

Broadband USA Applications Database

Applicant Name: Norris Electric Cooperative

Project Title: Norris Electric Cooperative WiMAX Deployment

Project Type: Last Mile Non-Remote

Executive Summary

Norris Electric is seeking funding to bring next-generation, affordable, wireless broadband services to the Norris Electric Cooperative service area that has unserved and underserved populations. Due to terrain challenges and low population density in this service area, current broadband Internet access methods are overpriced and under-delivered. The proposed service will provide broadband service in unserved and underserved areas and bring broadband to the highest percentage of rural residents that currently lack access to broadband. Through WiMAX (Worldwide Interoperability for Microwave Access), Norris Electric will deliver affordable, reliable broadband service with 2 Mbps speeds within 12 months of funding. Through its membership in the National Rural Telecommunications Cooperative (NRTC), Norris Electric will be working with NRTC and DigitalBridge Communications Corp. (DBC) on this project. For over 20 years, NRTC and its members have provided advanced telecommunications services to rural communities. DBC has already successfully delivered WiMAX to 15 rural and underserved communities across the USA and will provide Norris Electric with the technology and ongoing support to replicate this success in Norris Electric's service territories. Opportunity the System Addresses When deployed, Norris Electric's WiMAX system will enable residents, businesses, schools, healthcare providers and emergency responders to have a complete and affordable broadband solution. Stimulus funds will ensure that Norris Electric is able to continue supporting local entities with free broadband access, such as to fire and rescue stations in the region. Proposed Funded Areas The proposed location is 100% rural and covers most of eight counties in southeastern Illinois: Clark, Crawford, Cumberland, Effingham, Jasper, Lawrence, Richland, and Wabash. The territory's total population is estimated to be approximately 130,797. This is based on detailed mapping we performed at the census block-level and is reflected in the Last Mile Service Details. The USDA on-line mapping, which is less precise, indicates a population of 108,000. Regardless, we will serve all households in the service area. Saturation of broadband in these regions is absolutely necessary for future growth and economic development. Homes and business in the service are widely dispersed and if not for the ARRA broadband stimulus funds these communities, these households and businesses would not have the opportunity for the quality broadband access that will be offered by Norris Electric Cooperative. Wide expanses of land in the service area make it unfeasible to provide wireline broadband service to many locations. With WiMAX, all homes and businesses within the service footprint will have ready access to broadband. With stimulus funding, the project will be fully funded and shovel ready. Households and Businesses Passed According to our detailed mapping, the wireless network for the proposed funded service area will cover 56,496 households and 8,565 businesses. Community Anchor Institutions, Public Safety Entities, Community Organizations Involved with the Project The project plan includes broadband access, education,

awareness, training and equipment at 941 anchor institutions located throughout the service area, including administrative offices, courthouse, law enforcement, community centers, first responder locations for fire and rescue and schools (all levels) in our service area. Norris Electric plans to partner not only with local anchor institutions but with the local agriculture community as well. A communications tool such as WiMAX could benefit the local farmers by enabling GPS applications or other future technology. Proposed Services and Applications Norris Electric will offer last-mile broadband access through WiMAX technology, which will initially be deployed in a fixed architecture, but is expected to migrate to a mobile architecture within 2 years. At community centers and schools, we will distribute next-generation “4G” devices (i.e., including USB adapters and WiMAX-enabled notebooks/laptops). Critical community facilities, including first responders/public safety officials will receive discounted (at least 25% lower than advertised rates) broadband Internet access.

Approach to Addressing Non-Discrimination and Interconnection Obligations We will comply with the principles of the FCC Internet Policy (FCC 05-151). Customers will be entitled to access lawful Internet content of their choice, and Norris Electric will not favor any lawful Internet applications and content over others. Furthermore, customers will be allowed to run applications and services of their choice, subject to the needs of law enforcement and reasonable network management, and to connect their choice of legal devices that do not harm the network. Norris Electric will offer a wholesale program to resellers to connect to the Norris Electric network and provide service to customers. In the event towers are built with grant funding, we also will make affordable access available to other operators who wish to bring wireless broadband services to the area. We will display our network management policies on our Web page and will provide notice to customers of changes to these policies. Customers will connect to the public Internet directly, and we will not operate a private closed network. Finally, where it is technically feasible without exceeding current or reasonably anticipated capacity limitations, Norris Electric will offer interconnection on reasonable rates and terms to be negotiated with requesting parties.

Type of Broadband System WiMAX is an established international standard for wireless telecommunications that operates on licensed frequencies of radio spectrum to deliver high-bandwidth data services using all-Internet Protocol (IP) architecture. WiMAX delivers speeds competitive with those offered by cable and Digital Subscriber Line (DSL), but does so wirelessly, and can be deployed in sparsely populated areas at less expense than those technologies. In addition, WiMAX has the promise of mobile capability. While a Wi-Fi hotspot can provide wireless connectivity to a small area, a WiMAX network can blanket an entire service area with high-speed, wireless Internet connectivity at low costs relative to wireline services. No other technology offers such a full set of differentiated voice, data and premium video services in a variety of wireless fashions—fixed, portable and mobile. WiMAX technology uses licensed spectrum, which translates into a reliable, sustainable, high-quality, wireless broadband service with 2 Mbps speeds. Wireless broadband solutions can be readily upgraded to include mobility or additional system capacity, enhancing performance of the system without the need to dig up streets and upset the environment. In fact, DBC already has upgraded some of its wireless systems to the newest generation of the WiMAX platform, without having to change or remove any hardware. The standards-setting community anticipates that the WiMAX infrastructure deployed today, with modest network improvements, will be capable of reaching speeds exceeding 10Mbps and system capacity that is fourfold, without any stranded capital investment. Overall Infrastructure Cost of the Broadband System The overall infrastructure cost of the WiMAX system will be \$3,882,373. This includes a network build-

out of \$2,890,449 and \$991,924 for the consumer premise equipment and installation necessary to connect the first three years' projected subscribers to the wireless network. Again, this is significantly more efficient on a cost-per-household and cost-per-subscriber basis than other delivery methods. With stimulus funding, cumulative cash flows from operations are positive over the term of the project and we attain cumulative profitability within seven years – ensuring project sustainability. Overall Expected Subscriber Projections for the Project We project that deployment will attract 5,021 subscribers over the initial five-year period of 2010 and 2014. Number of Jobs Estimated to Be Created and Saved This project will create up to two new jobs at Norris Electric for Customer Service Representatives, Installers, Sales Staff, Technicians, System Engineers and Accounting. Norris Electric currently has four installers for our WildBlue satellite internet service and one customer service representative as well as shared responsibilities in the areas of billing, accounting, system maintenance and marketing. The proposed WiMAX project will enable Norris Electric to retain these positions. The build-out of the project (including base stations, towers, equipment) will also influence the local economy. Jobs will be created for the build-out of the project, possibly not local contractors, but any contractor in the community during the build-out will benefit the local economy. Local jobs will also be retained in additional computer sales. Sales of PCs with the WiMAX technology will grow as the system becomes more widely used. The social benefits to the region of having an affordable high speed Internet service cannot be quantified – but they will be substantial. The inability of many parents and students to utilize the online services of the school districts will be enhanced over the existing slow dial-up connections. Students will be able to access and use the Internet to its full potential for learning because of the current bandwidth limitations with dial-up. Broadband Internet service will allow these users to access government services online including searching for jobs in a distressed economy. Broadband Internet service would afford some of users in the service area the opportunity to telecommute or consider starting or expanding a home-based business.