



August 14, 2020

Chuck Nourse, Deputy Director, Electric Department  
City of Gallup  
230 S. Second Street  
Gallup, NM 87301

Re: Proposal for SCADA Installation Support Services

Dear Mr. Nourse:

Transmission & Distribution Services, LLC (T&D) respectfully submits this proposal dated August 14, 2020 to the City of Gallup (City) to support the replacement of its existing SCADA and metering hardware at various substations throughout the City's electric utility system including installation and commissioning of the new hardware and associated systems (Proposal).

Per recent discussions, T&D understands that the City wishes to contract with Schweitzer Engineering Laboratories (SEL) to provide hardware and programming for a replacement SCADA system capable of remote monitoring and control of the City's electrical distribution system substations. The hardware SEL proposes to provide will replace the existing Advanced Control Systems (ACS) SCADA equipment and the communications radios within both the substations and the Operations Center. Additionally, the City wishes to replace outdated revenue meters at multiple locations with modern meters provided by SEL.

T&D proposes to support this effort by first reviewing any available station drawings and schematics and preparing add/remove wiring schedules, installation details, and bill of materials in collaboration with SEL for both the SCADA and metering hardware. Next, T&D will perform the physical removal of the old ACS hardware and the installation of the new SEL hardware utilizing the schedules and details developed during the initial phase of the project. Per communication with the City, the physical implementation plan will focus on one station at a time with the intent of completing the entire system by June 2021.

After installation is complete at each of the locations, T&D will support SEL during the testing and commissioning process of the new SEL hardware. Testing support will include any physical work required to make additional wiring modifications or corrections, simulation of power flow, and/or the physical simulation of alarms within the station. Once complete, T&D will provide the City with redline copies of the existing drawings or record drawings, if possible, of the changes made.

A detailed description of the Project Background, Scope of Services; Deliverables; Assumptions and Exclusions and Compensation are attached hereto. This project will be billed on a firm fixed basis per T&D's contracted rates with the City for the **firm fixed price of \$306,350**, excluding NMGRT. Progress invoices for fees earned will be sent to the City on a monthly basis.

We appreciate the opportunity to provide this Proposal and look forward to working with you and the City. Please feel free to call me at (505) 344-4234, if you have any questions.

Sincerely,

*Kenneth Adams*

Kenneth Adams, PE  
Director, Station Engineering

## I. Project Background and Understanding

Recently, T&D has successfully engineered, physically implemented, tested, and commissioned relay and metering replacements at the Mendoza substation and will use this experience and familiarity with the City's personnel and electric system to support this new similar project related to the replacement of SCADA and metering hardware.

In preparation of this Proposal, T&D reviewed SEL's proposal and understands that the new SCADA devices for each location will be individually ordered and delivered and that a pre-assembled and pre-wired package is not anticipated. Below is a summary of the various locations and the new SEL hardware anticipated to be installed at each location:

### A. Operations Center

The Operations Center will require new SEL hardware capable of communicating to and collecting data from the City's different electric facilities listed below. The new SEL hardware and radio transmitter at the Operations Center requires installation in tandem with the existing ACS equipment and radio transmitter until all ACS equipment inside the electric facilities is replaced. The equipment SEL intends to provide and program are:

- (1) SEL-3555 RTAC, Remote Terminal Unit (RTU), with HMI license
- (1) SEL-2730U unmanaged ethernet switch
- (1) SEL-3031 serial radio transceiver with antennae and mount
- (1 ea) cables for connection from antennae to transceiver and transceiver to RTAC

### B. Allison Substation

The City has an ongoing project to upgrade/replace the existing Allison Substation and intends to incorporate new SEL hardware as part of that effort. No work by T&D related to SCADA hardware is required at this location as part of this proposed scope of work. However, until plans and construction are completed, the City desires to install a new SEL meter.

- (1) SEL-735 Power quality and revenue meter with retrofit bezel

### C. Maxwell Switchyard

- (1) SEL-3530 RTAC RTU with Input/Output (I/O) board
- (1) SEL-2488 GPS Clock with antenna
- (1) SEL-3031 Serial radio transceiver with antenna, and mount
- (1 ea) cables for connection from antennae to transceiver and transceiver to RTAC

D. Mendoza Substation

- (1) SEL-735 Power quality and revenue meter with retrofit bezel
- (1) SEL-3530 RTAC RTU with Input/Output (I/O) board
- (1) SEL-2730U Unmanaged ethernet switch
- (1) SEL-2488 GPS Clock with antenna
- (1) SEL-3031 Serial radio transceiver with antenna, and mount
- (1 ea) cables for connection from antennae to transceiver and transceiver to RTAC

E. Noe Substation

- (7) SEL-735 Power quality and revenue meter with retrofit bezel
- (1) SEL-3530 RTAC RTU with Input/Output (I/O) board
- (1) SEL-2730U Unmanaged ethernet switch
- (1) SEL-2488 GPS Clock with antenna
- (1) SEL-3031 Serial radio transceiver with antenna, and mount
- (1 ea) cables for connection from antennae to transceiver and transceiver to RTAC

F. Sunshine Substation

- (1) SEL-735 Power quality and revenue meter with retrofit bezel
- (1) SEL-3530 RTAC RTU with Input/Output (I/O) board
- (1) SEL-2730U Unmanaged ethernet switch
- (1) SEL-2488 GPS Clock with antenna
- (1) SEL-3031 Serial radio transceiver with antenna, and mount
- (1 ea) cables for connection from antennae to transceiver and transceiver to RTAC

G. Solar Farm

In addition to the SEL hardware intended for the Solar Farm and listed below, T&D understands that additional work is required at this location to set up a cellular modem service so PNM can access the monthly MV-90 settlement data.

- (1) SEL-735 Power quality and revenue meter with retrofit bezel
- (1) SEL-3530 RTAC RTU with Input/Output (I/O) board
- (1) SEL-2730U Unmanaged ethernet switch

- (1) SEL-2488 GPS Clock with antenna
- (1) SEL-3031 Serial radio transceiver with antenna, and mount
- (1 ea) cables for connection from antennae to transceiver and transceiver to RTAC

## II. Scope of Services

Based on the project background and understanding mentioned above in Section I, T&D has identified and is proposing the following Scope of Work, subject to the assumptions and exclusions noted herein:

### A. Settlement Meter Replacements

Per discussions with the City, T&D understands replacement of the main revenue or settlement meters is a top priority and should be completed as soon as possible. Once the City receives the programmed meters and retrofit bezels from SEL, T&D will visit the applicable sites listed above in Section I to remove the old meters from service, install the SEL meter retrofit bezel, install the new SEL-735 meter, perform meter acceptance testing, and place the new meter back into service. This task will be completed in one deployment and includes all locations with meters consecutively replaced including testing and documentation to be performed by a NETA certified meter technician.

### B. Investigation Field Visit for SCADA Hardware Replacement

Although T&D has viewed and visited the majority of the City's electrical facilities, it will be necessary to visit each facility prior to the start of developing a functional installation package and wiring details specific to each unique station.

The purpose of the field visit is to verify existing station drawings for accuracy and make corrections or notes in the drawings as required. Also, T&D will discuss and collaborate with City personnel to determine the best location and plan for SCADA hardware installation. T&D proposes to consecutively visit each facility escorted by City personnel in one deployment.

### C. Preparation for Installation

Once a clear understanding and high-level installation plan for the facility is achieved, T&D will proceed by developing the necessary details needed for a successful demolition of the existing ACS hardware and installation of the new SEL hardware. T&D will collaborate with SEL during this phase by sharing installation plans and component details to ensure the hardware is being properly implemented and to help SEL correctly program each of the hardware devices. This task will be performed per the facility scheduled next for replacement.

### D. SCADA Hardware Demolition and Installation Services

Once the installation plans and details have been fully developed and reviewed, and once SEL has completed the initial set-up and Factory Acceptance Testing (FAT) of the new hardware. T&D

proposes to first remove all of the existing ACS equipment within the facility and then install and wire the new SEL hardware.

#### E. Radio Antennae Replacement

T&D proposes to replace the existing radio antennas with new antennas and mounts provided by SEL at all of the above-mentioned locations. T&D will also replace the cabling from the antennae to the new radio transceiver. Once the antenna and cable is replaced, a sweep test will be performed on the antenna and new cable to ensure proper installation and acceptable losses.

#### F. SCADA Hardware Testing and Commissioning Support Services

Once the new hardware is installed and wired, SEL must test and verify that the new hardware and programming is working properly. T&D will support SEL in this task with availability on site to modify or add wiring, as necessary, injecting voltages and currents to simulate the flow of power, and by physically forcing alarm or status points.

#### G. Redlines/Record Drawings for Meter and SCADA Hardware Replacements

The installation packages and details developed for the project will be used during the physical installation of the new hardware. Any discrepancies in the drawings will be identified and marked for correction during the field installation. Once the SCADA system is fully functional at the facility, T&D will make redline notations to the drawings and/or submit updated record drawings to the City for record keeping purposes.

### III. Assumptions and Exclusions

1. In addition to the above-mentioned hardware in Section I, all other material related to the project will be provided by the City. T&D will develop an installation Bill of Materials (BOM) after the initial site visits and after collaboration with the City. The BOM will be submitted to the City for procurement in advance. The anticipated material may include, but is not limited to: additional SCADA devices, batteries, power supplies, fuses and fuse holders, circuit breakers, enclosures, conductor, cables, poles, conduit, 19" rack chassis, and antennas.
2. If necessary, the installation of tall wood and/or steel structures, foundation pours, and trenching and running of conduit will be provided by the City and is excluded from T&D's scope of work. Additional work such as the above can be negotiated with T&D through a mutually agreed upon change order.
3. SEL will program all hardware devices listed in Section I.
4. The City will coordinate the replacement of meters with PNM.
5. Meters will be programmed by SEL prior to receipt for installation.

City of Gallup

Re: Proposal for SCADA Installation Support Services

August 14, 2020

6. Meter replacements will make use of bezels from SEL and no panel cutting is required. If panel cutting or the fabrication/installation of cover-plates is required, these will incur additional expense to be arranged prior to installation by mutually agreed upon change order.
7. When possible, stations or facilities will be temporarily de-energized during SCADA hardware installations and/or testing. No cutting of panels will be allowed on energized facilities.
8. No significant changes or modifications will be required of the installation packages and details after SEL has reviewed and provided initial feedback. If significant changes are required, it could result in a change order to be negotiated prior to modifications being conducted.
9. While in the field performing hardware replacements, T&D anticipates working past 5pm to minimize travel time and out of office work.
10. Drawings of each facility will be provided by the City to T&D prior to each facility by site visit for our review and to gain familiarity of the facility.

#### IV. Schedule

T&D anticipates the proposed scope of work will begin in September 2020 and that it will be completed by June 2021. Physical demolition and installation work will take place one facility at a time until the entire system is completed with the exception of the metering replacements performed first. Once the project is approved and underway, T&D will coordinate with the City and SEL regarding timing and dates for execution.

T&D anticipates the amount of time to execute each portion of the above-mentioned scope of work as follows:

- |  |           |
|--|-----------|
| 1. Settlement Meter Replacements and Testing                   | 5-7 days  |
| 2. Investigation Field Visit for SCADA Hardware Replacement    | 2-4 days  |
| 3. Eng. Services: Installation Drawing and Details Development | 4-6 weeks |
| 4. SCADA Hardware Demolition and Installation Services         | 2-4 days  |
| 5. SCADA Hardware Testing and Commissioning Services           | 1-4 days  |

Please note that this schedule is conceptual, at best, and subject to change pending availability of existing station drawings/details; coordination of SEL efforts; and restrictions associated with travel or lodging in the Gallup area, etc.

City of Gallup  
 Re: Proposal for SCADA Installation Support Services  
 August 14, 2020

## V. T&D Services Fee and Compensation

T&D proposes to be compensated for the above-mentioned services as follows:

Progress billings will be forwarded to the City on a monthly basis. These billings will include fees earned for the billing period. The Project will be billed on a firm-fixed basis in accordance with existing contracted rates with the City and are exclusive of NMGRT.

**The total firm-fixed price for the enclosed services is \$306,350 excluding NMGRT**

<u>Breakdown of Fees (for reference only)</u>	<u>Unit Price</u>	<u>No. of Stations*</u>	<u>Extended Price</u>
<b><u>Scope of Work:</u></b>			
A - Meter Replacements	\$ 22,823	1	\$ 22,823
B - Investigation Field Visits	\$ 7,656	1	\$ 7,656
C – Coordination and Prep for Installation (Per Station)	\$ 12,844	5.25	\$ 67,429
D - SCADA Replacement/Install (Per Station)	\$ 23,918	5.25	\$ 125,572
E - Antennae Replacement (Per Station)	\$ 4,838	6	\$ 29,029
F - Testing & Checkout (Per Station)	\$ 5,431	5	\$ 27,154
G – Redlines/Record Drawings (Per Station)	\$ 3,929	5	\$ 19,646
Project Management/Administration			\$ 7,042
			\$ 306,350

\*Operations center counts as 0.25.