



**City of San Marcos, TX  
 Improves Operation with  
 Nexus Monitoring, Billing  
 and Substation Control**

The Utility Department of the City of San Marcos provides electric, water, and wastewater services to the citizens of San Marcos, Texas. In 1999, department managers learned that their present SCADA system was not Y2K compliant. The system was old enough that the original vendor did not plan to provide a Y2K fix so it became necessary for the Utility Department to abandon their SCADA system.

Loss of the SCADA system presented a particularly difficult problem because in addition to providing system status and control, the system was also used to gather electric interchange information.

San Marcos buys all of its electric energy from a regional generation and transmission utility. Utility Department and City managers felt a need to find a means to check interchange so that they would have a suitable cross-check on the energy bill from their supplier. As a result, a search was immediately implemented to identify options to gather electric interchange data after the SCADA system was shut down.



San Marcos had previously used EIG's Futura meters and had been very happy with their performance. When they began searching for a billing metering solution, they immediately turned to EIG to see what meters they had that would match this need. Department engineers were drawn immediately to the Nexus 1250. The Nexus 1250 provided accuracy to match their revenue metering needs, but it also provided expansion options to monitor equipment status, perform control functions and enable system performance analysis.

San Marcos Utility Department Senior, Engineer Milton Culley, Jr., knew that the Nexus could fulfill the metering requirements. He also recognized that the extensive I/O capability of the Nexus meter could provide an upgrade path for future use as part of their replacement SCADA system.

**project thumbnail**

**Application**

Electric Utility

**System**

Nexus 1250 Advanced Power Meter

SCADA Vision Control software

**Benefits**

Accurate metering of purchased electricity

Verification of supplier energy bills

Status of system equipment

Control of selected system switches

Capture and analysis of system events

Enhanced customer service through increased knowledge of system performance



Nexus 1250 meters were installed on each feeder in all five substations serving the city. In each substation, a single P60N LCD display was installed to allow local reading of the substation meters. With the P60N display, a single display can be connected to multiple meters allowing each meter to be read from one location.

The city had previously installed SCADA Vision software to monitor conditions in their water treatment facility. When the Nexus meters were installed, Milton immediately recognized that the meter data could be brought back into the SCADA Vision software. By installing spread spectrum radios in all locations, they were able to connect all the Nexus meters to their existing SCADA Vision software.

With the Nexus meters and communication in place, San Marcos was able to immediately begin checking the billing information from their supplier. They have compared the billing records and the Nexus meter readings for several months. The Nexus meters are reporting total energy on a monthly basis within 0.5% of the energy quantities billed by their supplier. City managers are very pleased with the outcome of this portion of the project.

Shortly after the system was in place to gather and report billing information, Utility Department personnel decided to expand their use of Nexus capability. Feeder breaker status outputs were connected to the high-speed inputs of the Nexus meters. This enabled operating personnel to monitor breaker status in each substation. This was a very useful addition since the utility SCADA system, which formerly reported this information, was shut down because of its Y2K incompatibility.

After obtaining status information, Senior Engineer Milton Culley decided to attempt control using the Nexus and its auxiliary IO modules. By installing relay output modules on selected Nexus meters, Culley was able to implement control of several critical switches in the City's water treatment facility. This addition has worked very well. In fact, Culley plans to expand the application using relay output modules to perform additional control functions throughout their system.

As an added bonus, the transient recording and power quality capabilities of the Nexus meter have allowed the City to capture abnormal system events when they occur and to also know when something did not occur on the system. This capability have proven very valuable in working with some larger customers who have unique power quality requirements but who can also sometimes cause their own power quality problems. With the data available in the Nexus meter, the City can quickly determine if an event originated in their system or if it came from the customer or from their supplier. This has enabled improved communication with major city electric customers and increased customer satisfaction.

### Nexus 1250



The Nexus meter was originally installed to assist in resolving energy billing concerns. But the flexible platform in the Nexus has enabled several other applications for control, system analysis and customer service which were not completely apparent at the beginning of the project. The Nexus meter has enhanced electric operations in several ways at San Marcos. City engineers and managers are pleased with their application.