

# TECHNOLOGY DEVELOPMENT PROJECT FACT SHEET

## UT002: NxtPhase Fiber Optic Voltage-Current Transducers

The NxtPhase Optical Voltage and Current Transducer combines the advantages of each individual sensor into one instrument over a range of transmission voltages from 38kV to 500kV. NxtPhase was formed from several respected teams in the areas of fiber optic measurement of current, fiber optic measurement of voltage, and digital protection equipment.

The **Current Sensing** technology is based on the Faraday Effect where a magnetic field is created as current flows through a conductor which influences the polarization of light in a fiber optic path encircling that conductor.

The **Voltage Sensing** technology, based on the Pockels Effect, yields highly accurate measurements by using weighted averages from multiple optical sensors. Reduced size and weight makes it easier to install. Combined instrumentation that replaces several conventional devices allows flexibility in substation design. The NXVCT design permits measurements to be made with the highest possible accuracy and stability. The insulator contains no oil, paper insulation or SF6 gas. There is no internal mechanism for any type of explosive failure.



NXVCT - Voltage & Current Sensor



3-NXVCTs Installed at Deer Valley Substation

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