



Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: A National Broadband Plan for Our Future, GN Docket No. 09-51

Dear Ms. Dortch:

Pursuant to Section 1.1206 of the Commission's rule, this ex parte notice is filed on behalf of the National Rural Electric Cooperative Association ("NRECA"). On December 11, 2009, Tracey Steiner, NRECA Senior Director Corporate Counsel, and the undersigned provided written responses to questions posed by Mr. Nick Sinai, Energy & Environment Director. The correspondence generally concerned the broadband and smart grid deployment efforts of NRECA members.

A copy of this letter and the December 11th responses are being filed via ECFS with your office. Please do not hesitate to contact me if you have any questions.

Sincerely,

/s/

David Predmore
Corporate Counsel

Attachments



By Email: Nick.Sinai@fcc.gov

December 11, 2009

Mr. Nick Sinai
Energy & Environment Director,
National Broadband Task Force
Federal Communications Commission
Office of Strategic Planning and Policy Analysis
445 12th Street, NW
Washington, DC 20554

Dear Nick,

The attachment to this letter responds to the follow-up questions you posed to us in your November 9 email. We appreciate this opportunity to continue the dialogue with you regarding the National Broadband Plan's implications for Smart Grid development, particularly for rural electric cooperatives. While we did not have answers to all your questions, we hope you will find this information helpful. If you would like to discuss your questions and our responses in more detail, we would be glad to meet with you in person or by conference call at your convenience.

Sincerely,

/s/

David Predmore
Corporate Counsel

/s/

Tracey Steiner
Senior Corporate Counsel

Attachment

SMART GRID

Question: What % of your members' substations are covered by 3G wireless?

Answer: We don't know an exact percentage. As stated in our comments, electric cooperatives' service territories cover 75% of nation's landmass, so with territory that vast, there are bound to be areas where coverage is lacking. We do know that cooperatives with substations closer to more populous areas typically have good cellular coverage, though it may not all be 3G. Generally, because of security and reliability concerns, cooperatives that are using 3G cellular use it for non-mission critical applications. The most common form of wireless service at cooperative substations today, however, is cooperative-licensed microwave service.

Question: What % of your members' customer locations are covered by 3G wireless?

Answer: We have no information on 3G wireless coverage for the consumer locations served by electric cooperatives.

Question: What network technologies are your members considering using for Smart Grid applications?

Answer: Based on survey of its members that NRECA conducted earlier this year, we know what network technologies cooperatives are *currently* using. Through our research arm, which we call the Cooperative Research Network, we are tracking and reporting on various network technologies to assist NRECA members as they evaluate new technologies for Smart Grid applications.

- Earlier this year, NRECA completed a survey of its members' utilization of various industry technologies. Based on the data received from the survey respondents (410 cooperatives), 81% of respondents are currently using Power Line Carrier, 10% are using wireless networks, 4% utilize drive-by or hot spots (typically Wi-Fi at substations), and 3% are using cellular. (Note that multiple survey responses were possible, and "hybrid" systems implementing more than one network technology are not uncommon.)
- NRECA's Cooperative Research Network has published numerous articles and reports comparing the capabilities of different network technologies for various utility applications, including Smart Grid applications – fixed and mobile radio, satellite, cellular, fiber, power line carrier and BPL, WiMAX, and wireless mesh networks.
- NRECA participates in the National Electric Energy Testing, Research & Applications Center run by the Georgia Institute of Technology. As a NEETRAC member, NRECA has access to project reports that it then can disseminate to its member cooperatives. NEETRAC has looked at the communications infrastructure needed to support electric system automation. In a May 2007 reportⁱ, NEETRAC concluded that a hybrid network architecture, using various types of networks, *including a WiMAX backbone for rural areas*, would enable a "fully connected communication network for electric system automation applications, such as real-time grid and equipment monitoring, incipient fault detection and identification, and wireless automatic meter reading."

Question: Have any of them built WiMAX systems? If so, in what band?

Answer: Yes, we are aware of a few cooperatives that have deployed/are deploying WiMAX systems and we expect that more will do so as the technology is “proven” by more cooperatives. Many have expressed an interest in WiMAX. Two examples of cooperative deployed systems are: South Texas Electric Cooperative (at 2.4 GHz) and Choctaw Electric Cooperative in Oklahoma (at 2.5 GHz licensed to Pine Cellular, a business partner in the provision of retail services).

Question: What level of hardening do your members think is required for private utility communications systems?

- **Battery power**
- **Onsite generation**
- **Amount of fuel**
- **Redundant backhaul**

Answer: The level of hardening required for private utility communications systems will depend on a number of variables, such as geographical factors and how critical individual communications components are to utility operations. Some utilities annually experience extreme weather events, such as hurricanes, tornadoes, windstorms, thunderstorms, lightning, and ice storms. For these utilities, their electric and communications infrastructures must both be robust enough to withstand the extreme conditions they are likely to experience. A “one-size fits all” hardening level for all utilities’ electric or communications systems would be both unnecessarily costly and difficult to apply, when there varying degrees of hardening may be prudent even within a single utility’s systems.

Question: Do your members share or otherwise coordinate communications systems with other entities such as public safety?

- **Tower sites**
- **Backhaul**
- **Radio access equipment**
- **Spectrum**

Answer: Yes. Because cooperatives often serve small, limited-income populations dispersed over a wide geographic area, the only practical, affordable and reliable communications options are “shared use” systems. Without shared use, communications systems capable of adequately supporting utility operations would require a substantial capital investment beyond the capabilities of some smaller cooperatives.

The FCC, under its rules, may grant waivers to utilities so that they may share public safety spectrum they are otherwise ineligible to operate on. Reviewing the Wireless Bureau’s orders granting such waivers may help to determine the extent to which utilities operate shared use communications systems.

A few examples of “shared use” systems include:

- State of Ohio Multi-Agency Radio Communications System (MARCS). The MARCS system is an 800 MHz radio and data network that utilizes trunked technology to provide statewide interoperability throughout Ohio and a 10 mile radius outside of Ohio. There are currently over 33,000 voice units and over 1,800 mobile data units on the MARCS system with over 700 public safety/public service agencies statewide. Due to the reliability and robustness of the system, *nine or ten of the state’s electric cooperatives* are planning to migrate over to the MARCS for their communication needs. For more detail, visit the MARCS website at:
<http://www.das.ohio.gov/Divisions/InformationTechnology/MARCSServices/tabid/124/Default.aspx>.
- Douglas Electric Cooperative. The FCC granted Douglas Electric Cooperative’s request for waiverⁱⁱ so that the cooperative could utilize the UHF trunking frequencies in the Public Safety Pool that had been issued to the County of Douglas in Oregon. The cooperative cited the prohibitive cost of constructing a communications system reliable and robust enough to endure severe local weather conditions and rugged terrain in support of its request. Douglas County, recognizing the cooperative’s need to provide prompt repairs to the electric distribution system were as important to the public interest, agreed to let the cooperative utilize its public safety communications system. The cooperative also had letters of support from the Douglas County Sheriff’s Office and the State of Oregon’s Office of Homeland Security to share the communication system.
- ClearTalk SMR. The Illinois Cooperative Association is a not-for-profit company formed by four rural electric cooperatives in central Illinois. This association formed ClearTalk, an 800 MHz SMR service, after severe ice storms across the state tested the resiliency of their then independent internal communications systems. The ClearTalk system created one interoperable communications systems allowing communications between the cooperative members and public safety in times of need. The system is built to public safety standards and currently provides services to several public safety entities including state and county law enforcement. The association received a waiver from the FCC allowing public safety entities to operate on the ClearTalk system.

UTILITY TELECOM

Question: *Have your members considered using their utility communications networks to offer wholesale or retail communications services?*

Answer: Yes. As noted in NRECA’s comments filed with and presentations made to the FCC in the course of the National Broadband Plan proceeding and in Public Notice 2 on the Smart Grid, we are aware of several NRECA members that leverage their existing utility networks to provide communications services. Here are a few examples:

- LS Networks: In Oregon, LS Networks is a state-wide inter-exchange company owned by five Oregon electric cooperatives and one Indian Tribe. LS Networks operates and maintains a carrier optical network over 2,250 miles across several Oregon rural towns.
- Sho-Me Power: Sho-Me Power has an extensive fiber-based system. The co-op worked with the state of Missouri to install 5,000 miles of fiber since 1996 connecting schools, hospitals, court houses, and National Guard armories among other critical community institutions. (The state and co-op have filed a joint application for stimulus funds to lay an additional 2,500 miles of fiber, which is expected to increase broadband accessibility to 91.5% of the state's population.)
- Southeast Colorado Power Association: SCPA leveraged the 1,000+ miles of fiber it has installed throughout their service territory for commercial use. The co-op partnered with the state of Colorado in 1998 to extend its fiber network and connect rural schools. In addition, through its subsidiary SECOM, SCPA provides both residential and commercial broadband services, as well as wholesale Internet bandwidth, Ethernet circuits, and other services.

Question: Do you know how many of your members offer retail telecom or broadband services?

Answer: We do not have current data on the *total number* of electric cooperatives providing retail services, but hope to conduct a member survey soon to gather this information. We are aware though, of many cooperatives that have identified a need for broadband in their communities and found ways to deliver that service, even without leveraging their own communications networks. Approximately 250 electric cooperatives are offering retail WildBlue® satellite broadband services through the National Rural Telecommunications Cooperative (NRTC). NRTC earlier this year forged a partnership with DigitalBridge Communications so that interested electric cooperatives could offer WiMAX broadband services to their communities. Here are some examples of specific cooperatives providing retail services:

- Central Iowa Power Cooperative is a part owner in Dynamic Broadband, providing broadband services over wireless (licensed & unlicensed) and wireline networks.
- Cherryland Electric Cooperative in Michigan provides long distance telephone and broadband DSL service.
- Choctaw Electric Cooperative in Oklahoma provides broadband services over an unlicensed WiMAX network (at 2.4 GHz).
- Columbia Rural Electric Association in Washington offers broadband services over a Wi-Fi network through its subsidiary, Columbia Energy LLC.
- Douglas Electric Cooperative through its subsidiary, Douglas Fast Net, provides high speed access services through fixed fiber and wireless (at 5 GHz and 900 MHz) networks.

- FastTrack Communications is a business venture of two cooperatives, LaPlata Electric and Empire Electric Association, providing fiber-based services in western Colorado and New Mexico.
- Grundy Electric Cooperative in Missouri, through its affiliate Mid-States Services, LLC, provides wireless broadband services.
- Guadalupe Valley Electric Cooperative in Texas provides services via high-speed wireless and dedicated ISDN networks.
- Hood River Electric Cooperative in Oregon offers broadband service over a combination wireless (at 5.8 GHz & 900 MHz) and fiber network for business customers through Communications Access Cooperative Holding Enterprise.
- Illinois Rural Electric Cooperative offers fixed wireless and satellite broadband services.
- Magic Valley Electric Cooperative in Texas offers wireless broadband services through its affiliate, mvecnet.
- Mille Lacs Electric Cooperative in Minnesota offers wireless broadband services through an affiliate, MLEC Internet.
- Northern Electric Cooperative's (South Dakota) wholly-owned subsidiary, Northern Wireless, provides broadband service via a fixed wireless network.
- Plumas Sierra Electric Cooperative in northern California provides broadband service via a wireless network and WildBlue satellite.
- Shelby Electric Cooperative in Illinois provides broadband services under the name PWR-net using unlicensed 5.8 GHz spectrum.
- Sioux Valley Energy in South Dakota offers services via "traditional" wireless and WiMAX.
- Trico Electric Co-op and Sulphur Springs Valley Electric Co-ops in Arizona partnered with TransWorldNetwork to deliver "Wi-Power" wireless broadband services.
- West Florida Electric Cooperative provides high-speed Internet access services.
- Wharton County Electric Cooperative in Texas provides broadband Internet service via wireless and WildBlue satellite.
- Wheatland Electric Cooperative in Kansas formed Wheatland Broadband Services to provide broadband services via WiMax (2.4 and 5.8 GHz).

- Wright Hennepin Electric Cooperative through its WHComm subsidiary is offering DSL service.

Question: How many offer wholesale?

Answer: Again, we do not have current data on the *total number* of electric cooperatives providing wholesale communications services, but hope to capture this information as part of a member survey soon. Some examples of cooperatives providing wholesale services are:

- Cooperatives' Broadband Network is a collaborative of about 20 electric cooperatives operating an extensive fiber network across Missouri and Oklahoma to provide a variety of wholesale communications services.
- Eastern Illini Electric Cooperative's affiliate, Conxxus, provides wholesale (and retail) services via wireless and fiber networks.
- Old Dominion Electric Cooperative is a member of the Mid-Atlantic Broadband Cooperative providing wholesale broadband and other communications services.
- Southern Maryland Electric Cooperative is a member of and leases excess fiber capacity to the Maryland Broadband Cooperative, a provider of wholesale broadband and other communications services.

Question: Do you have any sense what percent of your members (that have smart meters installed) give consumers access to the meter info via a HAN connection? via an Internet portal?

Answer: NRECA believes that electric cooperatives, like other sectors of the electric utility industry, are still in the early stages of providing consumer access to smart meter data. Earlier this year, NRECA completed a survey of its members' activities in energy efficiency programs and technology utilization. Based on the data received from the survey respondents (410 cooperatives), 71% of respondents currently have some amount of AMI/AMR installed. Of these cooperatives, 3% responded that they were utilizing a HAN connection to provide consumer access to smart meter data. We did not specifically ask about access via an Internet portal in that survey. However, we are aware of a new service offering to provide consumer Internet access to smart meter data by an industry IT organization owned by more than 450 electric cooperatives. The National Information Solutions Cooperative has introduced a Meter Data Management System that includes an option to provide consumers with the ability to log-in to an Internet portal to view energy consumption information. The first customer interface that NISC has developed is for the Google PowerMeter. (For more information, see www.nisc.coop/mdms/MDMS.htm .)

Further, NRECA's Cooperative Research Network was recently awarded a Smart Grid Demonstration Grant of \$33.9 million for a Smart Grid project involving 27 electric cooperatives in 10 states. The project will include the installation of 3,958 in-home displays/smart

thermostats and 2,825 Zigbee gateways. (For more information, please see our press release at: <http://www.nreca.coop/PressRoom/Releases/20091124DOESGresearchaward.htm>.)

Question: Are there impediments to offering wholesale or retail communications services?

Answer: Yes, there are number of impediments to electric cooperatives offering wholesale or retail communications services. However, despite those impediments, many electric cooperatives have found ways to provide needed services beyond electricity in their communities, such as communications services.

First Impediment: State Enabling Acts. Electric cooperatives exist in 47 states. In 31 of these states, they are organized under a specific enabling act for electric cooperatives. In 23 of the 31 state electric cooperative acts, certain provisions may limit the types of business activities in which cooperatives may engage directly as well as the services and products they may provide. Enabling statutes may further prescribe *how* a cooperative may engage in certain business activities or provide certain products or services, that is, whether they may do so within the existing cooperative structure, or through ownership interests in other businesses, or participation in a joint venture. In a number of instances, an enabling statute is ambiguous or silent regarding whether a cooperative has the power to take a specific business action. This legal uncertainty regarding statutory authorization to engage in non-electric business activities is an impediment to offering communications services for cooperatives in several states.

Another limitation in some state enabling acts are provisions that limit electric cooperatives to serving “members” or to providing service only in “rural areas.” Six states place express limitations on the number or percentage of non-members an electric cooperative may serve. Even in a state where a cooperative may not have a limitation on serving non-members, 15 states require a person to use electric or other energy services provided by the cooperative to be a “member.” Whether or not a cooperative can treat someone it is serving as a “member” is important for tax purposes discussed below.

Second Impediment: Federal Income Tax Consequences. Most electric cooperatives are tax exempt under section 501(c)(12) of the Internal Revenue Code. To remain exempt, an electric cooperative must operate on a cooperative basis (as defined under federal tax law) and pass an annual test that at least 85% of its income come from “members” of the cooperative. Therefore, if an electric cooperative’s telecommunications services were provided through the existing cooperative structure to a significant number of non-members (and, as noted above, some state enabling statutes require a person to receive electricity or other energy services to be qualified for membership), the cooperative’s tax exempt status could be in jeopardy for failing this 85% member income test.

Third Impediment: Opposition by Competitive Providers. The provision of non-electric services by electric cooperatives has not always been well received, particularly by other service providers who claim that cooperatives have unfair competitive advantages, e.g. tax-exempt status, access to federal financing, alleged improper cross-subsidization of diversified services by regulated (electric) services, etc. A number of cooperatives have been sued when they entered into a diversified business. Typically, these suits have alleged that the cooperative is engaged in

ultra vires activities, that is, acting beyond the authority conferred under the state enabling act. Ex. Total Access, Inc. v. Caddo Elec. Coop., 9 P.3d 95 (Ok. Ct. App. 2000) (Total Access found to lack standing to challenge the cooperative's authority under state law to enter the ISP business). Some competitors have lobbied the Internal Revenue Service to revoke the tax exempt status of electric cooperatives that provide *any* diversified service, even when those cooperatives were providing such services through a taxable for-profit subsidiary. Others have made allegations of improper cross-subsidization before state utility commissions in states where co-ops are rate regulated, and have urged the commissions to apply strict affiliate transaction rules to cooperatives engaged in non-state regulated businesses. Other efforts have included lobbying state legislators to oppose efforts by electric cooperatives to amend their enabling statutes to clarify their ability to provide diversified services or to offer bills to restrict electric cooperatives' provision of diversified services. Ex. Actions of the National Propane Gas Association and the Coalition for Fair Competition in Rural Markets.

Question: Have electric cooperatives been able to get RUS loans for expansion into telecom or broadband?

Answer: Unfortunately, very few electric cooperatives have benefited from RUS broadband loans. NRECA was very supportive of the amendments to the Rural Electrification Act of 1936 to establish the RUS broadband program through the 2002 Farm Bill. NRECA also supported continuation of and increased appropriations amounts for this program in the 2008 Farm Bill. However, few electric cooperatives have benefited from RUS broadband programs to date. The exceptions include those cooperatives that have partnered with International Broadband Electric Communications to deploy BPL.

ⁱ NEETRAC Project Number 05-259, Communications Infrastructure for Electric System Automation – Phase II (May 2007).

ⁱⁱ Douglas Electric Cooperative, Request for Waiver of Section 90.179 of the Commission's rules, DA 06-1996 (Oct. 6, 2006).