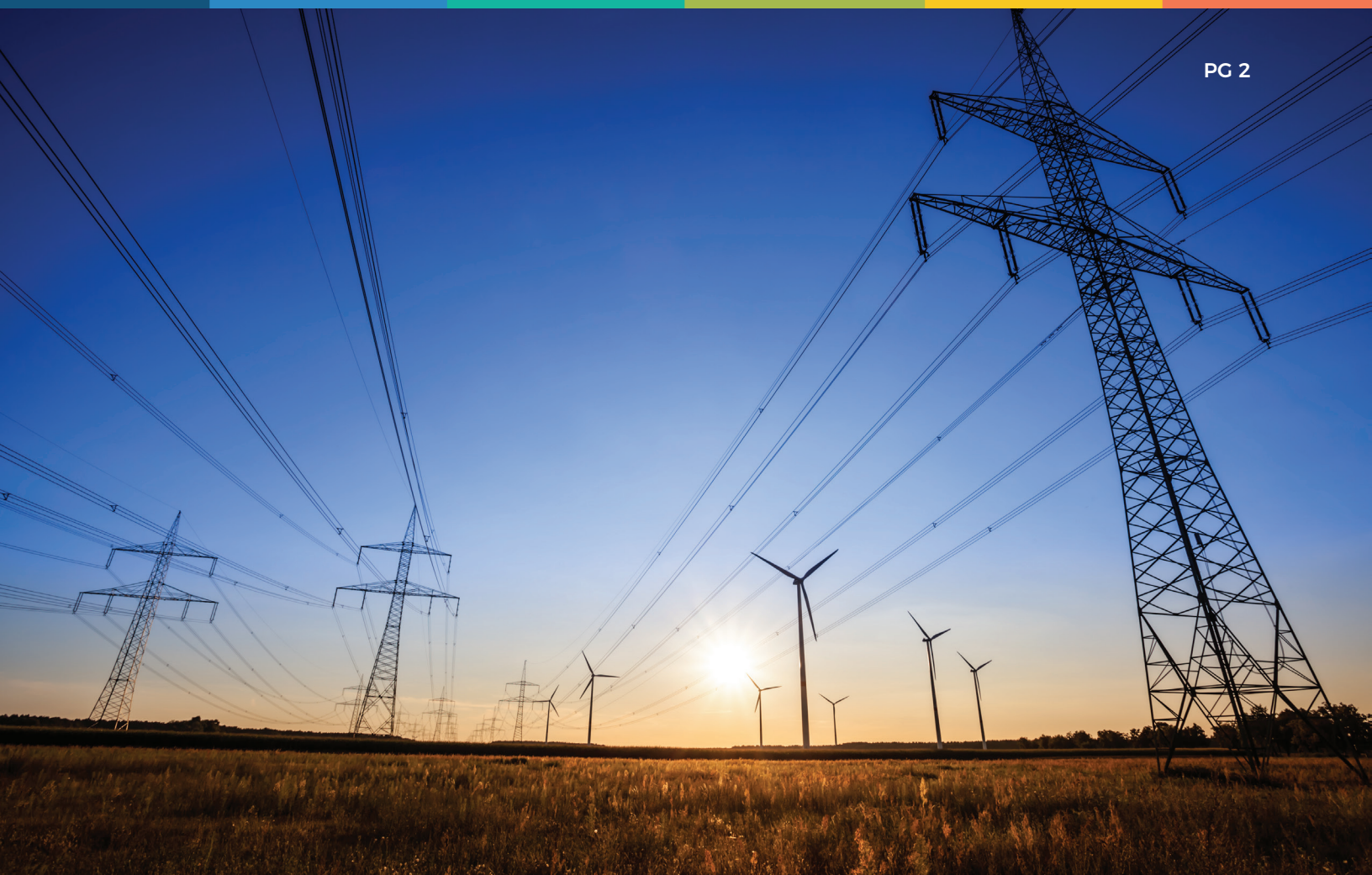




The Future of Utility Infrastructure

ComRent[®]
LOAD BANK SOLUTIONS



Where Our Utility Infrastructure is Today

There are approximately 10,000 power generation facilities, 600,000 miles of transmission lines and 5.5 million miles of distribution lines in the U.S. that make up the power grid. This infrastructure has been transporting power to homes, businesses, and communities across the nation since being built in the 1950s and 1960s. With an initial life expectancy of 50 years, it's well

documented that the aging power grid is struggling to provide reliable and consistent energy to match increasing demands and evolving technology.

This white paper covers the problems facing the utility industry and how utility owners can prepare for the future of utility infrastructure.

Problems with the Current Utility Infrastructure

In a rapidly changing world, the aging infrastructure of the U.S. power grid is struggling to keep up.



INCREASED ENERGY DEMAND + AGING INFRASTRUCTURE

The global demand for energy is expected to rise by nearly 50% between 2020 and 2050. In our increasingly technology-driven world, these higher energy demands will put a strain on aging infrastructure to meet efficiency, affordability and reliability standards. The ASCE estimates that customers will experience \$85B in annual losses from unreliable power if utility infrastructure does not receive adequate investment.



THE PUSH FOR CLEAN ENERGY

Several states have revised their Renewable Portfolio Standards goals to aim for as much as 50% renewable energy by as early 2030. However, due to the intermittent nature of renewable power generation and lack of adequate storage infrastructure, integrating variable renewable energy (VRE) sources into the grid is difficult. In California, for example, issues with renewable integration have led to rolling blackouts as a means of conserving power.



A TECHNOLOGY DISCONNECT

The grid will require greater interoperability and efficiency as it integrates more renewables, microgrids and distributed generation sources to meet energy demands. Smart grid technology, including IoT devices and cloud-based data management platforms, will need to be leveraged in order to increase the efficiency, productivity and optimization of the grid as it becomes modernized.

What is Grid Modernization?

To keep up with changing demands, the aging infrastructure of the grid will require investment in new technology.

Grid modernization means updating the grid with the latest hardware and software innovations to ensure its interoperability, efficiency and affordability. With smart grid technology, facility owners and operators can update their infrastructure to meet the changing needs of the 21st century.

Smart grid technologies consist of controls, computers, automation and new technologies that offer enhanced monitoring and data collection throughout the grid. This helps operators to spot and resolve potential mechanical failures, integrate VRE sources and increase the overall efficiency of their facilities.

Implementing smart grid technology can increase efficiency in multiple ways. For example, with real-time data collection and automated controls, smart technology can reroute power distribution according to analytical forecasting and help prevent the need for rolling blackouts or unintended outages.

Smart grid technology can also reduce operational and maintenance costs by automating metering and billing. By routing customer data through a custom API, facility owners can even improve customer service and satisfaction by offering transparency and real-time updates on power usage.

Smart grid components can help facility owners and operators address the challenges of modernizing grid infrastructure, improving grid resiliency and ensuring reliable power to their consumers in the process.

How Utilities can Prepare for Grid Modernization

Readying the electric grid for the future will be a tremendous undertaking requiring cooperation and investment from the private and public utility sectors. As the grid is brought into the 21st century through the implementation of smart grid technology, it will be critical that owners and operators carry out testing, monitor new technology improvements and develop comprehensive

standards and regulations for the energy industry to follow. By testing and tracking improvements, we can ensure that we all reap the benefits of grid modernization. Load bank testing offers utility operators the most efficient and accurate means of testing all-new smart grid technology.



Load Bank Testing Enables Grid

Load testing is the key to upgrading utility infrastructure with smart grid technology. Load bank testing offers essential accuracy and control, enabling utility owners to reach grid modernization goals more effectively.



ENSURE RELIABLE OPERATIONS

Using a combination of load banks and generators, utility owners can get accurate and controllable parameters for assessing the operational efficiency of their facility. By fully-energizing a facility, you can test how all of your system components, including new smart grid technologies, work independently and in concert with one another. Load testing with load banks is more accurate than leveraging grid power because you can avoid power fluctuations common with the grid. This ensures reliable and consistent results by providing you with a replicable baseline of measurement for future testing.



ENABLE PROACTIVE MAINTENANCE

By providing an accurate assessment of facility operations, load bank testing helps to greatly minimize the financial and operational risks of outages caused by voltage, sensors and relays not functioning to specification. Consistently scheduled load bank testing provides insight into how the facility is functioning, allowing owners and operators to identify performance and equipment issues, make adjustments before an outage occurs and reach maximum performance.



ComRent: Your Partner in Grid Modernization

When it comes to updating your utility infrastructure with the latest in smart grid technology, there's no better partner than ComRent. We have the largest inventory of specialized products for testing AC and DC power systems in North America and have completed projects across the

utility infrastructure landscape, including generation, distribution and transmission for wind, solar, coal, natural gas and nuclear. By partnering with the experts at ComRent, you can rest assured that your facility is operating at maximum efficiency with newly integrated technologies.

Are you ready to upgrade your facility?

Contact ComRent to ensure new technology is integrated successfully and efficiently.



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