

# THE BROAD

# BROADBAND PLAN

THE FEDERAL COMMUNICATIONS COMMISSION  
WANTS TO DELIVER THE BENEFITS OF THE SMART  
GRID VIA BROADBAND. BY H. RUSSELL FRISBY, JR.



Courtesy: Siemens

**O**N MARCH 16, 2010, the Federal Communications Commission (FCC) delivered its long-awaited “Connecting America: The National Broadband Plan” to Congress. Described by the commission as a 21st century roadmap for giving America access to the internet-based communications network of the future, the 360-page plan found that while broadband access and use had increased, the nation must do much more to connect all individuals and the economy to the technology’s transformative benefits. The plan contains more than 50 recommendations and goals for action by the FCC, Congress, other federal agencies, and the states on a nationwide broadband strategy.

The FCC also claimed that the nation had failed to harness the power of broadband to transform energy; and, among other things, the plan extensively discusses the use of broadband to promote energy efficiency and independence, as well as competition in the energy sector.

That’s unlike the prototypical, telecom-oriented FCC report, to say the least. Indeed, the FCC’s proposals most likely will foreshadow how electric utilities might interact with their customers in future, how the smart grid might be deployed, what wireless spectrum utilities might use in their business, and the future revenues that electric utilities will receive from pole attachments.

The plan therefore also has ramifications for the relationships among the Department of Energy (DOE), Federal Energy Regulatory Commission (FERC), North American Electric Reliability Corporation (NERC), and the FCC, as well as the manufacturers of smart grid technology and such service providers as telecoms and internet companies.

Theoretically, the plan—the result of a mandate from the American Recovery and Reinvestment Act—is a nonbinding report drafted by the FCC’s staff and

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*Russ Frisby is former chairman of the Maryland Public Service Commission and a partner in the telecommunications area of Stinson Morrison Hecker, in Washington, DC.*

adopted by the commission (though not every commissioner agreed with every proposal). But, because the commission’s efforts clearly were coordinated with other federal agencies, the White House, and Congress, one should not view the plan as simply an FCC report. The National Broadband Plan is sweeping, and electric companies should pay close attention to the follow-on federal and state proceedings and Congressional activities that already have begun to occur.



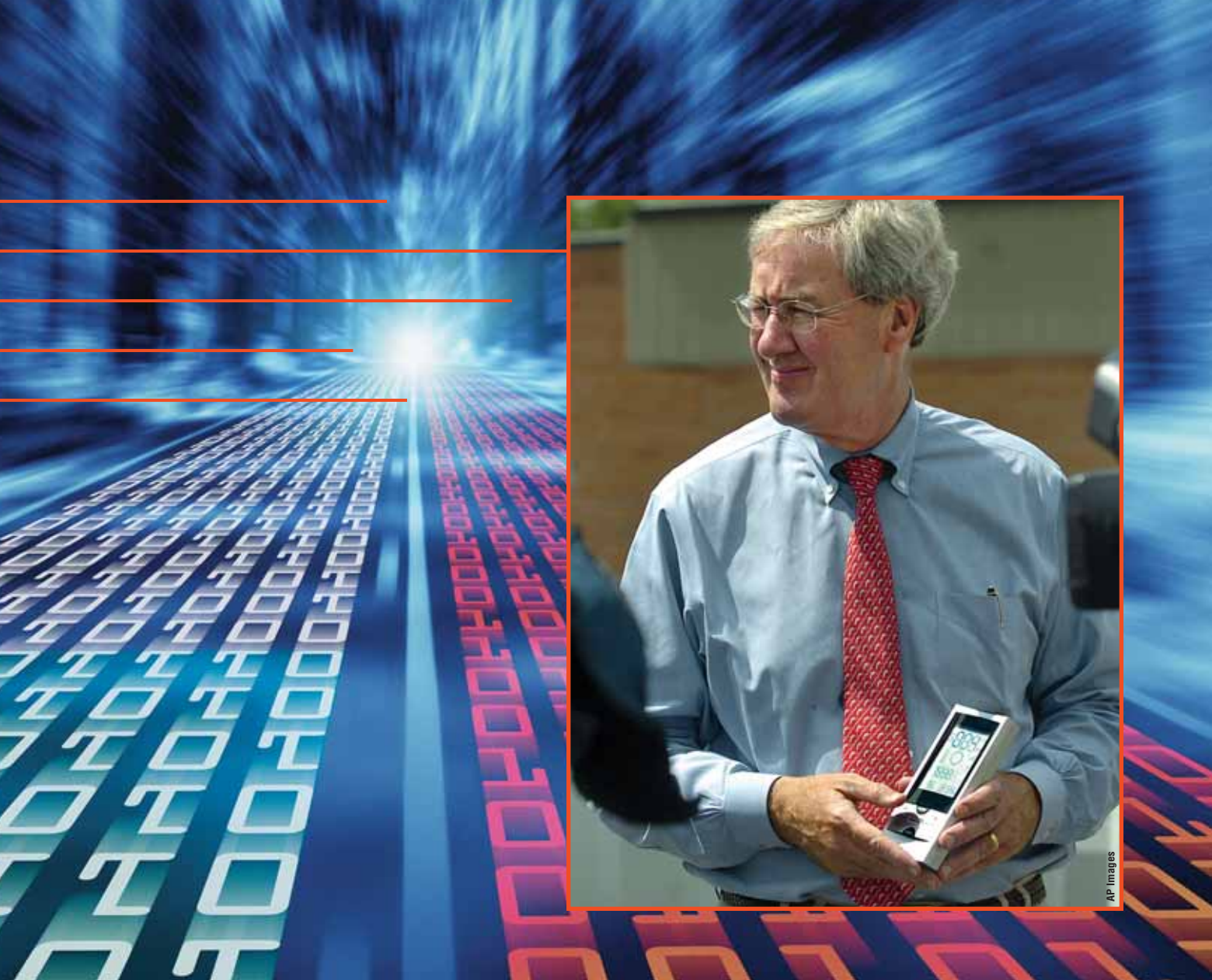
Courtesy: Federal Communications Commission

### Linking Energy and Telecom

The process of drafting the broadband plan was long and complicated. Beginning in April 2000, the commission issued 31 public notices of various types. In September, it issued “Implementation of Smart Grid Technology” and requested comments on such topics as the sustainability of communications networks, access to “real-time” data, the role of third-party application developers, and security requirements. During the course of the proceeding, the FCC hired a separate staff to draft the plan, reviewed 74,000 pages of comments, and held 36 public hearings, including several on utility issues.

The resulting plan links energy and telecom from the beginning, at least by analogy. It cites the successful efforts in the last century to electrify America as the model for what is needed today in both the broadband and related energy markets. In the second chapter, ambitiously titled “Goals for a High-Performance America,” the plan recommends establishing a long-term goal that “every American should be

**The FCC’s national broadband plan contains more than 50 recommendations and goals for action by the FCC, Congress, other federal agencies, and the states. Inset: Central Vermont Public Service Corporation CEO Robert Young with smart technology his company is pursuing. The FCC’s aim—which also has long been the industry’s aim—is to make the technology function efficiently and effectively.**



able to use broadband to track and manage their real-time energy consumption,” to ensure that the country leads in the clean energy economy. In “Energy and the Environment,” there are four recommendations on ways to promote energy independence by making smart data more accessible and increasing utilities’ access to spectrum. In “Infrastructure,” the plan makes various proposals regarding pole attachment rates and procedures.

The FCC addressed energy in a way it had not before, but the energy-related issues were not completely new to it. The commission has longstanding jurisdiction over utility spectrum and pole attachment matters and has ongoing proceedings examining the issues covered in the plan. Likewise, the FCC had previously determined that broadband-over-powerlines internet

access service is subject to its ancillary jurisdiction. Furthermore, in its open internet rulemaking, the commission has asked whether an offering (such as one involving the smart grid) should be defined or categorized as a “managed or specialized service,” and, if so, what rules should apply. Finally, the FCC has specific expertise in dealing with data access and privacy issues related to consumers and third-party service providers—particularly through the rules it set up for telecommunications companies regarding customer proprietary network information.

A variety of players influenced the broadband plan’s energy-related recommendations. Edison Electric Institute and a number of electric utilities participated in the proceeding. So did such companies as Google and Microsoft, as well as the incumbent lo-

cal exchange telecom companies, the competitive telecom companies, and cable companies. Last April, Google, the Climate Group (a coalition of governments and businesses) and other entities sent a letter to the President seeking White House involvement in implementing the plan’s smart grid proposals.

The FCC’s coordination with other agencies and lawmakers was evident in the development and release of the broadband plan. At the same time that the commission was completing its work, the White House Office of Science and Technology Policy (OSTP) was seeking input on how consumers should interface with the smart grid. The day after the plan was released, Congressman Markey (D-MA) introduced the “E-KNOW Act,” which would amend the Public Utility Regulatory

Policies Act of 1978 to provide electric consumers the right to access certain electric energy information, enacting into law many of the plan's smart grid data access recommendations.

There will be other proceedings. The FCC has already issued a pole attachments order and further notice of proposed rulemaking and has announced that it will issue several spectrum orders and notices addressing other issues set forth in the plan. Likewise, DOE has issued two requests for information as part of its effort to implement the plan's energy-related recommendations.

### Recommendations by the Numbers

The four recommendations in the "Energy and the Environment" chapter stem from the commission's view that broadband and advanced communications infrastructure can play an important role in achieving national goals of energy efficiency; its speculation that energy transactions may be the internet's "next killer application"; and its belief that the unlocking of energy data by utilities is key to integrating broadband into the smart grid.

The recommendations seek to promote energy efficiency through that integration. The goal is to unleash innovation and ensure greater competition in broadband-enabled smart grid information services and related devices by providing secure access to digital electric information for consumers and authorized third parties.

The seventh recommendation in "Energy and the Environment" is the FCC's principal proposal regarding the smart grid—that states (or, if necessary, Congress) require electric utilities to provide consumers access to, and control of, their own digital energy information, including "real-time" information from smart meters. The commission posits that such a data-access and control regime is necessary if end-users are to have better and timelier energy usage information. Broadband-enabled smart meters would be the key to this energy-efficiency effort because they generate real-time data, which in turn allow consumers to se-

lect from energy-saving products and services, such as smart appliances, programmable energy displays, and internet-based energy visualization tools.

The FCC asserts the need for strong action because, despite the wide variety of potential uses for smart meter information, only 35 percent of the 17 million meters utilities are planning to deploy will provide customer access to this type of data; and less than 1 percent of customers have real-time access to data today. The FCC believes that, in the absence of a policy that increases the availability of energy data, innovation will lag.

Consequently, the FCC proposes that consumers and authorized third parties have secure, nondiscriminatory access to energy data in granular, standardized, machine-readable formats in as close to real-time as possible. State commissions would mandate this accessibility as part of smart grid rate cases; and utilities would be required to adopt policies articulating how consumers may authorize third-party service providers. And this would happen relatively quickly. By year-end 2010, every state commission would require that its regulated shareholder-owned electric utilities provide that data over the internet in standardized formats by year-end 2011.

Further, the commission urges Congress to pass legislation to the extent that the states fail to act.

The last three recommendations are related to the first. In the second one, FERC is urged to adopt consumer digital data accessibility and control standards as a model for states. The third asks DOE to consider accessibility policies when evaluating smart grid grant applications, report on the

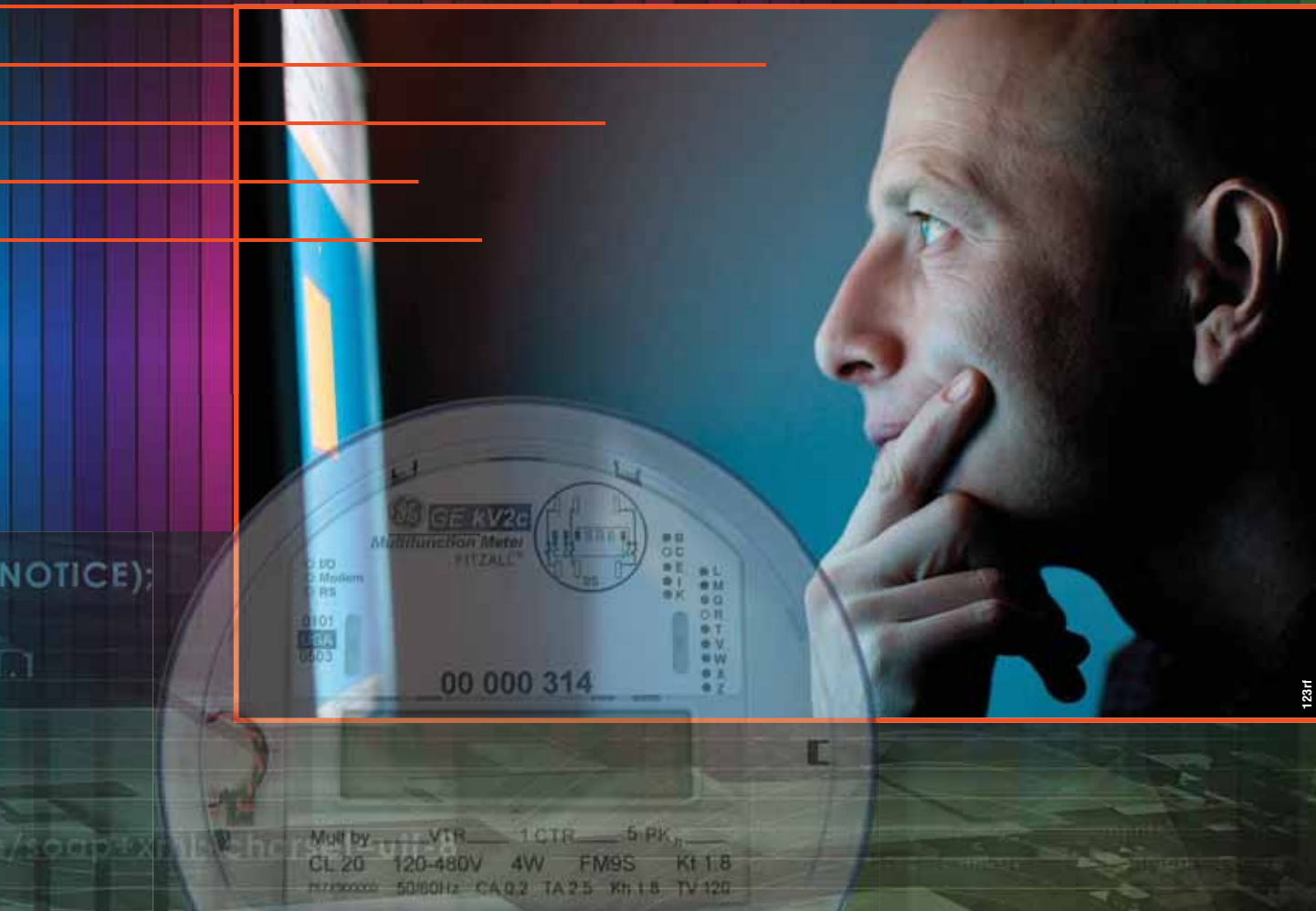


Representative Edward Markey (D-MA).

Courtesy: Federation of American Scientists

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**Congressman Markey's "E-KNOW Act" would amend the Public Utility Regulatory Policies Act of 1978 to provide electric consumers the right to access certain electric energy information—it would make into law many of the plan's smart grid data access recommendations.**



states' progress toward mandating accessibility, and develop best practices guidance for states. The last one recommends that the Rural Utilities Services (RUS) make smart grid loans to rural electric cooperatives a priority, including integrated smart grid broadband projects. Moreover, RUS should favor smart grid projects from states and utilities with strong consumer data accessibility policies.

The FCC recognizes the need for open and nonproprietary standards, the ongoing National Institute of Science and Technology standardization process, and the role played by federal energy regulators and agencies. Further, those recommendations also are meant to leverage the authority of FERC, DOE, and RUS to force states and companies to adopt the first recommendation's accessibility regime.

### What It Means for Utilities

Many aspects of those four recommendations and their explanations are positive. FCC's plan recognizes the importance of the smart grid and the need to adopt proper data access, control, and privacy policies, as well as the role of the states. Regardless of how the question of who owns the data ultimately reaches resolution, customers and their authorized third-party providers should have timely access to smart meter data.

But the plan did not place much emphasis on the fact that electric utilities have led the way in promoting smart grid deployment throughout the country and will continue to do so. Likewise, the plan does not recognize that utilities continue to face opposition from state commissions, consumer advocates, and consumer groups that do

not share the faith in the smart grid benefits. And there is no mention that state adoption of the necessary dynamic pricing regimes has lagged behind smart grid technology.

When it comes to access and privacy, the real questions revolve around

- what, how, when, and to whom data should be made available;
- what privacy protections should apply; and
- how costs should be recovered.

The plan will serve as the catalyst for the productive national conversation that must take place on these issues.

For utilities, when one talks about what data should be available and when, it is important to know that "real-time" data is a misnomer. Data reported on the basis of 15-minute interval readings or reported the next day is not "instantaneous." The plan does



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recognize this in its first, overall recommendation and says that it would be acceptable for consumers to access data “in as close to real-time as possible.” Also, if consumers are to benefit fully, the term should refer to validated and not raw data.

When it comes to the questions regarding data availability and privacy protections, the concerns the FCC expresses about the need to protect data access, control, and privacy are real—and electric utilities share them. Protecting public safety and ensuring network reliability must be a top priority. Unfortunately, the time devoted in the plan to considering those issues is insufficient. Smart meter data are extremely sensitive, and their improper distribution or use could prove to be dangerous. At the same time, utilities must have access to this information

for operational reasons. Before we uniformly deploy smart meters, we need clear rules and serious consideration about what information will be available and how it will be distributed to consumers and third-party service providers.

We also need to consider the costs involved in creating real-time capability. Electric utilities should be able to recover the cost of deploying smart meters, as well as the cost involved in the systems that provide meter data. That also means that smart grid policies must support proper pricing and consumer acceptance, both of which are practically nonexistent right now. These are issues that state commissions traditionally decide. State commissions also should consider whether third-party service providers should bear some of these costs.

Finally, state commissions have long been involved in utility privacy, security, and cost recovery matters in their role as the ultimate protectors of the interests of local utility customers. That said, the 18-month window that the first recommendation affords to the states before Congress is to act is unrealistic. It does not bring into account the fact that state regulation, as well as company location, structure, and customer base, vary dramatically.

#### **Spectrum Recommendations**

The broadband plan generally supports the utilities’ need for dedicated radio spectrum for smart grid-related connectivity and reliability reasons. The plan proposes that existing commercial mobile networks be hardened (that is, brought to a higher level of reliability and resilience) to support mis-

sion-critical smart grid applications; that utilities be able to share the public safety mobile broadband network for mission-critical communications; and that utilities be empowered to construct and operate their own mission-critical broadband networks.

To achieve these goals, the plan has six recommendations:

- the FCC should begin to explore the reliability and resiliency of commercial broadband communications networks;
- states should reduce impediments and financial disincentives to using commercial service providers for smart grid communications;
- NERC should clarify its critical infrastructure protection (CIP) security requirements;
- Congress should consider amending the Communications Act of 1934 to enable utilities to use the proposed public safety 700-megahertz (MHZ) wireless broadband network;
- the National Telecommunications and Information Administration (home of the Office of Spectrum Management in the Department of Commerce) and the FCC should continue their joint efforts to identify new uses for federal spectrum and consider the requirements of the smart grid; and
- DOE, in collaboration with the FCC, should study the communications requirements of electric utilities to inform federal smart grid policy.

For the most part, those recommendations are self-explanatory; and work on implementing them already has begun. Moreover, they reflect the acceptance of the electric industry positions that no single spectrum or network solution will work in every case; that auctions of spectrum space are not appropriate for utilities; and that carrier networks must be hardened so as to improve reliability.

It will be important for utilities to continue to participate in the FCC proceedings. For example, the proposal that Congress consider allowing utilities to share the 700-MHZ spectrum along with public safety users could prove beneficial; however, the proposal's cost, feasibility, and terms and con-

ditions demand further study. Indeed, much work still needs to be done with regard to ensuring access to commercial spectrum, as well as sharing with public safety users. There must be clear timeframes. Finally, the plan's statements to the effect that state ratemaking policies provide a disincentive are troublesome, need further exploration, and may be incorrect.

### Pole Policies

The plan offers six proposals in the "Infrastructure" chapter. These have already been raised for consideration by the FCC in an order and further notice of proposed rulemaking. If finally adopted, the proposals most likely will reduce utility pole attachment revenues.

In the first recommendation, the FCC proposes to establish rental rates for pole attachments that are as low and close to uniform as possible. In so doing, the plan questions the fact that different types of "attachers" pay different rates. For example, the proposal fully accepts the argument, vigorously disputed by utilities, that cable rates are just and reasonable and fully compensatory. If there were lower pole attachment rates, the commission argues, then the typical monthly price paid for broadband by rural telecom consumers would drop dramatically—but the commission does not address the corresponding impact on rates of rural electric utility customers.

The FCC also assumes that the cost of deployment could be reduced indirectly by reforming the processes involved in pole attachment determinations. The commission proposed that it

- implement rules that will lower the cost of the pole attachment "make-ready" process;
- establish a comprehensive timeline for each step of the access process and reform the process for resolving disputes; and
- improve the collection and availability of information regarding the location and availability of poles, ducts, conduits, and rights-of-way.

Among the improvement ideas are establishing a common schedule



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**Left: The concerns the FCC expresses about the need to protect data access, control, and privacy are real—and electric utilities share them.**

**Above: The proposal that Congress consider allowing utilities to share the 700-MHZ spectrum along with public safety users could prove beneficial; however, the proposal's cost, feasibility, and terms and conditions demand further study.**



Courtesy: Rick Giannaria / Pepco Holdings Inc.

**The plan suggests that Congress consider amending Section 224 of the Communication Act to establish a harmonized access policy for all poles, ducts, conduits, and rights-of-way; and that the FCC establish a joint task force with state, tribal, and local policymakers to craft guidelines for rates, terms, and public rights-of-way.**

of charges; allowing the use of independent, certified contractors; establishing a timeline that covers the entire process; and establishing easily searchable databases.

In step with those proposals are two more suggesting that Congress consider amending Section 224 of the Communication Act (addressing pole attachments) to establish a harmonized access policy for all poles, ducts, conduits and rights-of-way; and that the FCC establish a joint task force with state, tribal, and local policymakers to craft guidelines for rates, terms, and public rights-of-way. In essence, the plan recommends the imposition of a uniform national framework that would do away with traditional exemptions and promote national guidelines and policies.

Again, what does this mean for electric utilities? The plan's recommendations to improve the collection and availability of data and to improve the dispute resolution process are positive. But the proposal to lower pole attachment rates and the FCC's proposed action to implement the recommendation run contrary to the electric utility industry's well-established position that the current rates are not compensatory. Further, many utilities have voiced concern that lowering attachment rates would undermine a utility's ability to provide safe and reliable pole structures. And, again, the plan does not consider the impact of the proposal on customer rates.

Likewise, the plan's proposal to establish one-size-fits-all access deadlines, uniform construction standards, and similar policies does not take into account that conditions vary across the country and that, as a result, this proposal also could threaten the safety and reliability of electric service. Further, more emphasis is needed on developing enforcement mechanisms sufficient to combat unauthorized at-

tachments and safety violations. All these issues are being considered for final determination by the FCC in its rulemaking proceeding, and utilities should pay close attention.

### **A Beginning, Not the End**

The plan's recommendations represent the convergence of high-tech energy and telecommunications policy in an effort to promote energy efficiency and competition in what the FCC perceives to be related energy and telecommunications markets. This approach has serious implications for electric utilities. The FCC and the companies that appear before it will remain players in the energy area, just as energy companies were major players in the telecommunications industry in the 1990s and remain significant players in the telecom backbone facilities market. The plan's proposals reflect the fact that in future, some of the primary competitors of electric utilities will be internet service providers and telecoms.

Of course, electric utilities should see the plan as the beginning and not the end of our national consideration of these issues. But the industry must find ways to make policy makers recognize several points. An important one to make is that utilities have played and must continue to play the leading role in unleashing smart grid innovation. Further, policy makers must be reminded of the industry's role in ensuring public safety and reliability. Both of those points highlight the fact that utilities are inseparable from discussions on smart grid deployment and proceed carefully in order to maintain the strength and integrity of the electric system.

Utilities also must focus policy makers on the serious cost recovery implications in the plan's recommendations regarding both the smart grid and pole attachments. As they look at a national broadband plan, policy makers also must understand the important role that the states must play in all of this—and the need to avoid wherever possible one-size-fits-all solutions that do not account for significant differences in the electric industry. ♦