UTC INFORMATION BULLETIN

Re: ITU Radiocommunication Sector Report on Utility Radiocommunications Systems
Date: December 6, 2023

Summary:
On November 11, the International Telecommunications Union (ITU) Radiocommunication Sector Working Party 5A approved and published a report on "Utility radiocommunication operating in the land-mobile service." This report describes the different radiocommunication systems and applications used by electric, gas, and water utilities. The report also highlights how utilities can use these systems and applications to support the safe, secure, reliable, and efficient delivery of critical services to their customers. Lastly, this report includes information contributions from different international countries – including Brazil, China, Ireland, South Korea, and the United Kingdom – about how utilities in these countries use wireless spectrum to support their mission-critical communications.

Read the entire report HERE.

Background:
For over a decade, the Utilities Technology Council (UTC) and its international counterparts, European Utilities Telecom Council (EUTC) and UTC America Latina (UTCAL) have worked with the ITU to promote access to harmonized spectrum for utilities.

ITU Report Key Points:

- **System Characteristics**: Utility radiocommunication systems are traditionally characterized as having high reliability, consistent availability, and low latency; and are built with overlapping coverage and power redundancy to maintain reliability and resiliency during all conditions.
- **Grid Modernization**: With the advancement of grid modernization and the growth of more innovative distribution networks, utilities face a growing need for their communication systems to handle additional capacity with broader coverage. This modernization involves implementing two-way, real-time communication systems to enhance control and automation.
- **Communication Technologies**: Utility communication applications require varying latency, security, and reliability requirements. Utilities typically operate their own private internal communication network to ensure that these utility networks can provide complete asset coverage with 99.9999% availability.
- **Security & Durability**: Utilities constantly balance the need for greater network security with cost-effectiveness when constructing their telecommunication networks.
- **Network Architecture**: Utilities use a variety of communication networks, which include integrated networks, internet protocol services, and edge data centers that assist with efficient data traffic management and cost reduction.
- **Substation Communications & Architecture**: Utility substations have become increasingly complex. Many utilities adopt international standards such as IEC 61850 when constructing their substations and integrating applications, such as

SCADA system protections, advanced metering, distribution automation, and wide area measurement, protection, and control. IEC 61850 also allows a utility to aggregate the data and information gathered from various remote substations, enabling connectivity to home area networks.

- **Utility Communication Network Design**: Depending on their service area and customer base, utilities use a centralized, decentralized, or hybrid communication network to meet their service needs, with Field Area Networks (FANs) playing a crucial role in connecting remote utility locations to a central hub.

UTC Discussion:
The energy grid is evolving. Energy utilities are using more grid-monitoring applications and internet-connected devices that support the generation, transmission, and distribution of critical energy services. UTC believes its members will need the following to update their communication systems and improve grid reliability.

- **Utility Spectrum Access**: As the energy grid becomes more digitalized, utilities use wireless devices and applications to monitor the grid and manage various remote energy assets. To effectively manage and monitor these assets, utilities must have access to both licensed and unlicensed wireless spectrum. This wireless spectrum can be dedicated or jointly shared, but it should provide additional network bandwidth to support utility operations.
- **Network Security and Reliability Funding**: Safety and reliability are two fundamental prerequisites for utility communication networks. These networks must adhere to high-reliability standards, focusing on redundancy, strengthening interoperability, and lowering maximum application latency. As communication networks evolve, utilities will need flexibility and funding to improve their networks without sacrificing grid reliability.
- **Network Infrastructure Funding**: As communities integrate more distributed energy resources, utilities will need additional funding to upgrade their communications network infrastructure to maintain grid reliability. Such upgrades include modernizing the infrastructure of their substations or investing in a private wireless network for the safe exchange and delivery of data. Cost-effectively, utilities must upgrade while maintaining the reliability, availability, and security of utility services.

UTC Next Steps:
UTC will develop a draft recommendation for utility spectrum access and allocations based on the report's information. UTC plans to present this recommendation at the upcoming ITU Working Party 5A meeting, scheduled to take place in Geneva, Switzerland, from May 13 to May 23, 2024.