

## Utilizing Drone Technology

Xcel Energy is using new technology to enhance safety and efficiency of its operations. The company is leading the utility industry with the use of Unmanned Aircraft Systems (or “drones”) to inspect and maintain its infrastructure. Xcel Energy inspects more than 320,000 miles of electricity and natural gas infrastructure to ensure the safety and reliability of its energy system.

We’ve been collaborating with the Federal Aviation Administration (FAA) for several years, becoming the first utility in the U.S. to perform a beyond line of site mission north of Amarillo, Texas in 2016. We also entered into a Partnership for Safety Program (PSP) with the FAA to operate drones to inspect a large portion of our transmission lines in 2017. In 2018 we became the first utility to receive federal approval to routinely fly drones beyond line of sight, and one of a few utilities chosen to take part in the UAS Integration Pilot Program. The program, which will take place in North Dakota, will allow Xcel Energy to conduct further research using drones to support additional activities including inspections for distribution infrastructure.

### Advantages

Unmanned aerial survey (UAS) technology is a new way for Xcel Energy to efficiently, cost-effectively and safely monitor operations. UAS offers a potential advantage to inspect hard to reach sites, reduce costs and improve response time. The technology also allows advantages in accessing environmentally sensitive areas by minimizing ground impact.



Xcel Energy began routinely operating drones beyond visual line of the operator’s sight within a designated area approximately 20 miles north of Denver International Airport in the summer of 2018.



The Xcel Energy Grand Meadow wind farm was inspected by an Unmanned aerial vehicle (UAV) in Dexter, Minn.



A UAS flies near a solar farm during an inspection of transmission lines in Colorado.



Data from a UAS mission in Minnesota shows a broken cross-arm on a transmission structure.



In February, 2016 Xcel Energy became the first utility in the nation to successfully conduct an FAA approved beyond operator visual line of sight UAS mission for research and development purposes. The mission included surveying a transmission line north of Amarillo in the Texas Panhandle.