July 15, 2022

Response to Cuyahoga County Utility & Microgrids Request for Information

Dated: June 8, 2022

Dear Cuyahoga County Utility Team,

PowerSecure's summary of experience and detailed information regarding our unique microgrid qualifications are illustrated within this document.

Per the Request for Information (RFI) instruction PowerSecure is affirming our interest in fulfilling these roles and agreement to meet with Cuyahoga County Utility at their earliest convince to answers questions, provide more detailed information about our experience filling these roles and to begin consulting with Cuyahoga County Utility to further develop the process needed to execute microgrid projects.

- Developer of Distributed Generation Projects and/or Microgrids
- Design and Construction Team (Engineering, Procurement, Construction) of Distributed Generation and/or Microgrids

PowerSecure is a leader in the microgrid market, having developed approximately 75% of the Microgrids in the US to date representing over 2,000 MW of microgrid capacity. With over 2,400 distributed energy resources (DERs) under active management, PowerSecure has built one of the country's largest fleets of microgrid solutions and brings project design, engineering, and innovative technology solutions to the Cuyahoga County Utility & Microgrids opportunity. In addition, PowerSecure has become a leading investor and financier of microgrid developments across the United States with a current portfolio of over 350 MW of systems.

In our response, PowerSecure would be the developer, designer, engineer, contractor, owner, operator, and maintainer. More specifically, PowerSecure would provide the distributed energy resources and associated equipment and would be responsible for the design, engineering, project management, and construction – bringing our proven Microgrid 360° approach to microgrid projects. As an experienced investor and owner of microgrid assets, PowerSecure would also provide the asset management, operations, and maintenance services to ensure long term performance of the system. Based on our Business Development experience and project execution experience we typically experience the cycle from identifying customer opportunities to commissioning of the microgrid project to take between 8 months on the low end to 24 months on the high end. PowerSecure's role as a Microgrid Developer is only complicated by the speed at which the potential customer can provide necessary information, and to review and make comments to proposed microgrid designs.

If selected to move to the next phase, PowerSecure is committed to partner with the Cuyahoga County Utility & Microgrids Team in further refining a solution to meet the project's specific energy demands.

We are confident that PowerSecure's vast knowledge of system integration, turnkey project execution, and specialty manufacturing of Distributed Infrastructure systems will bring unparalleled value to the Cuyahoga County Utility & Microgrid Team. We look forward to putting this knowledge and experience to work for the Cleveland Microgrid Team.

Sincerely,

Todd L. Jackson

Todd L. Jackson
VP, Corporate Development
PowerSecure, Inc.

A. POWERSECURE OVERVIEW – SUMMARY OF BIDDER EXPERIENCE

PowerSecure is a leading provider of innovative energy solutions to electric utilities and their industrial, institutional, and commercial customers. PowerSecure provides energy solutions in the following areas: distributed generation, energy storage and renewables, energy efficiency, and utility infrastructure. The company is a pioneer in developing distributed power systems and integrating distributed energy resources (DERs) in sophisticated microgrid deployments. This includes the ability to forecast electricity demand and optimize the deployment of the systems, provide utilities with dedicated electric capacity to utilize for grid resiliency, provide customers with industry leading reliability, and optimize the value streams to the utility and its customers from distributed energy resources (DERs). With over 2,000 MW of integrated energy assets including distributed low emissions generation, fuel cells, energy storage, CHP and solar, deployed and actively managed across 2,400 sites, ***PowerSecure is recognized by Wood MacKenzie as "the largest commercial Microgrid developer" in the United States in total and each year over the last 5 years.***

The PowerSecure Difference:

- Solutions Based Offering: single stop-shop for solutions across the grid
- Engineering Expertise: Registered Professional Engineers on staff with more than 2 GW of distributed energy design and $800 million of energy efficiency experience
- Industry-leading Reliability: Third party verified 99.3% fleet reliability based on data from over 2,100 DER deployments
- Vertical Integration: A full range of products and services – engineering, power generation, energy storage, system protections, controls, 24/7 monitoring capabilities, LED lighting, efficiency services and many others
- Single Source Accountability: We are the developer, designer, the engineer, the installer, and the service provider.
- Proven Experience: Installed and monitored more than 2,400 sites, interconnected with more than 300 utilities
- Utility Connections: Deep and broad knowledge of how utilities produce, transmit, distribute, and sell electricity. As illustrated through our partnership with AMP, we apply that knowledge to match our solutions with the needs of both the end customer and utility.

Figure 1. 200,000 ft^2 of manufacturing space with capacity to produce 1 GW of generation, switchgear, and energy storage per year

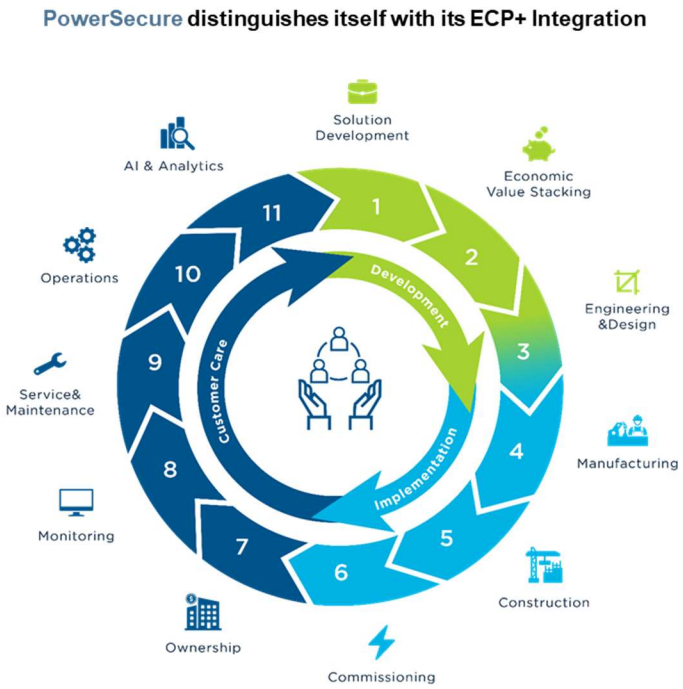
PowerSecure is a leader in the microgrid market. With over 2,400 DERs under management, PowerSecure has built one of the country's largest fleets of microgrid solutions and brings project design, engineering, and innovative technology solutions. PowerSecure has developed some of the industry's most advanced and powerful microgrids. PowerSecure's advanced microgrid controls, fully optimizes and monetizes the assets to ensure that a customer receives reliable, maximized value.

Our Microgrid Solutions are widely used by electric utilities and large energy users across the U.S. to address:

- Top 2% -10% hours of annual demand, typically 200-300 hours per year
- Frequency/Voltage Control
- Non-Spinning substitute for spinning reserve for dramatic grid-wide carbon and emissions reduction
- Duck curve ramping mitigation
- Transmission and distribution constraints
- Substation, distribution, and transmission upgrade capital avoidance
- Resiliency and power quality assurance
- Capital investment alternatives with de-risked ROI

PowerSecure serves vertical markets including data center, healthcare, pharmaceutical, federal, retail, manufacturing and many others providing energy infrastructure, reliability improvement, mission critical infrastructure, sustainability enhancements, LED lighting solutions and energy conservation.

PowerSecure takes an industry leading approach to the development and financing of microgrid solutions to meet customer needs believing that a vertically integrated, single management entity is key to integrated systems which translate to reliable and profitable microgrids. The EPC+ approach is illustrated below:



B. POWERSECURE GROWTH MANAGEMENT MODEL FOR MICROGRIDS

Our key goals driving project development and controls will be as follows:

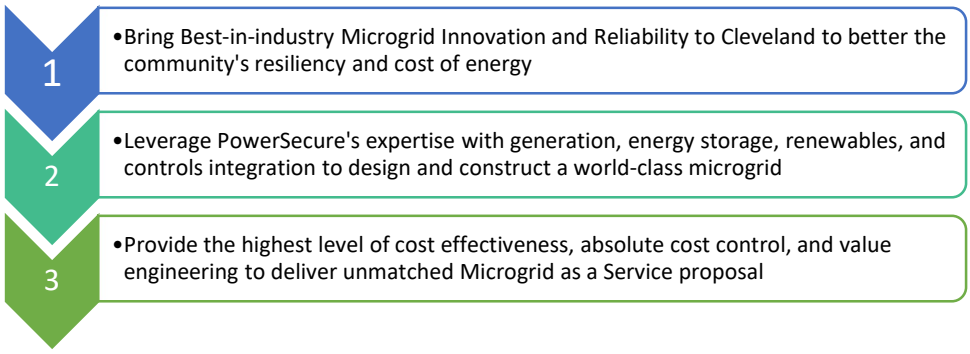


Figure 2. PowerSecure's development framework

PowerSecure utilizes our 1,000 employees to design, manufacture, construct, monitor and maintain our microgrids. Accordingly, we can control project costs and schedules. We have highly proprietary relationships with circuit breaker, protective relay, engine, and alternator manufacturers enabling us to maintain large inventories.

Due to experience and unique vertical integration, PowerSecure can bring a very unique Microgrid 360° approach to the lifecycle management of microgrids. From the initial concept through implementation, performance management, and lifecycle assessment, PowerSecure is an integral partner ensuring operational and financial performance.

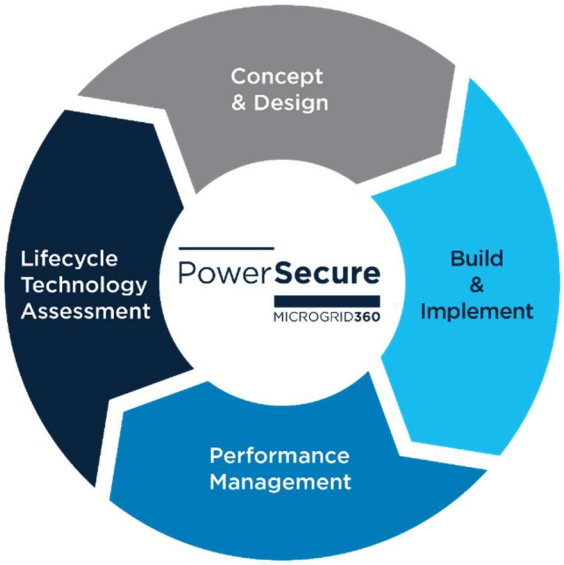


Figure 3. PowerSecure's Microgrid 360° microgrid lifecycle management philosophy

We will deliver this project to Cuyahoga County Utility on a Turnkey Basis using our in-house resources and in accordance with our well-developed and standard Reliability Growth Management Model (RGMM) for delivery of Microgrid Systems as illustrated below. This RGMM has been used on hundreds of projects. We have developed many "standard" microgrid solutions which we would seek to apply on this project.

We will be recommending these solutions in the best interest of Cuyahoga County Utility to avoid "custom solutions" which often result in "custom problems" in the Microgrid Industry, many of which remain unresolved today.

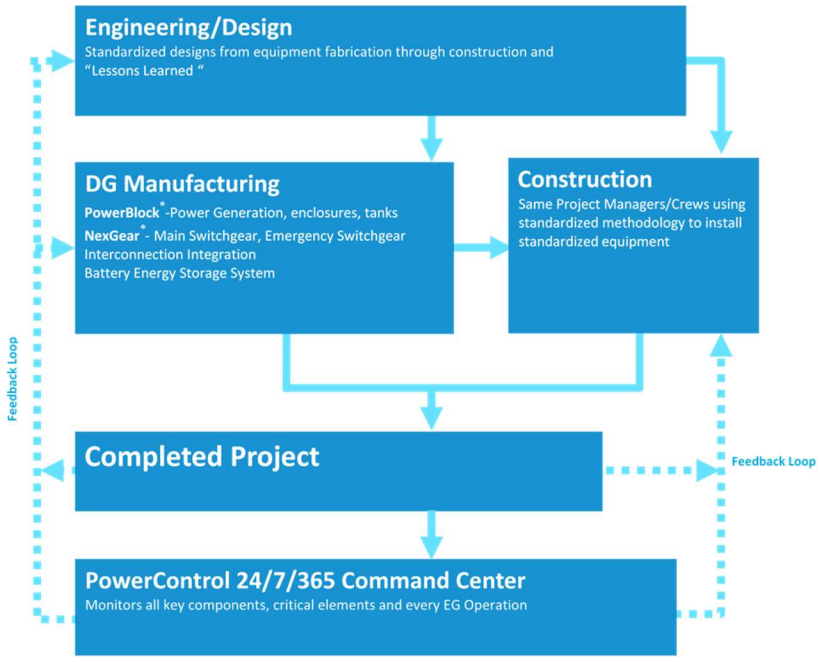


Figure 4. PowerSecure Reliability Growth Management Model

All our microgrid operating data is sent to Mtechnology, a firm associated with the Massachusetts Institute of Technology (MIT), where it is continuously processed and audited to statistically determine the reliability of our microgrid. Mtechnology has reported that PowerSecure Microgrids are 2 ½ times less likely to fail then industry norms.

Because we perform all design with internal engineering resources with vast current actual cost modeling experience, we "Value Engineer" from day one. VE options are presented continuously to our customers including detailed cost/benefit discussions. We refine scope early in the design process to optimize functionality, maintainability, sustainability, and reliability.

Your project will be assigned an Executive-In-Charge, Senior Project Manager, Engineering Manager, Product Manager and Construction Manager who will work closely with your internal team to form a tight knit efficient team with intimate knowledge of all aspects of the proposed microgrid.

In addition, our service technicians are constantly brought into the design, and manufacturing process to assure the maintainability of our solutions. Our Product Managers work closely with Engineering to assure excellent coordination between our generation resources, switchgear, and electrical distribution.

Our QA/QC is driven by our RGMM discussed above and has resulted in the successful delivery of our microgrids to numerous repeat customers.

C. POWERSECURE SOLUTION OFFERING

1. PowerSecure Software Solutions

Microgrid Controller(s)

PowerSecure provides microgrid controllers that are site specific, as our applications vary from single buildings to large campuses or community microgrids. Our controls vary by number of sources and loads, the data and speed at which operation is required, and the preferred redundancy level. PowerSecure maintains our high performance and "second to none" customer satisfaction by not standardizing or trying to force the customer into a "standard" interface, but rather leaving the flexibility to deliver the customer preferences with regards to their operational and control interfaces. The "PowerSecure Difference" is in the experienced power engineers with extensive knowledge of the generation sources being controlled and who have subsequently become proficient in programming.

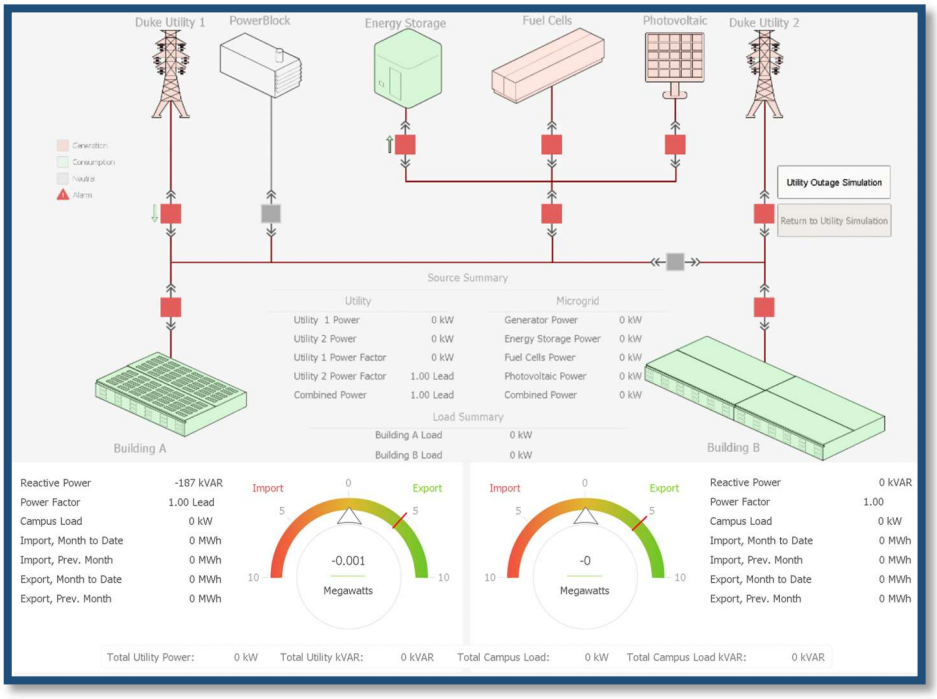


Figure 5. HMI Screenshot showing resources and import/export loads from a campus microgrid

PowerControl 24/7/365 Monitoring Services

PowerSecure's PowerControl monitoring services can maintain direct, continuous knowledge of your system while preemptively addressing potential points of failure.

Figure 6. PowerControls Operations center.

2. PowerSecure Manufactured Solutions

PowerSecure's PowerBlock Generation Systems

The PowerSecure PowerBlock is a patented, fully integrated power reciprocating engine generation system that incorporates proprietary switchgear, controls, and monitoring software packaged with a Natural Gas or exclusive EPA Tier 4 Final certified genset. Over years of refining the design, PowerSecure has deployed gigawatts of PowerBlocks across the United States and Caribbean.

The PowerBlock product family consists of integrated generation paralleling systems that feature EPA certified engines equipped with all required accessories. Our uniquely modular PowerBlock design includes power ratings from 600 kW to 3,750 kW and the flexibility to add additional power over time. In addition, the gensets are UL 2200 listed and the enclosures are UL 2200 classified. Service and maintenance points are easily accessible, contributing to the engine's overall low cost of ownership.

PowerBlock systems are available with a selection of quality AC generators matched to the engine and our customer's site-specific requirements. To ensure quality and minimize installation and startup times, all systems undergo complete factory performance testing before shipment.

PowerSecure proprietary NexGear switchgear offering includes the engine interface, all paralleling controls and applicable protection for both the engine and the generator. Our controls are tailored to provide a complete paralleling power system available from a single source.

PowerBlock enclosures come standard with a welded aluminum frame, aluminum skin and stainless-steel exterior hardware. The construction has been analyzed to withstand 150 MPH wind loading. Pre-engineered options are available in multiple sound attenuation levels. Additional colors and options are also available.

Additionally, our truly modular design enables the quick and easy replacement of a failed generator without jeopardizing the remaining capacity.

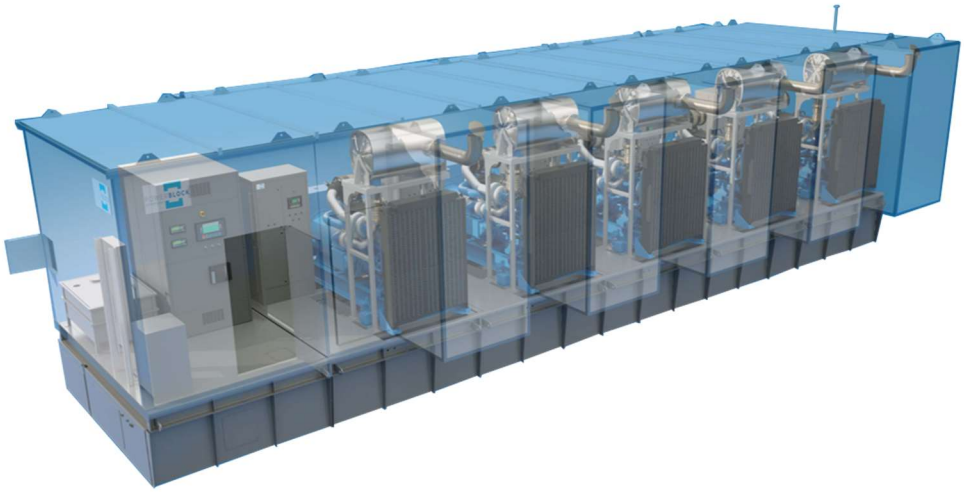


Figure 7. PowerSecure 5-engine, 3,125kW Tier 4 Final PowerBlock Illustration

Figure 8. Installation of 15MW of Tier 4 Final PowerBlocks in South Carolina

Tier 2 or Tier 4 Final Factory Certified Diesel PowerBlock

Our 16-liter Volvo engines are powerful, reliable, and economical diesel engines built on the dependable in-line six design. Each engine is well balanced to produce smooth operation with low noise levels and utilizes replaceable cylinder liners and valve seats/guides to ensure maximum durability and service life. The state-of-the-art, high-tech injection and air charging system with low internal losses contributes to the engine's excellent combustion and low fuel consumption.

The diesel PowerBlock platform is available utilizing both Tier 2 emergency classified and Tier 4 Final non-emergency classified engines.

The Tier 4 Final factory certified product brings best in the business reliability, seamless paralleling and built-in redundancy for unmatched resiliency, and a one-of-a-kind generation approach which can grow with your power demands for flexible scalability.

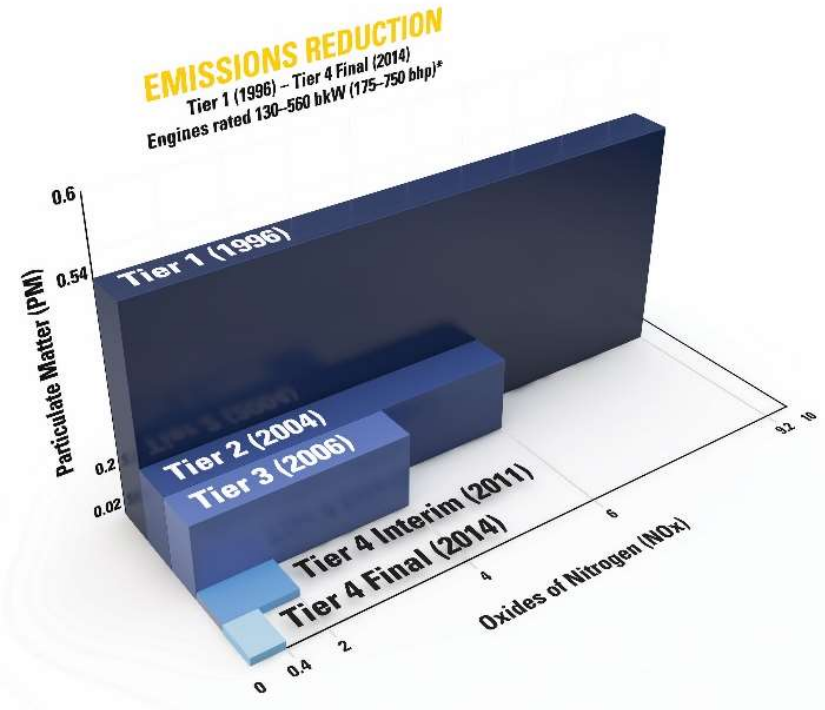


Figure 9. Reductions in particulate matter (PM) and oxides of nitrogen (NOx) to Tier 4 Final standards

In addition, the Tier 4 Final factory certification offers the following emissions benefits:

- No federal run-time limitations
- No post-installation emissions test requirements
- Meets EPA emissions standards without compromising ramp-up time
- Enables peak-shaving and Demand Response operation
- Emissions less than or equal to equivalent Natural Gas fired systems

UL 142-listed sub-base fuel tanks are standard and are sized from 24-hour to 48-hours storage capacity, interstitial rupture basin switches, level indication, venting and engine fittings. Fuel transfer, polishing, state-specific code requirements and day-tank systems are also available.

The product brochure and specification sheet for the diesel PowerBlock can be found here:
https://powersecure.com/resources/di/PowerBlock%20Spec%20Book%20(Diesel)%20v2%202017.pdf

EPA Certified Natural Gas PowerBlockG

PowerSecure utilizes the same expertise and thesis of focus resilient, redundant, and modular designs when developing and manufacturing the Natural Gas fired PowerBlockG. The design is based on PowerSecure's modular building block design, using 650kW ultra-clean natural gas generators that have a unique packaging design; enabling the same or smaller footprint than traditional systems. Using any combination of Natural gas, propane, or wellhead gas, PowerBlockG can provide quick start capacity and full nameplate block load acceptance.

Figure 10. Installed 1.3MW Natural Gas PowerBlock in Texas

ESS Energy Storage Solutions

PowerSecure has installed over 80 MW of smart BESS across the United States to support microgrid deployments. Our largest single installation consisting of 14 MW of energy storage was integrated in a smart, campus microgrid along with solar PV, fuel cells, diesel generators, lighting controls, and building automation.

Through a development with Bloom Energy, PowerSecure has deployed 12 MWh of UL1973 Li-Ion smart energy storage systems in conjunction with 93 MW of fuel cells across 127 sites in California, New York, New Jersey, Massachusetts, and Connecticut.

Figure 11. Fuel Cell and PowerSecure Energy Storage Deployment.

Overall, PowerSecure provides BESS that are flexible in design allowing the capability to accommodate each site plan or footprint restriction that may exist. Our ESS products are based around a standard 300kVA building blocks and offer the following capabilities:

- **Utility Peak Shifting** – Energy storage has the capabilities to allow customers to save on energy costs by storing energy with batteries during off-peak times and discharging the stored energy during on-peak times. Energy storage can be integrated with other renewable technologies, including solar, wind, and fuel cells to maximize the generation output and increase savings.
- **Renewable Output Firming** – Energy storage applications, used in conjunction with solar or wind technologies, can provide the customer with a stable and clean power output. The introduction of generation sources with energy intermittency cause steep drops and rises on the grid. By implementing automated control systems in the energy storage system these can be greatly reduced.
- **Technology Agnostic** – Our energy storage systems utilize the best technology available for each customer's individual application. Over our history, our systems have been designed using a variety of technologies including lithium-ion, lead acid, and flow batteries, as well as capacitor banks and flywheel technology. PowerSecure provides a complete storage system based on optimal technology, controls, and power electronics selected and tailored for each individual project.
- **System Applications** – Whatever the application, PowerSecure can provide an energy storage solution. Flexible energy storage systems are designed for individual applications ranging from small sized residential single or three phase systems to large multi-megawatt-hour commercial and utility scale projects.
- **System Controls & Monitoring** – PowerSecure designs custom SCADA systems to display accurate and instantaneous site conditions and relevant data locally and remotely. In addition to instantaneous data, our SCADA platform allows access to historical data and data tracking for analytics and event reporting. These systems optimize the energy storage assets by monitoring the current conditions of the utility as well as other onsite renewables.

Figure 12. PowerSecure Enclosure and energy storage building block.

PowerSecure's Switchgear Technology

PowerSecure, through its NexGear product line, provides dependable, cost-effective electrical switchgear with integrated protection and controls solutions. Our customers are owners, operators, installing contractors, consultants, and providers of commercial, industrial, institutional, government, and utility power systems. It is routine for PowerSecure to complete projects with challenges including custom layouts, expansion to existing switchgear assemblies, modernization projects, and complex power system automation. Our teams of engineers are focused on listening to client performance expectations and requirements, then designing and supplying a system to meet or exceed them at the most competitive price and lead time.

The NexGear product family includes the following product families:

- Medium Voltage Switchgear – 5kV to 38kV
- Low Voltage Switchgear – UL1558 Listed <600V
- Low Voltage Switchboards – UL891 Listed <600V
- Control Cabinets – UL508A
- Automatic and Manual Transfer Switches – UL1008

The PowerSecure team also provides key specialty products for our clients to assist in improving site installation, footprint flexibility, and multi-resource integration.

- QuickPower Connection Boards – This a proprietary designed connection board with provisions included to allow very rapid connection or removal of a mobile generator set to a facility to provide for minimal downtime to an existing facility during installation of new power equipment. The provisions to allow this include special sheet metal doors to allow temporary cable routing and twist-lock connectors for terminating the power cables. PowerSecure also adds protection schemes to account for electrical safety and proper power phasing to eliminate the possibility of damaging the facility's electrical system.
- Customized Control Cabinets – Multiple OEM platforms are supported for various distributed generation source controllers to provide basic generation operations up to complex multi-source paralleling schemes.
- Custom Engineering Capabilities:
  - PLC Programming
  - Supervisory Control & Data Acquisition (SCADA) Systems
  - Touchscreen Programming & Graphics Development

- Protective Relay Programming & Testing
- Communications Network Design
- Coordination & Arc Flash Studies

D. POWERSECURE POWERCONTROL 24/7/ 365 MONITORING AND DISPATCH

The proposed microgrids would be monitored and operated 24/7/365 from our PowerControl Operations Center (PowerControl) located at our Durham, NC facility. Debra Phipps is our PowerControl manager and has been in her role for over 12 years. As part of the Asset Management group, Debra and her team utilize our PowerSecure SCADA system which provides the system oversight and data visibility necessary to ensure the microgrid system is maximizing overall system efficiency and is delivering the most reliable energy possible. Our systems are designed and engineered to be fully autonomous and unmanned systems.

In the event of a system malfunction or system inefficiencies, PowerControl would react in accordance with our site-specific operational procedures. PowerControl determines the cause of the system malfunction and either restore the system back to service or determines the proper course of action to return the system to operational functionality as quickly as possible. If the system cannot be restored from PowerControl, PowerControl issues dispatch orders to PowerSecure Service.

The proper field service technicians would be dispatched based on a pre-determined, on-call schedule that is dedicated to the host facility's location in Ohio; the closest, qualified technician will be dispatched so system restoration can be accomplished as quickly as possible.

E. POWERSECURE SERVICE

PowerSecure Service includes a staff of approximately 120 technicians with field offices across the U.S. and growing. PowerSecure maintains a field office across Northern Ohio and is actively growing the local team to support PowerSecure microgrid systems installed behind AMP.

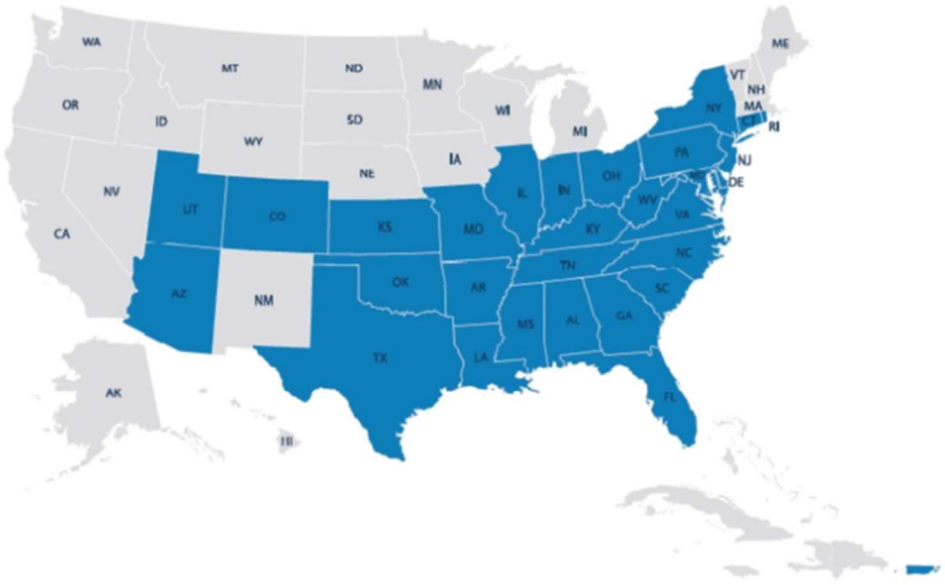


Figure 13. PowerSecure Service Territory as of 2022

PowerSecure Service is made up of a diversified group of technicians and field engineers that are the most experienced in the Microgrid industry. Each PowerSecure field service technician is intimately familiar with our microgrid and mission critical solutions and fully understands engine generation, as well as cogeneration, energy

storage, uninterruptable power supply (UPS) and switchgear control functionality. This gives PowerSecure a huge advantage over competitors. PowerSecure's technicians are involved from the start-up and commissioning of projects to assure full understanding of the Microgrid from day one.

PowerSecure Service is key component to our gold standard Microgrid 360° life-cycle approach to developments and mission critical power. We perform preventive maintenance and proactively address potential issues identified by our PowerControl® 24/7 remote monitoring of critical system parameters. This enables PowerSecure to resolve system problems before they become a problem for our customers. In addition to strong technical competencies, PowerSecure Service has a strong focus on customer service and satisfaction resulting in industry best-in-class performance.

Figure 14. PowerSecure Service Technicians evaluating NexGear 13.2kV Switchgear serving a Large Data Center

F. POWERSECURE'S DESIGN, CONSTRUCTION, AND PROJECT MANAGEMENT OVERVIEW

The PowerSecure approach to Microgrids is to first understand the long-term energy needs fully of customers and then design-build-own-operate a microgrid to optimize reliability and sustainability at the lowest cost possible.

PowerSecure's Design-Build-Own-Operate Services include the following utilizing 100% in-house resources:

- Program/Project Development
- Program/Project Financing & Energy-as-a-Service Agreement
- Design/Registered Engineering
- Equipment Procurement. We strategically Manufacture.
- PowerBlock Generation Packages, NexGear Advanced Paralleling Switchgear and Battery Energy Storage Systems
- Program/Project Management
- Construction and Installation
- System Start Up and Commissioning
- PowerControl 24/7/365 Life-Cycle Remote Monitoring, Maintenance and Management Services

Our approach is to begin with a holistic view of the customer's supply side opportunities and demand side energy needs. This often involves innovative win-win scenarios with local and national utilities to provide extraordinary value. We have a deep understanding of utility wholesale tariffs and ISO/RTO key drivers and incentives.

Being an integral part of the Southern Company, gives PowerSecure tremendous depth and breadth of supply side energy resources, which we believe is unparalleled in the industry. These resources help drive our innovative design process and we conceptualize our industry leading microgrids.

We will then develop a Microgrid to serve the customer by applying one or more of the following technologies in a highly integrated microgrid:

- Natural Gas, Low Emissions Generation
- EPA Full Tier 4 Final, Super Clean Diesel Generation
- Battery Energy Storage – Energy Arbitrage or Solar Integration
- Battery Energy Storage – Uninterruptable Ride-Through-to-Generation
- Solar PV Arrays DC/DC Coupled for Optimized Control
- Fuel Cells
- Cogeneration (CHP)
- Thermal Energy Storage
- Waste Fuel to Power
- Demand Side Load Control

Based on Cuyahoga County RFI, PowerSecure's approach to Microgrids is very much in line with the vision of the Cleveland Microgrid district's goal of being recognized as a world-class development.

PowerSecure was founded on the recognition and commitment to provide our customers value over the long term through well maintained as continuously improved energy-as-a-service assets. Accordingly, we have developed an industry leading 24/7/365 Operations Center to remotely monitor, maintain & dispatch our Microgrids and the largest independent mission critical power service entity in the U.S.

G. SELECTED EXAMPLE PROJECT DEPLOYMENTS

1. Shannon Oxmoor Microgrid

PowerSecure has designed and installed a storage, solar, and natural gas generator microgrid with Alabama Power outside of Birmingham, Alabama. This system integrates a 852.32kWh / 300kW Li-Ion battery storage system, designed and built by PowerSecure, and a 330kW ground mount solar system, and a 400kW Standby/360kW Prime natural gas generator. Frequency response and grid stabilization are provided by remotely controlling both charge/discharge rates and real/reactive power outputs. Upon loss of utility power, the system has the ability to island from the utility by seamlessly switching to onsite standby power to support an adjacent neighborhood. In addition, the system was developed with Oak Ridge National Laboratory in order to integrate consumer behind the meter demand controls to dynamically control both power demand and power consumption within the "Smart Neighborhood" construct. The project was commissioned in December 2017.

Figure 15. Commissioned Shannon-Oxmoor Microgrid Campus

Contact Information: Steve Baxley Renewable and Distributed Energy Manager (205) 257-7608 Jsbaxley@southernco.com	2081 Shannon Oxmoor Road Bessemer, AL 35022

2. City of Bennettsville Community Microgrid

Figure 16. Commissioned City of Bennettsville Community Microgrid

The community of Bennettsville, South Carolina faced the effects of yearly storms on the eastern seaboard and was driven to action by Hurricane Michael. The Marlboro Development Team and regional cooperative utility, working with the Bennettsville municipal utility, considered their options for energy resilience that could enhance the region's economic competitiveness. The municipal and regional utilities turned to PowerSecure to develop, own, and operate a 22.5MW community microgrid solution using standard generation modules integrated directly into the City's substation with automatic throw-over and island-mode capabilities. The microgrid operates parallel to the grid to manage transmission coincident peaks and their associated costs while being monitored 24/7 by the PowerSecure PowerControl team. The PowerSecure owned community microgrid was commissioned in Q1 of 2019 after leveraging the company's vertical integration to complete the design, engineering, construction, distribution system upgrades, commissioning, and start-up.

Contact information: William Fleming President and CEO Marlboro Development Team (843) 454-2879 WFleming@marlboro.coop	City of Bennettsville, SC

3. Butler Farms Microgrid

Figure 17. Commissioned Butler Farms Microgrid

PowerSecure installed and integrated a storage microgrid with NCEMC and Surrey Yadkin EMC at Butler Farms in Lillington, NC. This system integrated a 622kWh / 250kW Li-Ion battery storage system, designed and built by PowerSecure. This system is designed to be controlled by NCEMC to be able to charge and discharge real and reactive power during ideal times to optimize utility peak reduction, frequency response, and grid stabilization. Upon a loss of utility power, the system has the ability to island the farm from the utility by seamlessly switching to onsite standby power via the energy storage system. The project was commissioned in December 2017. A second phase of this system was started in January 2018 that will enable the energy storage system to be integrated with other existing onsite renewable generation sources including ground mounted solar PV and a Co-Generation asset to provide increased reliability and microgrid functionality. Additionally, during a loss of utility power, the system will have the ability to island the farm and the surrounding neighborhoods from the utility to create a fully functioning local microgrid.

Contact information: Lee Ragsdale SVP, Energy Delivery North Carolina's Electric Cooperatives 919-875-3056 lee.ragsdale@ncemcs.com	4037 Darroch Road Lillington, NC 27546

4. Marine Corp Air Station Microgrid

Figure 18. Commissioned Marine Corp Air Station at Yuma, AZ

PowerSecure installed and integrated a 25MW microgrid with Arizona Public Service (APS) at the Marine Corp Air Station in Yuma, AZ. This system integrated 25MW of Tier 4 Final low emission diesel generation to provide 100% standby power to the Air Force Station. Additionally, advanced controls allowed for APS to provide Peak Load Management and Autonomous Frequency Control. Future provisions for this system allow for an additional 15MW of future solar to be integrated with the existing system. The value of the Peak Load Management and Autonomous Frequency Control enabled APS to provide this microgrid to the US Navy at zero cost.

Contact information: Jim Piotrowski Director, Solar Generation Arizona Public Service 602-250-3436 james.piotrowski.com	Marine Corp Air Station Yuma, AZ

5. Borough of Berlin Microgrid

Figure 19. Commissioned Borough of Berlin Community Microgrid at Berlin, PA

In providing the industry's most reliable power solutions, PowerSecure was awarded a contract to engineer, design, construct and install a Tier 4 Final PowerBlock generation system to supply 3.75MW of electric generation to Berlin, Pennsylvania. Seventy-five miles southeast of Pittsburgh, Berlin's extreme winter weather results in frequent power outages and rising wholesale electricity rates. In seeking a reliable energy solution and single-source accountability, the town believed PowerSecure to be best suited for the job. The exclusive PowerBlock generation system was designed, engineered, manufactured, and installed by PowerSecure. The fully integrated power generation system incorporated proprietary switchgear, controls, and monitoring software with an exclusive EPA Tier 4 Final certified genset. With industry leading reliability, PowerSecure's integrated solution provided Berlin high economic value with peak shaving/demand management, as well as emergency stand-by power. "The savings Berlin expects to realize from utilizing the generators during times of peak usage will enable our customers to continue to realize the lowest kilowatt-hour rate of any of the 35 Pennsylvania Municipal Electric Systems and of those charged by most Investor Owned Utilities," said Berlin Borough executive secretary Tom Jones. Expected net annual savings from the generators are approximately $300,000, providing the Borough with the lowest kWh rate of any Pennsylvania Municipal Electric Systems.

Supporting Articles and Videos:

http://www.southerncompany.com/newsroom/2017/aug-2017/powersecure-backup-generator-berlin-pennsylvania.html

Case Study:

https://www.youtube.com/watch?v=CBY3JzlWjYY

Commissioning ceremony:

https://www.youtube.com/watch?v=ehFIy8HKVZY

Contact information: Borough of Berlin 814-233-3586 Thomas.Jones@BerlinBorough.org	Borough of Berlin, PA

Additional PowerSecure example projects can be provided upon request.