From left, Ursula Pahl, Photonic; ***Robert Gray,*** *RM meter and relay technician;* ***Daryl Pankowski,*** *RM field engineer;* ***Richard Francher, Ronnie Martinez*** *and* ***Richard Knauss,*** *RM electricians;* ***Rod Lundin,*** *RM field engineer;* ***Joe Hobbs,*** *RM electrician;* ***Craig Geesing, Sherrill Arviso*** *and* ***Roger Greget,*** *RM linemen; Mitch Corwine, RM electrician; Stephan Weiss, Photonic; and* ***Perry Houston,*** *RM electrician; help install CTs. Right, Optically coupled CTs are installed on the line between the 230-kv bus and the phase shifting transformers at Shiprock Substation. Below, Close up of optically coupled CTs*

New transformers save RMR thousands

Rocky Mountain Region's Western Colorado Maintenance Division installed optically coupled metering accuracy current transformers at Shiprock Substation in November to interconnect metering across the RM and DSW operational boundary. Installation of these CTs resulted in a one-time savings of about 25 percent, or $16,000, over the installation of conventional metering accuracy current transformers.

A CT is a piece of substation equipment that measures or monitors current in a transmission line. It allows devices such as relays and panel meters in the substation control building to take action based on current level in the transmission line.

CT sensor heads were installed with an analog-to-digital converter in each head. Each head's digital output was connected through fiber optic signal columns to a junction box, where a fiber optic cable transmits the data to a digital-to-analog converter in the control building.

The analog outputs of the control room converter were then connected to a conventional revenue meter.

Western was approached by a vendor last year inquiring if we had any potential uses for technology current transformers.

At the time, as part of Western's Control Area Consolidation, RM was investigating options for adding a revenue metering point between the Shiprock phase shifter yard and the 230-kV switchyard to record power flows between RM and DSW. It was determined that the optically coupled CTs could be installed for about half the cost of conventional CTs. Thus, the decision to use optically coupled CTs was launched.

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