

COMPANY PROFILE

www.raptorsqatar.com

Low Voltage – Medium Voltage - High Voltage

Testing |Commissioning | Service | Maintenance Retrofitting | Thermography | Fire alarm system Cable laying | Joining | Terminations

About Raptors....

A good foundation is essential for any success. It is the breeding ground for development and visions. It creates potentials and embraces the challenges of tomorrow.

With this in mind, **Raptors Power Contracting W.L.L** is one amongst the leading service providers of Low Voltage | Medium Voltage | High Voltage works up to 33KV Installation, testing & commissioning, preventive maintenance, lightning protection & earthing system, power system studies & harmonic analysis, thermography, firefighting & fire alarm system and much more in the field of electrical power transmission & distribution in Qatar.

The focus of Raptors has always been on quality, reliability and relations. These values form the agenda for our future voyage. However, the basis of our future voyage is still the solid foundation laid in customer service, that represents the essence of Raptors.

" You'll never have a product or price advantage again. They can be easily duplicated, but a strong customer service culture can't be copied."

- Jerry Fritz





Optimal solutions

Our electrical specialists work seamlessly with engineers to create complete electrical services and solutions.

A company owned fleet of service and most sophisticated equipment are ready to serve you. Our team services include design, rebuilding and retrofitting services, as well as, complete repair and maintenance services. Our technical capabilities include switchgear testing and maintenance, upgrade and design services, power system studies, harmonic and disturbance analysis, one-line diagrams and more. For oil filled transformers, we can test and analyze, repair fluid leaks, analyze the dielectric fluid for routine quality screen tests or dissolved gas analysis.

We also provide complete high voltage repair services, including cable testing and splicing services, high voltage switchgear testing, repairs, and more.

Our objective has always been to provide prompt professional and technical assistance for evaluation, retrofit, refurbishment and maintenance of electrical distribution apparatus. We strive to ensure safe and reliable operation of equipment for plant and maintenance personnel, and to improve overall power quality by identifying and correcting system deficiencies.







Business Philosophy

Raptors builds on the idea that qualitative and creative thinking opens to an endless range of combinations. In return, this leads to more safety and reliability in the day-to-day operation of our customer equipments.

Mission: Our Purpose

Being the best Integrated Technical Service partner to our clients by providing an outstanding tailor-made service built on excellence, expertise, integrity and safety standards; Our clients' vision becomes our mission.





Vision: Our Aspirations

Leading technical service & maintenance provider in Qatar by being the most preferred and reliable service partner.





Our Services



We provide a wide range of technical services delivered by an experienced team of professionals to continuously provide the customer solution with a focus on quality and excellence which includes,

Service & Maintenance of switchgears upto 33 KV





Service

Maintenance of low voltage switchgear



General rules of electrical installation design

- 1. Connection to the MV utility distribution network
- 2. Connection to the LV utility distribution network
- 3. LV Distribution
- 4. LV switchgear
- 5. Load

Conditions that can make more frequent maintenance necessary are:

- High humidity and ambient temperatures
- Corrosive atmosphere
- Excessive dirt and dust
- High repetitive duty
- Frequent interruption of faults
- Older equipment
- History on preceding inspections
- Lack of periodical maintenance

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Preventive maintenance

Preventive maintenance consists in carrying out, at predetermined intervals or according to prescribed criteria, checks intended to reduce the probability of a failure or deterioration in the operation of a system.

When switchgear malfunctions, the consequences are often catastrophic. Damage to the switchgear itself can be extremely expensive, but that pales in comparison to corollary damage and the potential hazards to people. That's why

implementing an effective switchgear testing, inspection and maintenance program is essential.

IEC60364-6 require initial and periodic verifications of electrical installations. The electrical switchboard and all its equipment continue to age whether they operate or not. This aging process is due mainly to environmental influences and operating conditions.

Raptors provides the complete electrical testing, maintenance and engineering services you need to extend the life of your switchgear. Our comprehensive services are in line with National Fire Protection Association (NFPA) recommendations and designed to keep your switchgear operational for as long as possible.

There are two types of preventive maintenance:

Periodic maintenance

For each type of product, maintenance recommendations are laid out by the product manufacturer or described in IS / IEC Standards. These verification procedures, intended to maintain systems or their subassemblies in correct operating condition over the targeted service life, must be carried out according to the time intervals stipulated in this document.

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Conditional maintenance

To a certain extent, conditional-maintenance operations are a means to reduce (but not eliminate) the recommended periodic-maintenance operations (thus limited to the strict minimum) that require an annual shutdown of the installation.

These operations are launched when programmed alarms indicate that a predefined threshold has been reached. (Number of operation) durability, aging indicators

For instance, Electronic trip units in power circuit breaker can propose such functions. Conditional maintenance is the means to optimise installation maintenance.

Maintenance level

There are three recommended maintenance levels. The table below indicates maintenance operations and their intervals according to the level:

Sr. no	Level	Maintenance Interval*	Maintenance operations
1	I	6 Months	Visual inspection and functional testing, replacement of faulty accessories
2	II	One Year	As for level I plus servicing operation and subassembly tests
3	111	Two Year	As for level II plus diagnostics [Thermography, calibration, verification of test results on electronic / microprocessor release etc] and repairs / refurbished / retrofit

*The intervals stated are for normal environmental and operating conditions.

Retrofitting

Benefits over replacing complete switchboards include:

- Sign Significant overall cost savings
- Minimal disruption to site and supplies
- No need to disturb or replace bus bar /cables
- No new civil work required

Some of the benefits of retrofit switchgear include:

- Increased operating reliability and safety
- Higher short circuit ratings available
- Reduced maintenance and environmental impact
- Service life of switchgear can be extended by up to 15 years

Benefits over replacing complete switchboards include:

A typical retrofit involves the replacement of old circuit breakers and switches by modern circuit breakers which offer better efficiency and protection.

This option is particularly attractive to organisations with a concentrated age profile of installed equipment and where asset replacement budgets are limited.

This eliminates re-cabling, civil work, relocation of transformer or bus duct. Moreover, a retrofit of circuit boards with protection equipment can result in an increase of life of equipments.

Refurbishment

Refurbishment restores the equipment to its original condition and performance specification. It can actually enhance ratings or performance, dependent on the equipment involved.

Thermography

Thermographic Testing of Electrical Equipment

Thermography is a non-destructive test method that may be used to detect poor connections, unbalanced loads, deteriorated insulation, or other potential problems in energized electrical components. These problems may lead to excess power use, increased maintenance costs, or catastrophic equipment failure resulting in unscheduled service interruptions, equipment damage, or other problems.

How Does Thermography Work?

Thermography, also called infrared inspection, is based upon the sensing of heat emitted from the surface of an object in the form of infrared radiation. Test instruments are used to detect and convert the infrared radiation into either a temperature value or a thermal image, which can be used to assess the thermal condition of the object at the time of measurement. An infrared camera is one common type of an infrared thermal imaging device.

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How Can Thermography Be Used to Inspect Electrical Equipment?

Energized electrical systems generate heat because of electrical resistance. The amount of heat generated is related to the amount of current flowing through the system and the resistance of the individual system components and connections within the system. As components deteriorate, their resistance increases, causing a localized increase in heat. Similarly, a poorly made connection will have higher resistance than a well-made connection, along with a higher temperature profile. Thermography may be used to detect these temperature differences.

What Are the Benefits of Thermographic Inspection ?

The National Fire Protection Association (NFPA) estimates that ten percent of the fires occurring in manufacturing properties are related to electrical system failures, such as failure of electrical insulation, terminals, and related components. Additionally, failures can cause employees to be exposed to live electrical circuits, making them susceptible to serious injury or death from electrocution. By detecting high-resistance connections and repairing them, the likelihood of a breakdown of the electrical wires and related components should be reduced.

Other advantages to detecting and repairing these faults are the cost savings from energy conservation and lower outage and repair costs. High resistance in circuits causes an increase in current flow. When current flow is increased, the resulting power consumption will increase. Further, high current draw can cause critical electrical circuit components, such as fuses, circuit breakers, and transformers, to fail prematurely. These failures result in higher maintenance and repair costs, and resultant business interruptions.

When Is a Thermographic Scan Needed?

While all properties can benefit from a Thermographic scan, those with high power consumption, multiple branch circuits and distribution subsystems, or heavy equipment have the greatest need.

Businesses with high electrical demands should have a Thermographic scan performed at least annually on critical systems, such as Air Circuit Breaker, Power Control Centre, Switchgears, and transformers.

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We will recommend corrective and preventive action based on the scan results.

Load Bank Testing

An Important Aspect of Preventative Maintenance

The purpose of most generator sets is to provide a reliable source of power to your facility or commercial operation during an emergency situation when power from the grid is suddenly lost or is not available in your environment.

In the event of a power failure, one should have peace of mind that their backup power source will kick into action on a moment's notice. But what happens when the power goes out and Generator Set does not function as

expected? The result can often be costly and sometimes catastrophic.

This is precisely the reason generator load bank testing is an essential piece of a comprehensive preventative generator maintenance plan, which you should ideally have conducted on your Generator Set each year.

Load bank testing helps to ensure that your generator will be fully dependable and operational, as well as completely capable of the highest possible load it may be required to handle at any critical point in time.

What is Generator Load Bank Testing ?

A generator load bank test involves an examination and assessment of a Generator Set each year. It verifies that all primary components of the generator set are in proper working condition. The equipment used to conduct a load bank test produces artificial loads on the generator by bringing the engine to an appropriate operating temperature and pressure level.

This is especially important for standby and emergency generator sets that do not run very often and/or may not be exposed to carrying heavy loads on a frequent basis. The general rule is – if your generator is not exposed to higher than 30% of its rated kW load then you should be considering a load test.

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A load bank test ensures that your generator will run property when its needed so that you can fully depend on it during an emergency situation. The key to a proper load bank test is that it tests your generator at its full kilowatt (kW) output rating. Because many generators do not regularly operate at their full kW rating, it's especially important that you verify your generator can actually produce the highest possible horsepower that may be required – while at the same time maintaining adequate temperature and pressure levels that will allow it to run as long as necessary.

Benefits of Load Bank Testing

There are multiple reasons gensets should undergo a load bank test on an annual basis, including the following:

- Verifies the gensets capabilities opposed to just routinely starting it up
- Problems discovered early can be significantly less expensive and prevents future major issues
- Helps to avoid wet-stacking and cleans out carbon deposits
- Verifies the engine cooling systems will perform while under load
- Provides assurance that the generator set should work properly when you need it most

Our typical load bank reports include the following:

- KW Load
- AC Voltage
- Hertz
- Oil Pressure
- Amperage Rating
- Voltage Tested
- Additional Notes and Comments

Energy Auditing and Power Quality Analysis

All electrical devices work properly without any failure, if input power is well within set limits of electrical

properties. So Power Quality Study determines the health of the electrical to load ends. Without the proper power, an electrical device (or load) may malfunction, fail prematurely or not operate at all. There are many ways in which electric power can be of poor quality and many more causes of such poor quality power. The quality of electrical power may be described as a set of values of parameters, such as:

- 1. Continuity of service
- 2. Variation in voltage magnitude.
- 3. Transient voltages and currents
- 4. Harmonic

All these unwanted parameters can increase in power consumption, heating of equipment's and wiring, malfunctioning or even damage.

Scope of work

We use Three Phase Power Quality Analyser for:

- 1. Identify various Types of harmonics, Harmonic study
- 2. Calculation for Total harmonic Distortion.
- 3. Power Factor Study
- 4. Identify ways to improve power factor.
- 5. Energy consumption study
- 6. Review of Single line diagram.
- 7. Review of connected load.
- 8. Variation of current and Voltages between phases.
- 9. Measurement of input current and voltage.
- 10. Comparison of the unbalancing with the prescribed limits.

Fire Alarm & Firefighting System

Installation, commissioning, testing and maintenance of fire protection and detection systems for all classes of buildings, industrial, commercial and residential in accordance with NFPA codes and standards. All reports are to QCDD requirement.

- Fire Alarm Systems
- Fire Detection Systems
- Firefighting Equipment
- Aerosol System
- Kitchen Hood Fire Suppression
- Smoke and Natural Ventilation
- Indirect Systems for Electrical Cabinets

- Gas Suppression System
- FM200 & Deluge System

DATA CENTER TESTING

Data center functional testing is a process whereby the performance of your data center's physical infrastructure – most often power and cooling is verified against your user requirements. Many data centers have some experience with this testing as it is common to see a 'load bank' test performed on a UPS when it is purchased. This test attaches live load (via load banks) to the UPS to verify that the unit can support its full kVA capacity. Many other tests, like a battery rundown test, are typically performed at this time. In some cases, the load banks are placed on the data center floor to test perimeter CRAC units.

The challenge for data centers today is that their data center facility is built to last 25 years but the technology inside that facility is refreshed every two to three. Functional testing performed when the facility was originally built doesn't give you verification that a change in technology and computing density can be supported by the power and cooling infrastructure currently in your data center. This is most notable in existing data centers that are working to deploy (through virtualization) higher density workloads – IT teams worry that their data center cooling systems cannot support this change in per rack density.

Using data center functional testing to verify the performance of power and cooling infrastructure is a critical step for any organization moving to higher density workloads in their existing facility.

- 1. More than 500 HAC230-6RM Load banks in stock (up to 3.3 MW)
- 2. Full Heat Load Test
- 3. To test mechanical system
- 4. To test electrical system
- 5. Effect of change over from supply A to B
- 6. To test UPS, Generator and utility supply
- 7. Environmental conditions
- 8. Engineering & reporting of :
 - Temperature / Humidity data logging
 - Thermal imaging of DBs and PDUs
 - Air flow measurement and visualization.
 - Power Quality Analysis
 - Integrated System Testing

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