Great River Energy (GRE) strongly supports a narrow channel WiMAX solution in the 700 MHz A band spectrum. Currently, there is no standard for any technology or equipment in this band and current standard technologies do not fit into this spectrum. GRE sees a great need for a technology standard in order to have multiple manufacturers and equipment security moving forward. GRE will be replacing its existing 700 MHz A band equipment starting in 2017.

GRE has a broadband communications network to most of its transmission and distribution substations, and automated switches. The network is used primarily for SCADA communications and network access for field technicians. The network also enables high-speed access to electrical devices connected to the network for engineers and operations personnel from their office for reprogramming, changing settings, or downloading data from devices on the electrical system.

GRE’s current 700 MHz A band network uses a modified version of DOCSIS 2.0. This system was installed between 2006 and 2008 in partnership with Arcadian Networks, Inc. (ANI), and uses Vyyo equipment for the network. ANI is no longer in existence and GRE purchased all the equipment available prior to the dissolution of ANI. By late 2016 or 2017, GRE will no longer have equipment to self support and because this was a proprietary solution, although based on a standard, there are no other manufacturers that GRE can purchase equipment from. This is the primary problem with not having a standard technology with multiple manufacturers making equipment for that standard.

Having a broadband network to GRE’s substations allows GRE to have only one communication path to each substation, which can be used for multiple applications by multiple companies. In the past, each device which required communication, required its own communication path so a substation may have had anywhere from one to four circuits, or more. In GRE’s current system, each substation has a Customer Premise Equipment (CPE) device which includes a Cisco 3200 router, serial to IP converters, and a Wi-Fi Access Point (AP). These CPEs are connected to Remote Terminal Units (RTUs), meters for both real time and billing metering data, VoIP phones, member cooperative RTUs, and member cooperative AMI/AMR collectors.

**GRE Background**

Great River Energy is a not-for-profit generation and transmission electric cooperative owned by its 28 member distribution cooperatives. Those 28 member cooperatives in turn provide electrical service to approximately 1.7 million people in a 56,000-square-mile area from Minneapolis-St. Paul suburbs to very rural areas of the north shore of Lake Superior to the farmlands of southwestern Minnesota. The loads served by the member systems are primarily residential, seasonal and agricultural loads. GRE owns and operates 12 power plants which generate more than 3,500 megawatts (MW) of electricity.

GRE owns and operates nearly 4,600 miles of transmission lines and owns 109 transmission substations. Additionally, GRE interfaces with 28 distribution cooperatives at over 500 distribution substations and has over 150 downline motor-operated switches to which it communicates.