230 kV revenue metering system at Northern California Power Authority

NXTPHASE

AN ABI SOLUTION

Landis+Gyr

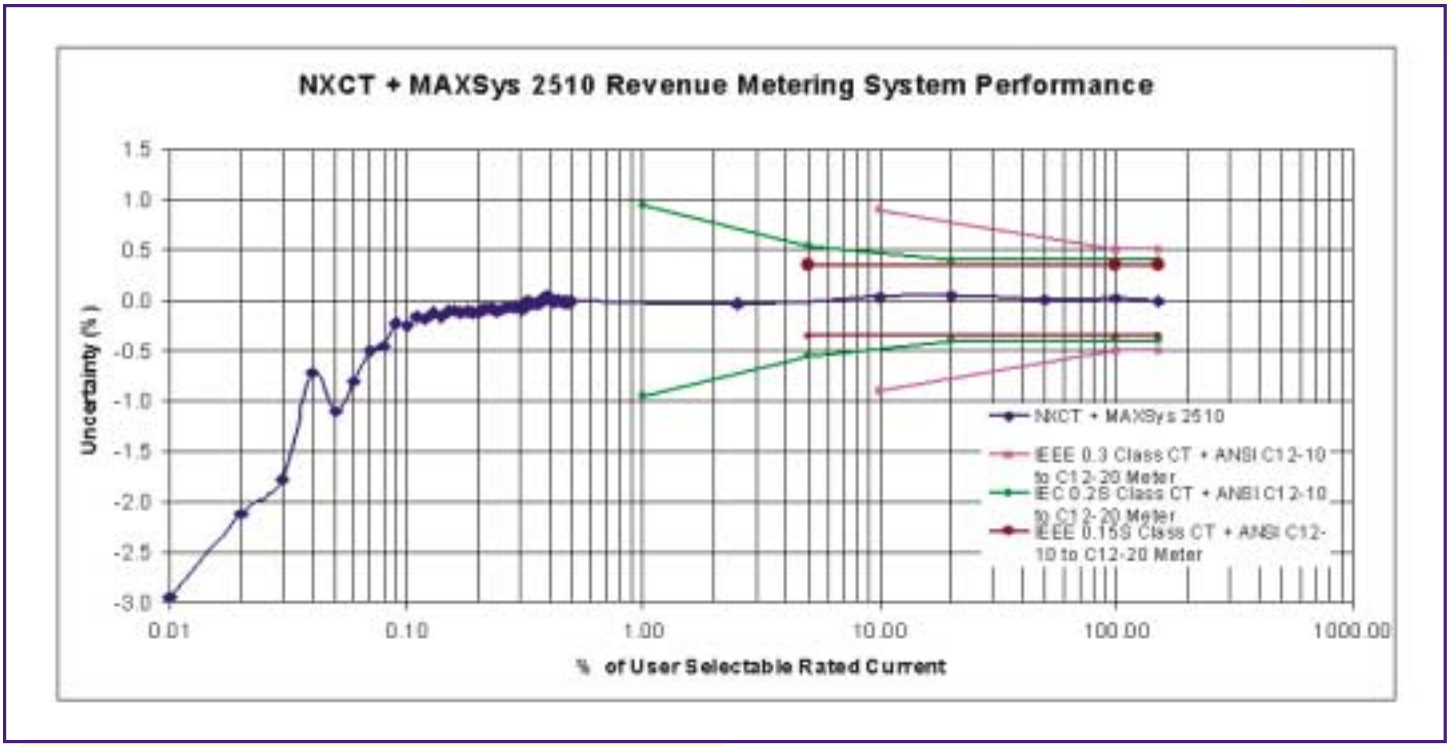
Company Overview

NxtPhase develops digital and fiber optic solutions for the electric power industry. Available from 115 kV to 500 kV, optical current and voltage sensors provide excellent accuracy over a wide dynamic range. Customers, including American Electric Power, Arizona Public Service and BC Hydro, use NxtPhase optical CTs and VTs for higher accuracy, broader dynamic range, wider bandwidth, improved safety and environmental benefits compared to conventional technologies.

Unprecedented Metering System Accuracy

Difficulty in accurately measuring very low currents with conventional CTs means low currents are often ignored. But there's a better way to ensure billing for all the power delivered. Advanced metering systems can now yield measurements with unprecedented accuracy and stability over a dynamic range extending from <0.1% to 150% of user selectable rated current.

NxtPhase optical sensors used in conjunction with MAXsys 2510 meters not only improve metering accuracy, but also extend the range of a conventional metering system by more than a factor of 5. Today, these systems are yielding valuable information at installations ranging from geothermal plants to wind farms.



Accuracy of metering system made up of the NXCT and MAXsys 2510, compared with industry standards. Even at very low current levels, the combination yields extremely accurate measurements.

Technology Overview

NxtPhase opto-electronics convert the optical CT signal to digital data, and then convert the digital data to a three-phase analog signal for direct connection to the MAXsys 2510 meter. Not only does this system eliminate open CT secondary dangers, it also improves safety for personnel. As load grows, current ratings may be upgraded and the turns ratio may be changed—without replacing the optical CT and without affecting bus connections. Three-phase voltage is measured directly by the meter from the substation VT. Utilities may also choose the optical NXVCT metering unit, which integrates both current and voltage sensing in a single column.

Summary

Available in the range of transmission voltages from 115 kV to 500 kV, NxtPhase optical sensors offer more accurate digital information, broader dynamic range, wider bandwidth, improved safety and environmental benefits compared with conventional technologies. Accurate measurement at low currents on the high side of the transformer can add significant dollars to the bottom line. Utilities can improve accuracy, extend metering range and greatly improve certainty of the revenue stream from each metering point.