TETRA's Relationship with the **UTILITY INDUSTRY**

KEITH AMMONS
VP Sales Project Management & Market Development
Powertrunk

No one can deny that utilities provide us with highly essential services for the supply of electric power, natural gas, and water on a daily basis. These services must be provided with a high level of reliability, and the interruption of service can have serious consequences for society far beyond simple inconvenience, especially in the event of natural disasters or other types of emergencies. Lights must stay on and power outages must be quickly restored for hospitals, public transit, essential industry, government services, and for maintaining public order. At PowerTrunk, we therefore realize that in many cases utility personnel can be considered as "First Responders," and that utilities require mission critical grade communications systems in support of many aspects of their daily operations and for emergency restoration response. This fact is very much kept in mind when delivering PowerTrunk's TETRA solution for utility use.

Utilities have a variety of voice and data communications requirements for which the digital TETRA open standard is highly suitable for fulfilling in utility land mobile radio networks. Voice communication is critical for daily operation for calls between dispatchers and work crews, tower to ground communication for line-men, radio to telephone interface, interoperability with neighboring utility cooperatives, emergency calls, etc. And on the data side, in addition to status and text messaging, GPS tracking of vehicles and workers has become perhaps the most important and most requested data application for use over the radio network. Not only does this allow for personnel and assets to be more efficiently moni-tored and managed, but it also plays a major role in assuring worker safety, especially when combined with other lone-worker and man-down features

Since gaining its place in the North America market over the past decade, TETRA has proven itself to be a reliable and ground-breaking land mobile radio technology

incorporated into the TETRA radios.

Since gaining its place in the North America market over the past decade, TETRA has proven itself to be a reliable and ground-breaking land mobile radio technology. Actu-ally, this comes as no surprise to those already familiar with the fact that TETRA has been

widely established in Europe and throughout most of the world for around 20 years or so. It is interesting to note, however, that when TETRA did first arrive in North America, that it was for utility use. Also worth mentioning is the fact that UTC (at that time known as the Utilities Telecom Council) had a role as well in introducing the major players together.

BC Hydro in British Columbia, Canada, was the first TETRA network customer in North America. After a process of comparing various technologies including TETRA, P25, DMR, iDEN, and others, BC Hydro determined that TETRA was the solution that best met their requirements and awarded a contract in 2011 for the supply of a PowerTrunk TETRA network, which went live in 2013 and has been flawlessly in operation ever since.

At around the same time, TETRA was also gaining a foothold in the US, particularly in the public transit sector, and then a couple of years later was also adopted for utility use. In this case, Diverse Power EMC and Cobb EMC were two electric cooperatives in the state of Georgia that were independently implementing their own TETRA networks. Both companies sought open-standard solutions that were scalable, flexible, and secure, and which provided high quality voice services as well as data transmission capability, especially for GPS tracking. The idea then occurred to the cooperatives to combine their networks together, and eventually PowerTrunk was selected to make it happen. PowerTrunk provided the core infrastructure with a high degree of redundancy and enhanced reliability needed for a mission critical emergency communications system. The cooperatives were able to share the network resources, but without compromising the security or privacy of each user.

Diverse Power took the lead in managing the overall network, and after realizing the greater potential of the system, began to invite other cooperatives throughout Georgia to join the network as well. Each group provides resources for the common good of the network for their area, such as tower sites, fiber connectivity, and other facilities, etc. In return, each cooperative receives the benefits of a modern radio system with advanced voice and data features, extensive coverage and capacity, and fully redundant connectivity, but without significant cost. The Georgia shared TETRA network continues to grow and currently provides coverage of over two-thirds of the state.

Diverse Power furthermore developed a mobile network operator model such that excess capacity is also leased to certain other non-EMC users including a county sheriff department, local police, 11 fire departments, emergency medical services (EMS) and hospitals, a county water system, and a 911 call center. This speaks volumes for and clearly demonstrates the mission critical capabilities of the PowerTrunk TETRA system.

Each partner of the network has their own virtual network for daily operations as if it were a private system, but groups can be set up with other members in other areas when needed. The full capabilities of the Georgia TETRA network truly come to light, however, in disaster response

and service restoration situations. Perhaps the best example of this was the response for Hurricane Michael.

As Hurricane Michael made landfall from the Gulf of Mexico and tore a path through the southeastern US, it left behind a swath of destruction that included significant damage across Georgia, especially near the Florida border. There was massive damage to transmission and distribution systems in several areas, resulting in very large power outages. In such instances, it is common for the affected electric utilities to receive technical assistance from other cooperatives for the purpose of restoration. Coordination among workers from different organizations is complicated, and communications systems for proper control can thus be problematic. Not so, however, with the Diverse Power shared TETRA network. Several hundred utility workers of multiple cooperatives were able to effectively communicate and work together in fully restoring power thanks in great part to the common TETRA platform. Not only was the establishment of talk groups to integrate all the workers a relatively easy task, due to common radio equipment, but GPS tracking of vehicles and personnel within the network facilitated dispatching and work assignments as well as assuring worker safety throughout the operation. The lessons learned from this experience included the fact that having an own hardened radio communications system is a huge advantage in a crisis, and that a wide-area shared network is likewise hugely beneficial. The mission critical capabilities of the PowerTrunk TETRA system in this case well proved their worth.

The excellent experience with TETRA in Georgia has caught the attention of utility companies elsewhere as well. For example, Cooperative Energy, a generation and transmission cooperative in Mississippi has contracted for a PowerTrunk TETRA network, currently being rolled-out, that will provide advanced communication capability and radio coverage for roughly two-thirds of the state, similar in size to the Diverse Power system. Once again, the reasons for selecting TETRA technology for their network include system modernization, improved customer service and emergency response preparedness, and workforce safety. ■