.

"We have increasing concerns that our business and industry aren't getting the precise, reliable power that they need," Gellings said.

Providing more reliable, higher quality power is no one stakeholder's responsibility. The consortium, called CEIDS, has taken an expansive look, proposing a new approach to designing electricity transmission and distribution systems so that they can accommodate the newest engineering tech-

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## California town sticks with SDG&E in return for buried transmission lines

The Chula Vista, Calif., City Council on Oct. 12 approved a new franchise agreement with San Diego Gas & Electric that requires the city to suspend its plans for owning and operating its own new utility infrastructure within the city limits.

In return, SDG&E is to remove four 138-kV circuits and towers and install underground 3.5 miles of a 230-kV transmission line as part of the Otay Mesa transmission project.

The undergrounding is a major step toward Chula Vista's plans to rede-

velop 500 acres on the south end of its waterfront on San Diego Bay, according to Mike Meacham, who manages the city's franchises as director of environmental services. SDG&E has also agreed to move a switchyard on the property that is connected to the aging South Bay Power Plant, owned by the Port of San Diego and operated by Duke Energy. The plant is also on the waterfront property and the city would like it moved. According to city

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## Additional Virginia hearing likely to delay Dominion entry into PJM

Dominion Virginia Power does not expect to meet its Nov. 1 target to integrate with PJM after the Virginia State Corporation Commission said it would hold an additional hearing before considering the matter.

Dominion Virginia Power and the state attorney general on Oct. 12 presented a partial stipulation to the SCC that largely followed the roadmap provided by American Electric Power, but

the parties have not settled all issues.

The utility maintained, however, that it would integrate with PJM by Jan. 1, as required by Virginia law. It must also receive approval from the North Carolina Utilities Commission, where Dominion serves about 100,000 customers.

"We had always main-

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## Va. approves Dominion line; rejects undergrounding recommendation

The Virginia State Corporation Commission has granted Dominion Virginia Power final approval to construct a 7.6-mile, 230-kV single-circuit transmission line in Loudoun County, Va.

The 11.4-mile project will connect the proposed Brambleton Substation to the Greenway Substation in Loudoun County, running along new right-of-way.

The commission, however, rejected the recommendation of Hearing Examiner Deborah Ellenberg that a 3.25-mile portion of the line be placed underground to minimize the impact along a section of the line's route.

Instead, the SCC found that that "Dominion has established that there are sufficient reliability con-

cerns to reject underground installation of a portion of the new line, and the record reveals that underground installation is substantially more expensive."

Moreover, the commission expressed uncertainty over how the underground lines would impact the environment and ratepayers.

"The record is incomplete regarding the environmental impacts of underground installation and the impacts of the facilities that would need to be built in order to transition from overhead to underground construction," the commission said. "There is no evidence that benefits will accrue to the company or its ratepayers which outweigh the increased costs and risk of reliability problems associ-

ated with the underground installation of a portion of the transmission line."

Dominion said it is still working on a timeline for construction and must obtain a number of easements, but hopes to have the line in operation no later than May 2006, which would require construction to begin by fall of 2005.

The line, which is needed because of growth and development in the eastern portion of Loudoun County, west of Washington, D.C., was originally scheduled to be completed by May 2005, but public opposition delayed the project.

Delays caused the utility to split the project into two phases, the first of which is now under construction. AE

## Single underlying T&D system could 'self heal' ... from p. 1

niques and related technologies.

The consortium includes both U.S. and European utilities, the U.S. Energy Department, California Energy Commission and United Technologies.

EPRI, E2I and CEIDS officials described the Architecture for Intelligent Electricity Grid of the Future, or the "Intelligrid Architecture," at a presentation Oct. 14 in Washington, D.C. They explained the Intelligrid as "an open, standards-based systems architecture for the data communications networks and intelligent equipment necessary to support the power delivery infrastructure of the future."

As described in other terms, "the Intelligrid Architecture is intended to integrate two systems in the power industry: the power and energy delivery system and the information system (communication, networks, and intelligence equipment) that controls it," CEIDS says.

Components of the T&D infrastructure have evolved independently of one another, and often-

times independently within utilities, Van Drollen said in describing some of the barriers to developing systems with broad applications. An automated meter reading system, seen in a different context, is an infrastructure for a utility's communication with its customers, not just a tool for monitoring consumption of a commodity.

Also inhibiting the broader application of individual systems, Van Drollen said, is incomplete, inconsistent and overlapping standards developed by a number of organizations.

The Intelligrid Architecture, which is modeled after efforts by the aerospace, software development and telecommunications industries, is intended to avoid the isolation of specific systems by creating underlying design standards available to everyone. A report including more than 6,000 pages of information and models is available for free at [www.e2i.org](http://www.e2i.org).

It is not an absolute, step-by-step blueprint, Van Drollen said, but

guidance toward the best tools grid developers can follow.

"The idea is, if you follow all of these, you'll be moving toward systems that can inter-operate, that can talk to each other," Van Drollen said.

"It's a starting point, not an ending point," E2I President and CEO T.J. Glauthier said.

The ability of T&D system components to communicate with one another gives the Intelligrid an ability to "self heal," Gellings said, in ways such as limiting the duration of outages.

Pieces of the Intelligrid are already in use. Representatives of the Long Island Power Authority and Electricite de France were at the presentation last week. Both utilities are using Intelligrid technologies to automate parts of their distribution systems. The California Energy Commission has developed a common reference design for a dynamic pricing tariff and demand response program to be used state-wide. ML