G&W Electric

Engineered to order. Built to last.

LaZer® Power Grid Automation

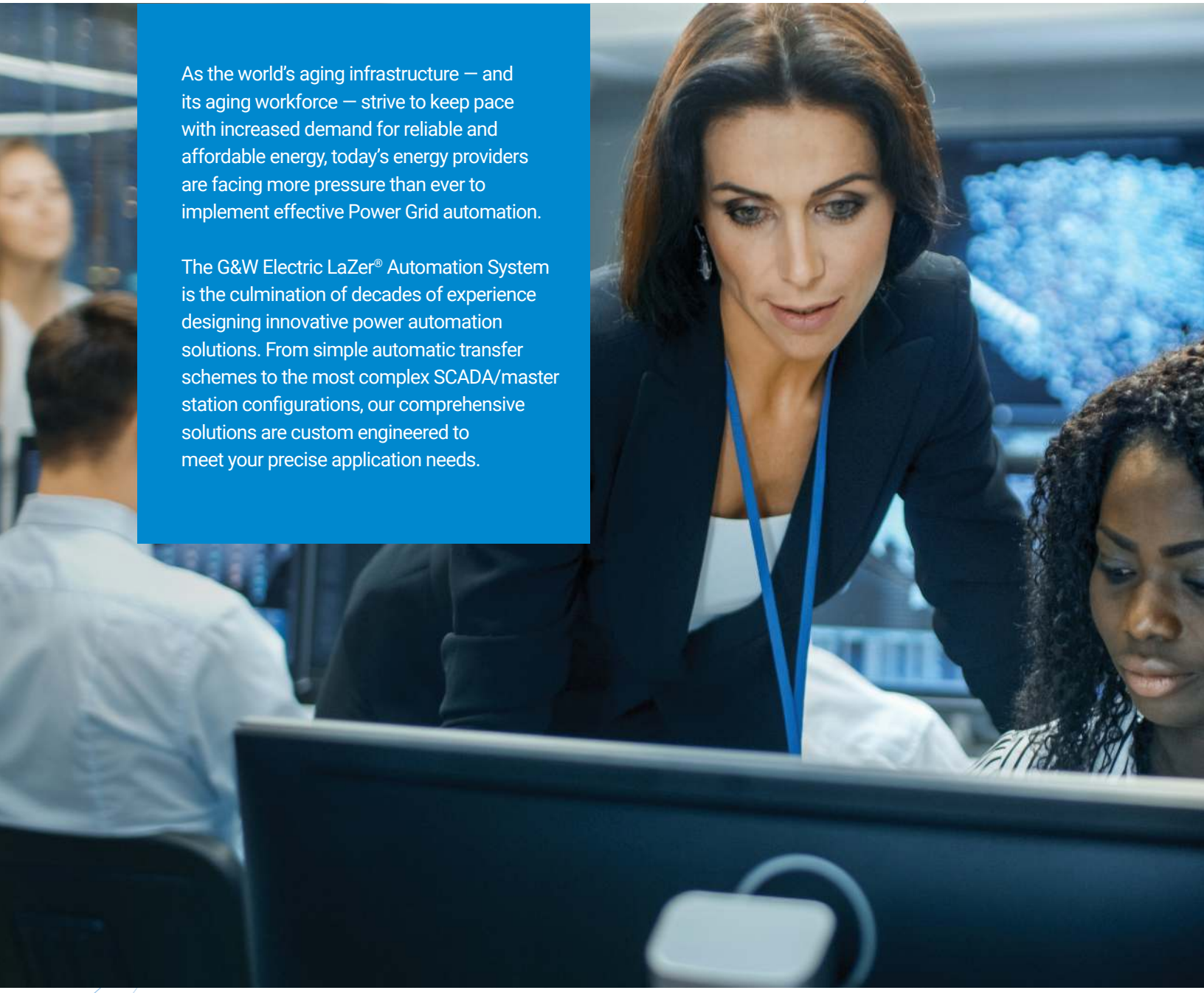
A comprehensive menu of custom engineered automation solutions



Optimize Your Power Grid Network

As the world's aging infrastructure — and its aging workforce — strive to keep pace with increased demand for reliable and affordable energy, today's energy providers are facing more pressure than ever to implement effective Power Grid automation.

The G&W Electric LaZer® Automation System is the culmination of decades of experience designing innovative power automation solutions. From simple automatic transfer schemes to the most complex SCADA/master station configurations, our comprehensive solutions are custom engineered to meet your precise application needs.





Future-Proof Your System

By updating your power grid network with intelligent devices, networked communications, and decision-making software today, you can ensure a bright future for your grid tomorrow.

How We Work with You

When you work with G&W Electric, you partner with a powerhouse of strategists, technical experts and automation engineers.

We start by understanding your needs for improving your current system, while also addressing your vision for the future. In the end, we deliver a user-specific, best-in-class Power Grid Automation solution that meets your needs today and well into the future.

Performance Guarantee

G&W Electric provides a 3 or 5-year parts and performance warranty depending on the Intelligent Electronic Device (IED) used. We'll achieve reliability indices (SAIDI, SAIFI, CAIDI and MAIFI) improvement of 30%, based on customers' existing indices for the installation after one year of equipment energization.

Lowest Total Life Cycle Cost

BENEFIT FROM ONE-STOP-SHOPPING WITH LOWEST TOTAL LIFE CYCLE COST

LaZer Power Grid Automation solutions combine proven power grid hardware and software with decades of system integration experience that can reduce or eliminate outage costs and improve your bottom line.

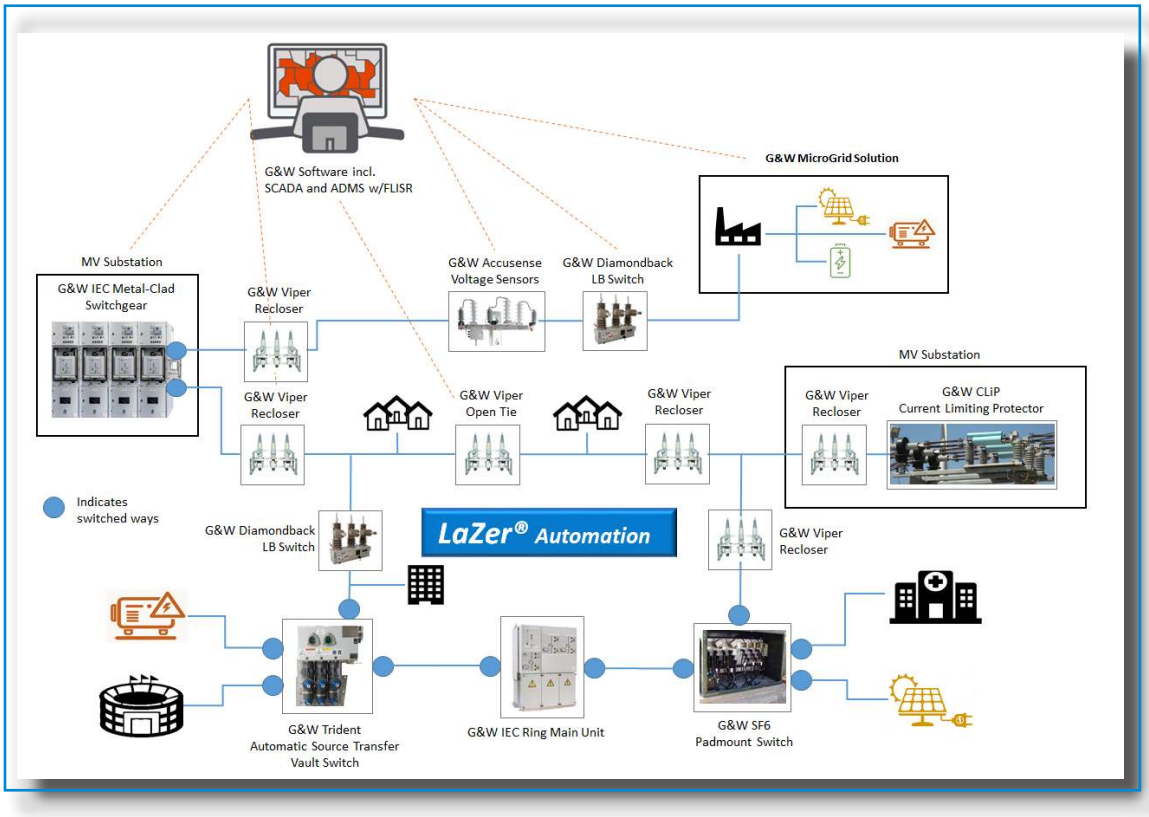
Automated Integrated Substation

G&W Electric's Automated Integrated Substation solutions offer products and services for the international market. Unique benefits for Automated Integrated Substation projects can include any or all of the following:

- G&W Electric / Survalent Technology Power Systems Automation Software
- G&W Electric Metal-Clad Switchgear: Medium Voltage Ring Main Units (RMU) and Low Voltage Switchgear (including solid state IEDs and associated safety, control, and communication components)
- G&W Electric High Accuracy Sensors: Current Sensors, Voltage Sensors, and combined Low-Power Instrument Transformers (LPIT)
- G&W Electric Remote Terminal Units (RTU)
- G&W Electric Current Limiting Protectors (CLiP): Medium Voltage, Low Voltage, and encapsulated fuses

Combining these products with our industry-leading gas, air and solid dielectric switches and reclosers, we provide a powerful and seamless one-stop-shopping experience. As with every LaZer Power Grid Automation solution, you will receive best-in-class system integration including consultation, programming, Factory Acceptance Testing, Site Acceptance Testing, and Training.

Hardware



Software

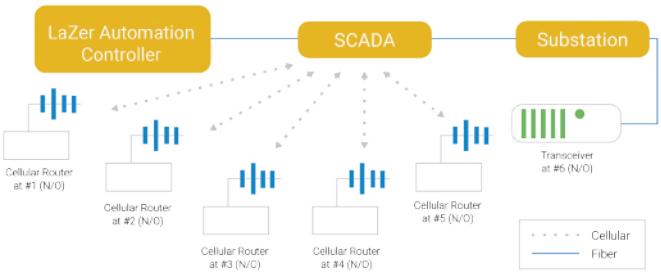
Our software-based automation solutions are model-based and use new or existing SCADA/ADMS systems coupled with intelligent switches and communication. We partner with Survalent Technology, a software company with a 60+ year history of dedicated service to the utility industry, to provide scalable solutions including features such as:

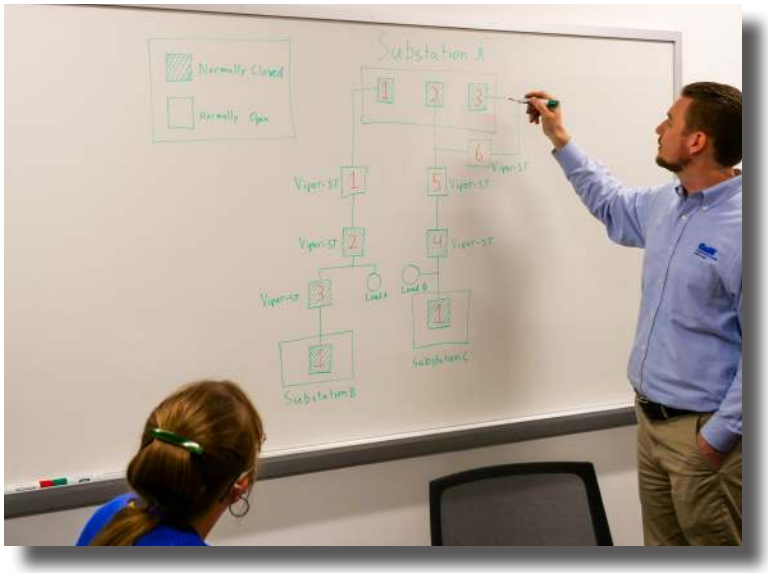
- Fault Location, Isolation and Service Restoration (FLISR) and Loss of Voltage (LOV)
- Single-phase FLISR (patent pending)
- Volt/VAR and Power Flow
- View system information and alarms on mobile devices



Services

Our LaZer team works with you to develop solutions and designs optimized for your industry and application. We provide execution for various levels of automation by integrating switchgear, relays, communication equipment, and software to deliver a full turnkey solution.





Third-Party Equipment

To find the best-fitting solution for your needs and maximize your investment, we leverage existing and new equipment in all our solutions. Our vendor-agnostic third-party approach provides maximum flexibility for your system and includes products from industry-leading companies such as:

• ABB • GE • SEL • Beckwith • Siemens

How LaZer Power Grid Automation Makes a Difference

Every solution includes essential building blocks that allow us to provide you with several years of parts and performance warranty on the entire system for your support during the first critical years after installation.

Scalable Automation Designs

LaZer Power Grid Automation solutions can be implemented using two different methods: script-based and model-based.

There are several questions that, once answered, will give you a clear understanding as to which method is best for your system:

- How many devices and sources?
- Is there system expansion anticipated?
- Do you have a communication infrastructure, or can you deploy one?
- Will the devices be required to interact with advanced applications such as Volt/VAR, CVR, event notification, or remote monitoring/control?

Use this table to help you determine which method best suits your application:

	SCRIPT-BASED	MODEL-BASED
Response to System Events	Static	Dynamic
Communication	With or Without	Required
Semi-Auto Mode	No, ON or OFF only	Yes, ON, SEMI-AUTO, or OFF
Number of Supported Field Devices	Up to 10	Unlimited
Support of Advanced Applications	Limited	Yes
Scalability / System Expansion	Limited with higher engineering effort	Unlimited with lower engineering effort

Factory Acceptance Testing



Every LaZer Automation solution includes an in-house or virtual Factory Acceptance Test (FAT) at one of our global factories. The FAT guarantees that every component — including switches, communication equipment, programming and software — is tested and works together as a system prior to shipment.

During the FAT process, we inject primary and secondary currents and voltages to verify that the solution meets your expectations and specifications. Testing in a controlled environment prior to shipment minimizes downtime during commissioning and provides valuable hands-on experience with the new system.

Site Acceptance Testing



Following the delivery and installation of your new LaZer Power Grid Automation solution, experienced G&W Electric engineers provide Site Acceptance Testing (SAT) during the commissioning process. A modified version of the FAT test plan is employed to ensure that the solution is ready to be put in service.

Communication Architecture

Non-communicating loop schemes are known as the "grandfather of automation" as they have proven their benefits for decades. These schemes are part of a robust solution that utilizes programming logic at the field device level, along with current and voltage measurements and timers, to respond to system events.

When peer-to-peer or central control communication is required, a reliable communication architecture builds the backbone of the automation system. For that reason, we partner with industry leaders to design, test, and deliver a solution that ensures reliable and robust communication. Media options for communication include fiber optics, 4G/LTE cellular routers, 900 Mhz radios, and 2.4/5Ghz mesh networks.

Training

Training is a key component of every LaZer Automation solution. It ensures that all key parties understand how the new system works, while promoting self-sufficiency for future system expansions. Aside from project-specific training, G&W Electric also provides industry-leading training courses that include:

- Microgrids (design and implementation)
- Troubleshooting G&W Electric solutions
- Auto-transfer controllers
- Integrated Automated Substations
- Fault Location, Isolation and Service Restoration (FLISR) including single phase FLISR

Global Installations

G&W Electric LaZer Power Grid Automation solutions leverage decades of combined expertise in hardware and software to deliver the highest level of performance. Our global footprint continues to expand to meet the increasing demand for reliable power. The map below shows the locations of a few select reference projects that we are most proud of.



G&W Electric's LaZer - Power Grid Automation installations continue to expand across the globe. *(see shaded areas)*

MARKETS AND INDUSTRIES SERVED

LaZer Power Grid Automation serves a variety of customers and industries — from investor-owned and public power to mission critical facilities and large data center providers. With a dedicated team of expert engineers, we deliver reliable and cutting-edge industry specific solutions that provide a stable, efficient power supply. Below is a list of use cases and markets served.

KEY USE CASES

- Source Transfer
- Main-Tie-Main
- Single Phase FLISR
- FLISR and Distributed Energy Resources (DER)
- Closed Loop Schemes
- Open Loop Schemes
- Non-Communicating Loop Schemes
- Integrated Substation Solution

MARKET PRESENCE

- Investor-Owned Utilities and Public Power
- Commercial/Industrial
- Post-Secondary Schools
- Government
- MicroGrids
- Food and Beverage
- Data Centers

Contact us today

+1 708.388.5010 or info@gwelec.com

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Since 1905, G&W Electric has been a leading provider of innovative power grid solutions, including the latest in load and fault interrupting switches, reclosers, system protection equipment, power grid automation and transmission and distribution cable terminations, joints and other cable accessories. G&W is headquartered in Bolingbrook, Illinois, U.S.A., with manufacturing facilities and sales support in more than 100 countries, including Canada, Italy, China, Mexico, Brazil, India, UAE and Singapore. We help our customers meet their challenges and gain a competitive edge through a suite of advanced products and technical services.

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