



The G&W Electric Microgrid

The G&W Electric microgrid elevates power reliability and resilience at our headquarters by leveraging localized, automated power generation and storage capabilities. During instances of power outages, the microgrid seamlessly isolates or “islands” from the primary power grid to ensure uninterrupted operations.

In addition to ensuring the continuity of operational lighting and uninterrupted production during instances of primary power grid unavailability, a microgrid also serves as a means to reduce carbon footprints, offers an alternative generation source, enhances safety measures, provides community protection, and offers potential cost savings.

Microgrid Benefits

Economic

- Monthly incentives for Frequency Regulation
- State tax credits for using renewable power
- Utility incentives for installing solar panels
- Net Metering – ability to sell solar power on the grid

Environmental

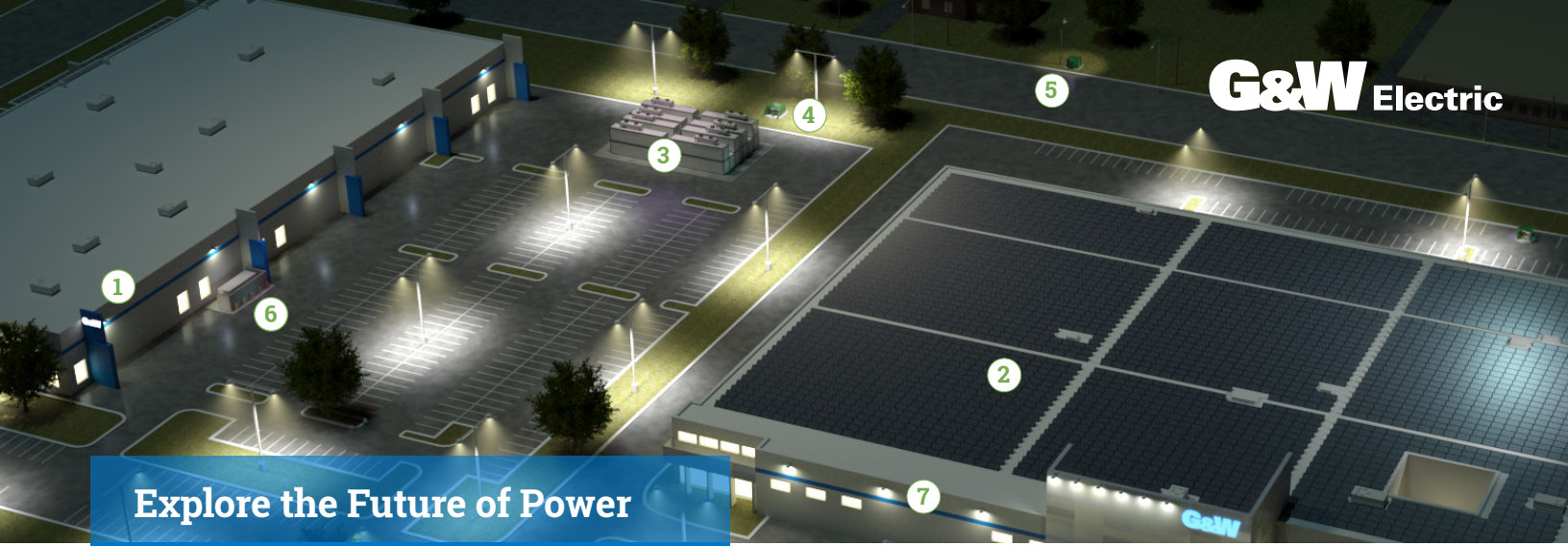
- Greener, cleaner, renewable energy
- Most components can be recyclable
- Flow batteries last longer and contain less toxic materials
- Potential to become carbon-neutral in the future

Safety

- Flow batteries use vanadium – a non-flammable substance that is fully recyclable
- The majority of the materials are abundantly available and more accessible than lithium-ion counterparts
- Provides superior protection to personnel and the surrounding environment, including a rapid shut down of the solar panels
- Protects critical operations for hospitals, data centers, manufacturers and other industries

Community

- Ensures the continuity of vital operations during periods of outages
- Enables businesses to operate independently from the primary grid, offering potential cost saving advantages
- Eases the load on the system, helping others without DERs to stay powered
- Allows businesses to reduce their carbon footprint



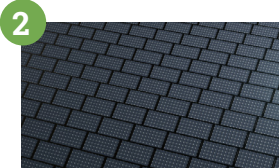
Explore the Future of Power

Leveraging more than a century of experience and expertise, the microgrid incorporates the latest innovative technology from G&W Electric.



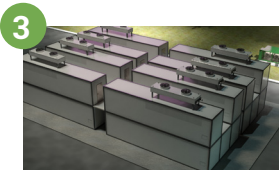
FLYWHEEL

One of the most critical components of the whole system, the flywheel detects an outage in ¼ cycle and rapidly provides backup power for a short amount of time while the battery or generator kick in. All told, it can provide one-megawatt of power for up to 68 seconds. The flywheel spins at up to 2,800 rotations per minute to provide rapid power backup for critical loads. When energy is being stored, electricity drives the motor to spin the flywheel. When the stored energy is being recovered, the motor acts as a generator to convert the spinning motion back to electricity.



SOLAR PANEL ARRAY

A two-megawatt solar farm with nearly 6,000 solar panels was installed across the roof covering over 370,000 sq. ft. – creating one of the largest rooftop solar photovoltaic systems in North America. These cutting-edge bi-facial solar panels generate energy from both sides and optimize the use of direct sunlight and reflection.



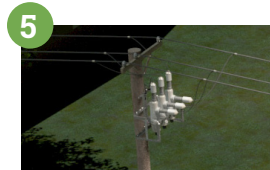
FLOW BATTERY ENERGY STORAGE SYSTEM (BESS)

The “heart and soul” of the microgrid, the Flow Battery Energy Storage System (BESS) can store power generated by the solar array and dispatch backup power in the event of an external outage. The system has four 500-kilowatt blocks leading to a total capacity of two-megawatts for four hours. If needed, it can go over capacity to three-megawatts for up to two hours. It utilizes a vanadium electrolyte solution, which is both non-degrading and fireproof.



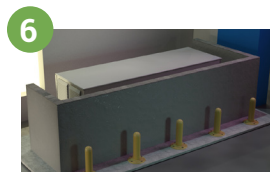
G&W ELECTRIC TRIDENT®-SR WITH SAFEVU™ SWITCHGEAR

G&W Electric Trident-SR with SafeVu is a 15.5kV class switchgear performing a 3-4 cycle operation (open or close). The three switches are operated in a FLISR (Fault Location, Isolation, and Service Restoration) loop scheme using ABB REC670 relays providing power to our campus using utility, solar array, and energy storage as the main sources.



G&W ELECTRIC VIPER®-ST RECLOSERS

The G&W Electric Viper-ST Reclosers participate in an automatic throwover scheme to transfer our campus to an alternate power source within 5 to 12 seconds in the case of a loss of the primary feeder.



DIESEL GENERATOR

A two-megawatt diesel generator provides power continuity should utility power outage duration exceed battery capacity. While certain renewable power sources may rely on uncontrollable factors (wind for turbines and sunlight for solar panels), the generator is capable of producing dispatchable power internally when no other energy sources are available.



G&W ELECTRIC MICROGRID CONTROL CENTER

The microgrid control center facilitates comprehensive command, management, and visualization of all microgrid operations. From this hub, we have control over energy sources and loads, can demonstrate the full spectrum of functionalities, and monitor/ access real-time camera feeds.