Experimental License Application
For 900 MHz Private Long-Term Evolution at Dominion Energy Virginia
Rev. 13-Oct-2020

Dominion Energy Virginia is a subsidiary of Dominion Energy with headquarters in Richmond, Virginia. Dominion Energy operates in 20 states across the United States to provide safe, reliable and affordable energy to meet the needs of our more than 7 million customers and the communities in which they live. Dominion Energy's operating segments include power generation, power delivery, and gas infrastructure. Dominion Energy's current renewable energy portfolio includes more than 3,100 megawatts of clean energy in 10 states.

Dominion Energy Virginia serves approximately 2.6 million customers in Northern, Central and Eastern Virginia, and Northeast North Carolina through 6,700 miles of electric transmission lines and 58,000 miles of electric distribution lines. Dominion Energy Virginia has committed to meeting renewable energy standards established by policymakers in Virginia and North Carolina, with Virginia having 100% of customer sales paired with renewable energy by 2045. As part of our commitment to renewable energy, Dominion Energy expects to add up to 1,000 megawatts of solar and onshore wind generation, and up to 250 megawatts of energy storage in Virginia. Dominion Energy's Coastal Virginia Offshore Wind (CVOW) project is the largest offshore wind development in the country with a proposed 220 wind turbines. This project expects to add more than 2,600 megawatts of wind energy off the Virginia coast by 2026.

Background:
Dominion Energy Virginia – Electric Transmission is exploring the potential for a private LTE network in the 900 MHz spectrum to reliably serve voice and data needs to meet today's requirements as well as future initiatives to reliably transport energy from diverse sources to achieve the renewable energy goals. High voltage electric transmission infrastructure is often located in remote and rural areas that are poorly served by commercial carriers. A 900 MHz private LTE solution will be evaluated to determine if it is suitable to provide reliable communications for SCADA, redundancy for vital operational requirements, electric transmission sensors and controls, automation and monitoring, mobile voice, push-to-talk (PTT), and other workforce mobility solutions. Additional uses may include unmanned aerial vehicle (UAV) inspections of transmission assets and other modernization and efficiency initiatives. Dominion Energy Virginia is hardening key assets to improve security defenses against physical and cyber-attacks, including an electro-magnetic pulse (EMP) event. Key components of a private LTE network would be integrated into hardened sites to provide a robust communications capability in the event of a Black Sky scenario that would disrupt conventional means of communications.

Request for Conventional Experimental Radio License:

A) PURPOSE OF TEST:

Dominion Energy Virginia requests a conventional experimental radio license to test LTE capabilities using the 900 MHz spectrum. The purpose of the testing is to confirm that the broadband LTE technology will be able to support the data capacity, data rates, coverage and latency requirements needed for operational technologies to support safe and reliable electric utility operations, including services for a Critical Infrastructure Industry as per FCC RM-11738.

Dominion Energy Virginia expects to evaluate 900 MHz private LTE communications under two scenarios:

- A rural environment with rugged terrain to evaluate 900 MHz performance for:
  - Mobile Voice
  - Workforce Mobility
  - Telemetry and automation
  - Substation communications redundancy and backhaul
  - Constraints for operation within the National Radio Quiet Zone (NRQZ)
- An urban environment to evaluate:
  - EMP hardening requirements
  - Redundant voice and data
  - Immunity from noise interference in an urban environment

B) TECHNICAL PARAMETERS OF TEST:

The testing will involve wireless communications to fixed locations and to mobile devices within the broadcast radius of each transmitter site. The details of the transmitting equipment are provided in the technical sections of this application.

As for field area network (FAN) systems, testing of the fixed wireless LTE equipment will be automated to transmit/receive information between the transmitters and the end-point equipment locations. Data transmissions will occur during the 24-hour day, however most of the monitored testing will occur during normal business hours (8:00 am – 5:00 pm local time – Monday-Friday). Consistent with the requirements of Section 5.107 of the Commission's Rules, system management and monitoring will be handled remotely from Dominion Energy Virginia's offices at Richmond, Virginia, except for the installation, setup and adjustments of field equipment by qualified personnel on site.

Dominion Energy Virginia requests a 24-month term for the experimental license to allow equipment evaluation and product development trials, and to adjust testing as needed.