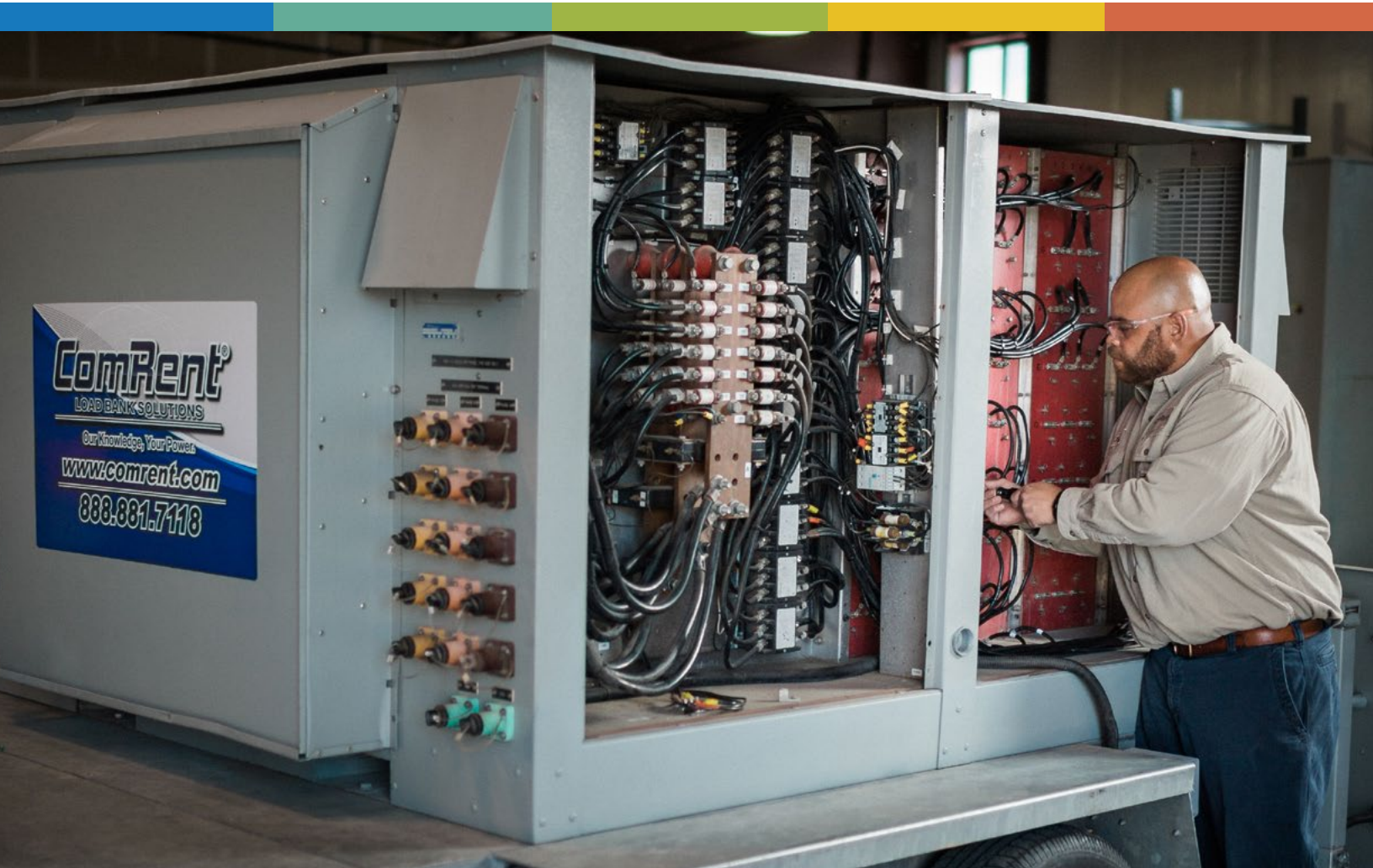


How to Select Load Banks for Testing, Commissioning, and Maintenance



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LOAD BANK SOLUTIONS

Our Knowledge, Your Power.



With the rise of connected industries and the widespread adoption of Industry 4.0 principles, today's businesses are more reliant on [big data](#) and [powerful electrical systems](#) than ever before. To ensure their proper functioning, these systems, and the equipment that powers and protects our data must undergo strict load testing before and after the commissioning process. [Data centers](#), [solar farms](#), maritime switchboards, and backup generators, for example, are some of the critical power systems that require constant observation and should be placed on a periodic testing schedule.

The preferred method of testing involves the use of load banks, modular load devices that can be configured to test operation of an electrical system. There are [three main types of load banks](#), each with a specific purpose and set of applications. This executive summary examines three key considerations users of load banks must keep in mind as they address their testing and system maintenance needs





Why do you need load banks?

Load banks are an essential tool used by contractors to verify the performance of electrical power systems. They can deliver preset electrical loads, at both low and medium voltage, to simulate real-world conditions. To answer the question of “why” and understand the value of load bank testing to different industries, here are three examples of how load banks help companies move their visions forward.

Solar PV Power Plant Load Testing

In the case of [solar PV power plants](#) and multi-megawatt solar farms, grid emulation using generators and load banks provide operators with valuable information regarding the grid-worthiness of inverters, photovoltaic panels, and wiring.

Maritime Load Testing and Project Maintenance

[Offshore projects](#), such as transoceanic shipping and oil and gas extraction, demand a great deal from their electrical systems. When your project is located anywhere from tens to thousands of miles from the nearest port, being prepared with the proper testing equipment for those systems is a matter of mission success or failure. Power distribution systems, backup generators, and emergency switchboards each require “routine maintenance and operational testing,” according to standards established by the National Fire Prevention Association (NFPA). To meet these NFPA standards, portable load banks are used to simulate up to one hundred and ten percent of a typical load.

Data Center Load Testing

In modern data centers, row after row of electrical cabinets, each filled with multiple servers, devour electricity on a massive scale. System power, heating, cooling, and connectivity are supplied electricity by uninterruptible power supplies (UPSs). A UPS provides both emergency backup power to critical systems in a data center, as well as protection against load fluctuations or momentary outages. Load banks are used by contractors to test each UPS and power distribution circuit for potential weaknesses and to ensure the data center remains in operation in the event of a system failure or interruption in power.



What type of Load Bank do I need to use?

The type of load bank used to test your electrical system may vary, depending on the range of tests needed and the applications involved. Some critical [questions to ask before selecting a load bank](#) include:

- What load profile do you anticipate during system operation?
- Is the load resistive, reactive/inductive, or capacitive?
- How far is the power source from the simulated load?
- How often are power supplies energized and put into temporary operation for system checks?

After your project scope is established, you can begin selecting the best load bank for the job.

RESISTIVE

[Resistive load banks](#), used to test resistive loads, are the most common type of load bank used in electrical system testing. Resistive loads describe electrical currents that convert current into various forms of energy. Direct current (DC) resistive load banks may be used to test UPS systems' batteries and DC generators, while alternating current (AC) load banks are used to test a variety of power systems, up to 5 MW, and can be combined to 100MW.

INDUCTIVE (REACTIVE)

Inductive loads are also known as reactive loads. Inductive loads include electric motors, transformers, and electromagnets. When used in combination with resistive load banks, reactive/inductive load bank solutions can simulate real-life mixed commercial loads consisting of lighting, heating, motors, transformers, and chokes. In other words, you're able to evaluate the performance of the full power system, including generators, voltage regulators, conductors, switchgear and other equipment.

CAPACITIVE

Capacitive load banks are often used in telecom and computer system applications. A capacitive load bank is similar to an inductive load bank in rating and purpose. However, lightly loaded switched mode power supplies (applied to reduce harmonic currents) and long cable runs cause a system draw, a leading power factor, allowing reactive power to be supplied from these loads to the system and improving the power factor.



Should I rent or buy?

The decision of whether to rent or purchase load bank(s) for your electrical testing needs depends mainly upon three factors: **convenience, efficiency, and cost-effectiveness.**

ComRent is [a world leader in load bank rental services](#), and we recommend you consider renting for your next electrical system testing for the following reasons.

- ComRent can provide a range of solutions to support your testing needs.
- A rental rate includes full maintenance. There is no need to pay for repairs, spare parts, or recordkeeping.
- There is no need to consider storage space for your load bank. ComRent is your warehouse.
- Renting removes liability from your expenses and you are not responsible for personal or property taxes on the unit.
- Always test with the latest equipment. No need to buy the newest load bank or try to get by using old, outdated equipment.
- Save money on capital that you can invest in other parts of your business.





Conclusion

Whether you are in the process of selecting a load bank for testing, commissioning, or regular maintenance of your electrical system, ComRent’s load bank experts can guide your team through a comprehensive assessment of your load banking needs.

Contact us today to learn more, and find a load bank solution that is right for you.





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