



WEB Based SCADA at City of Seguin, TX

by

William Bissette
Director of Utilities
City of Seguin, TX

CITY OF **SEGUIN** *Texas*



- Population is 25,090
- 8,200 customers (electric and water)
- Four large industrial customers on the electric system
- Completed approximately 90% of the AMI Project for the electric and water meters
- GPS'ed all electric poles, electric & water meters, and developed an ESRI Mapping System

Department Information

19 employees

110 miles of overhead electric lines

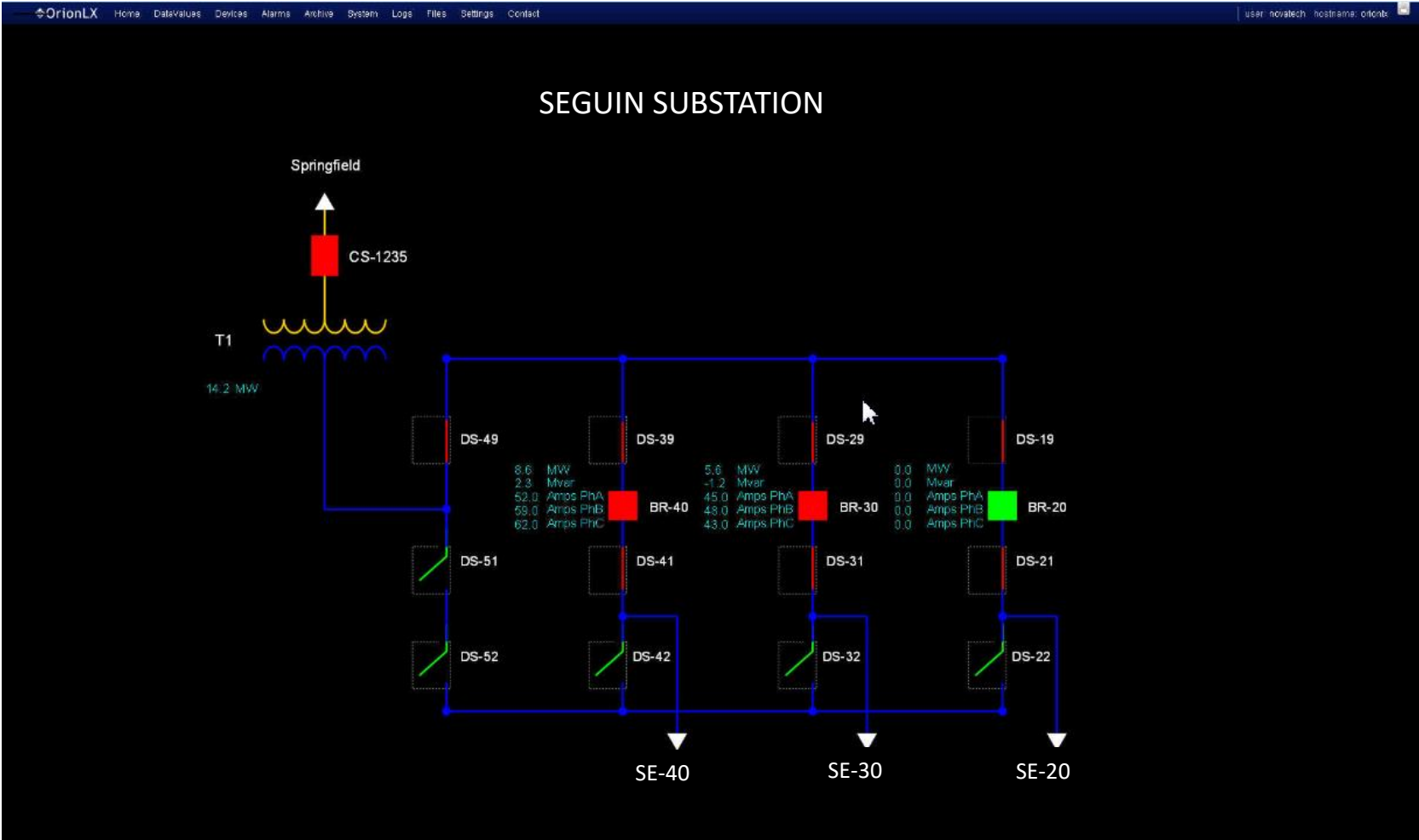
26 miles of underground electric lines

Three substations

14 Circuits



- The City uses an ACLARA AMI System with 9 collectors to gather meter reads and then transmits the data through a WIFI System to our network which allows multiple users and departments access to the information.
- NovaTech's SCADA System has been installed in the City for approximately 9 months and continually works with NovaTech to customize needs and values as needed.



Typical Breaker Zoom Screen

OrionLX Home DataValues Devices Alarms Archive System Logs Files Settings Contact
user novatech nostrains orionlx

BREAKER SE-20

SEL-351S
RELAY
METER
CONTROL
FAULT LOCATOR

TARGET RESET
METER
EVENTS
STATUS
OTHER
SET
CTRL
GROUP

LAMP TEST
CANCEL
SELECT
EXIT

ENABLED
TRIP
INST
COMM
SOFT
50
51
81

RESET
CYCLE
LOCKOUT
A
B
C
G
N

RE-CLOSING STATE FAULT TYPE

SERIAL PORT F

GROUND ENABLED

HOT LINE TAG

RECLOSE ENABLED

AUX 1

REMOTE ENABLED

AUX 2

ALTERNATE SETTINGS

BREAKER CLOSED

LOCK

BREAKER OPEN

SCHWEITZER
ENGINEERING
LABORATORIES

OPEN

BREAKER CONTROL
RECLOSER BLOCK
RECLOSER ENABLE
GROUND BLOCK
GROUND ENABLE
RESET MIN/MAX

INSTANTANEOUS		MIN AND MAX VALUES	
0.0 kVolts PhA	Max Amps PhA	224	1:35:38 9/23/10
0.0 kVolts PhB	Max Amps PhB	192	1:23:20 9/23/10
0.0 kVolts PhC	Max Amps PhC	240	1:33:12 9/23/10
0.0 Amps PhA	Min Volts PhA	5	1:18:42 9/23/10
0.0 Amps PhB	Min Volts PhB	6	1:29:29 9/23/10
0.0 Amps PhC	Min Volts PhC	6	1:14:28 9/23/10
0.0 Amps PhN	Max Volts PhA	6	1:34:20 9/23/10
0.0 MW	Max Volts PhB	8	1:34: 5 9/23/10
0.0 MVAR	Max Volts PhC	7	1:33:49 9/23/10
0.00 PF			

STATUS POINTS

ALARM TRIP COIL STATUS

REMOTE LOCAL/REMOTE STATUS

ENABLED RECLOSER STATUS

ENABLED GROUND SWITCH STATUS

ENABLED PHASE OVERCURRENT STATUS

BREAKER WEAR

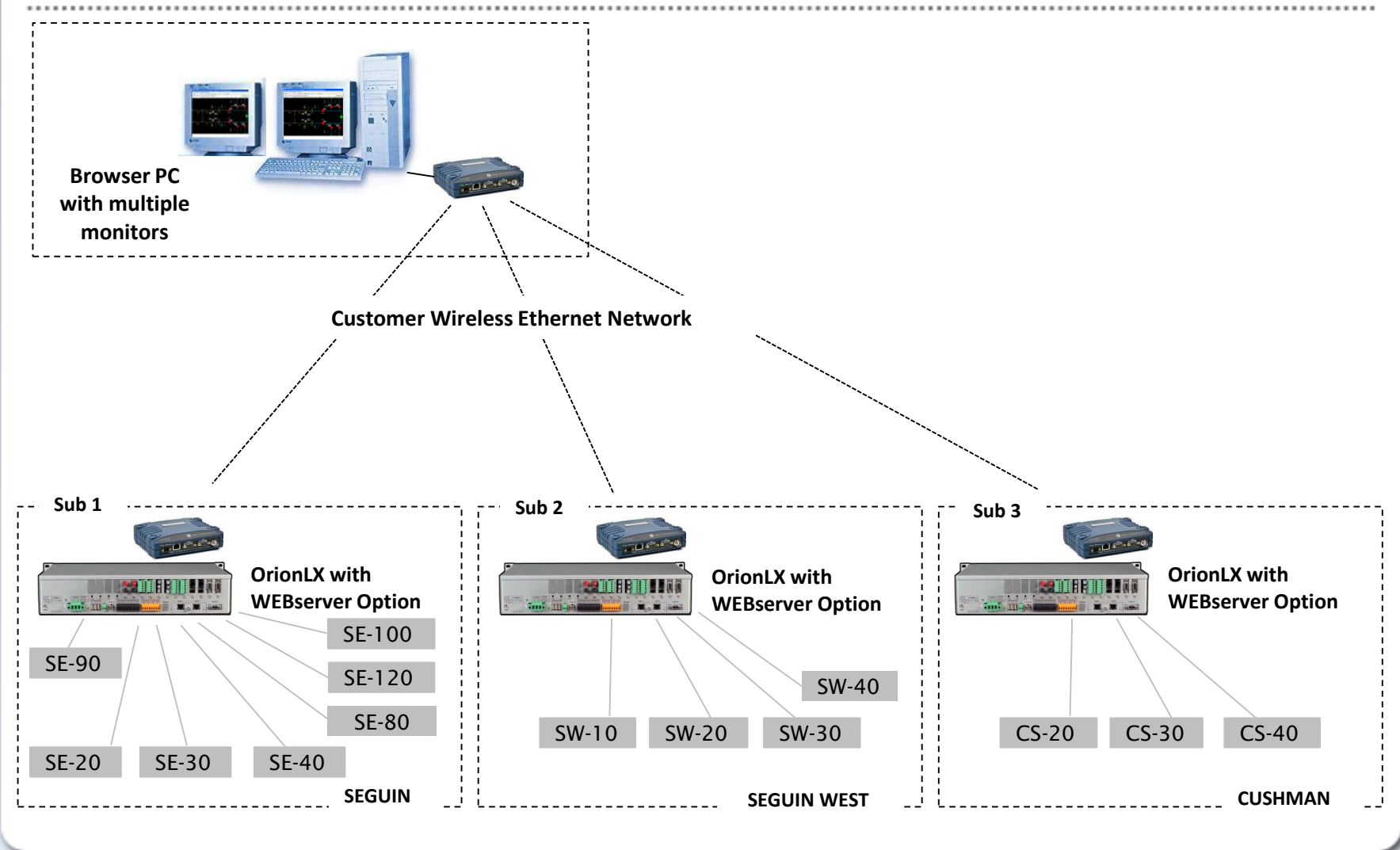
0.0 Relay Trips

0.0 External Trips

0.0 % Breaker Wear PhA

0.0 % Breaker Wear PhB

0.0 % Breaker Wear PhC



➤ City of Seguin

- Installed a city wide Strix WIFI System
- 18 WIFI transmitters are used throughout the City
- WIFI is used to transmit meter readings for water & electric meters, SCADA, and computer network between departments

➤ M&S Engineering

- Project Management
- Developed all specifications that were sent out for bid
- Upgraded all electromechanical relays to SEL relays
- Developed the settings that allowed the SEL relays to be operated by the OrionLX
- Installed new or retrofitted existing panels in the control houses

➤ NovaTech Utility Systems and Services

- Configure SCADA screens
- Configure OrionLX
- On-site assistance
- Training



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M&S is a full-service electrical, civil, subsurface utility engineering, and surveying firm.

ELECTRICAL ENGINEERING

Transmission



- Overhead & Underground Line Design
- Pole Design - Steel & Concrete
- Structure Design
- Structure Foundation Design
- Rebuild
- Re-Conductor
- Relocate

Distribution



- Overhead & Underground Line Design
- Field Staking
- Inspection
- Pole Design
- Foundation Design
- Easements
- Permitting

Substation



- Overhead & Underground Line Design
- SCADA Design
- Feeder Exits
- Inspection
- Relay Settings
- Grounding Studies
- Coordination Studies
- Station Expansion
- Greenfield Substation Design

M.E.P.



- Mechanical, Electrical and Plumbing Design Sets
- Code & Energy Compliance
- Arc Flash Analysis
- Energy Efficient Recommendations
- Electrical Load Calculations
- Power Quality Certified
- Infrared Facility Studies

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How Does City of Seguin Use Their New SCADA System?

- The SCADA System has eliminated the need to drive to the substation during a power outage, which shortens the outage time for the customer.
- Allows the City to monitor the power factor on individual circuits, and then adjust the capacitance of the system without having to depend upon other companies.
- We are able to monitor and capture events such as low voltage or high voltage at the bus, this helps when trouble shooting customer complaints.
- History of events can be accumulated such as: breaker trips, breaker lock outs, reclosers blocked or enabled, low voltage events, high voltage events, and maximum amperage for each circuit.
- It allows the dispatcher to determine at a glance the position of the breaker being opened or closed and the position of the load and line side knife blade switches.

- **Integrate SCADA with Milsoft Outage Management System (OMS).**
- **Will be completing a new Phone System this year using voice over IP and adding approximately 8 more WIFI units, along with additional antennas to improve self healing properties.**
- **Will be implementing an energy efficiency program.**
- **Plan to integrate the SCADA, Outage Management System, WIFI, AMI, GIS Mapping, and Energy Efficiency software to improve customer reliability and education.**
- **Investigating automated switching by adding control panels and motors to the existing air break switches to allow the operations of the switches through the SCADA System.**

- **The SCADA System is only as good as your relays. You need to consider the information you desire to accumulate when you purchase the relays.**
- **Consider training time for new dispatchers to learn not only the SCADA, but also the system routing and switching possibilities. This helps the dispatcher understand their role when using the SCADA System.**
- **Consider the equipment the dispatcher will be using to view the SCADA System. Seguin went with dual 21”monitors at each of the two work stations. After working with the system, an additional and/or larger monitor would have allowed for better viewing of all of the different systems the dispatcher works with.**