

Power & Energy

Electrical • Earthing • Solar • Cathodic Protection



Oman operations since 2018

Engineered power. Protected assets. Lasting performance.

An integrated engineering and manufacturing route for industrial, commercial and critical infrastructure

Engineering roots since 1998 • Oman operations since 2018

Company profile, group capacity and 32 detailed service capabilities

2,000+

Successful projects | Group

28

Years of heritage

Inside this profile

A coordinated route from engineering intent to dependable operation

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RTTR Engineering Group

Engineering roots since 1998. Oman operations since 2018.



SERVICES AT A GLANCE

- 01** One accountable engineering partner
- 02** A complete delivery model
- 03** Markets, resources and manufacturing relationships
- 04** Evidence that reaches the operating team

One accountable engineering partner

RTTR combines multidisciplinary engineering with practical delivery from Muscat. Our roots began in electrical-panel engineering and manufacturing in 1998, and our Oman operations began in 2018. We connect consultancy, detailed design, procurement, installation, commissioning and long-term operating support through one coordinated customer interface.

A complete delivery model

Customers can appoint RTTR for a specialist assignment, equipment supply, a coordinated EPC scope, asset repair or ongoing maintenance. Responsibilities, technical interfaces, approvals, programme and acceptance requirements are defined before execution. This supports a documented transition from the initial requirement to a practical, maintainable operating system.

Markets, resources and manufacturing relationships

Our engineering capability supports data centers, industrial plants, oil and gas, utilities, water infrastructure, commercial and institutional facilities, residential systems and marine applications. Wider group production and assembly resources, together with manufacturing and technology partners, support equipment supply and coordinated execution. The team, facilities and specialist support assigned to each job are defined around its actual technical requirement.

Evidence that reaches the operating team

Drawings, equipment schedules, technical approvals, test records, settings, software backups and operating information form a coordinated handover. We connect preventive maintenance, fault diagnosis, repair and contracted 24/7 AMC with the assets, priorities and responsibilities agreed with the customer.

Experience & capacity

Company-supplied figures, clearly scoped

2,000+

Successful projects

28

Years of heritage

6,000+

m² group production space

300+

Group technical resources



Engineering roots

Oman operations

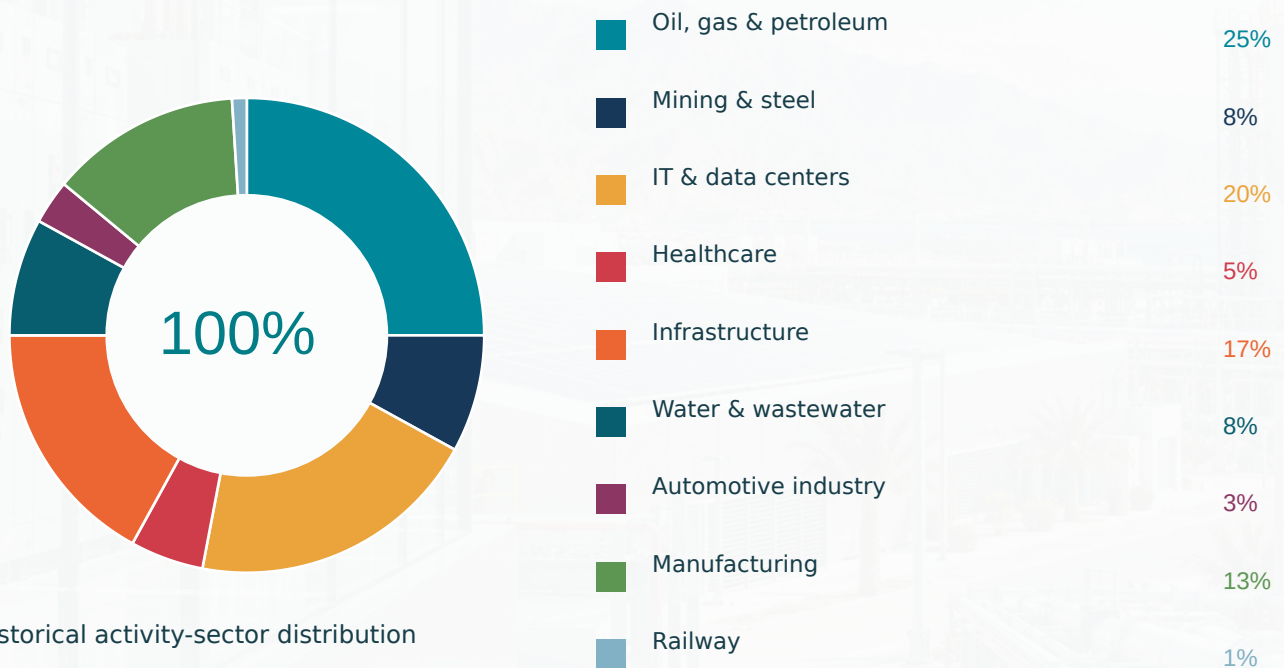
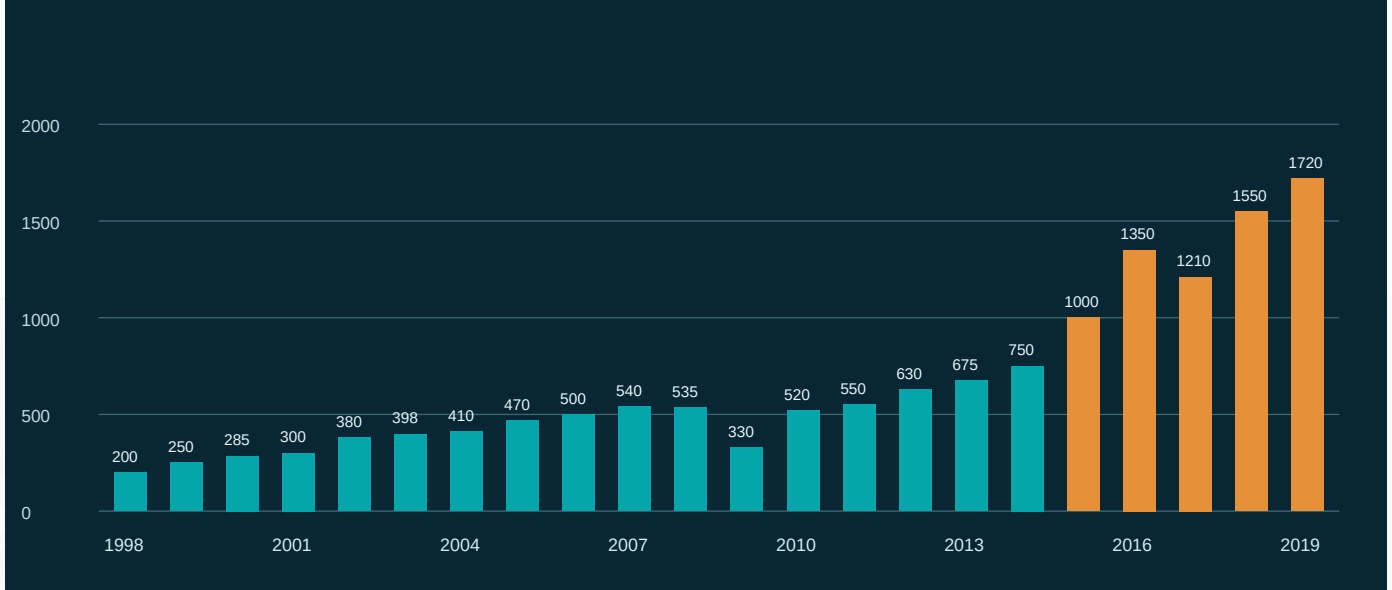
Integrated capability

Figures describe the wider group record and resources, rather than the Oman operation alone. Engineering roots date to 1998; Oman operations began in 2018. The total project figure has been updated using company-supplied information.

Production & sector experience

Historical indicators from the previous company catalogue

Historical electrical-cell production | 1998-2019

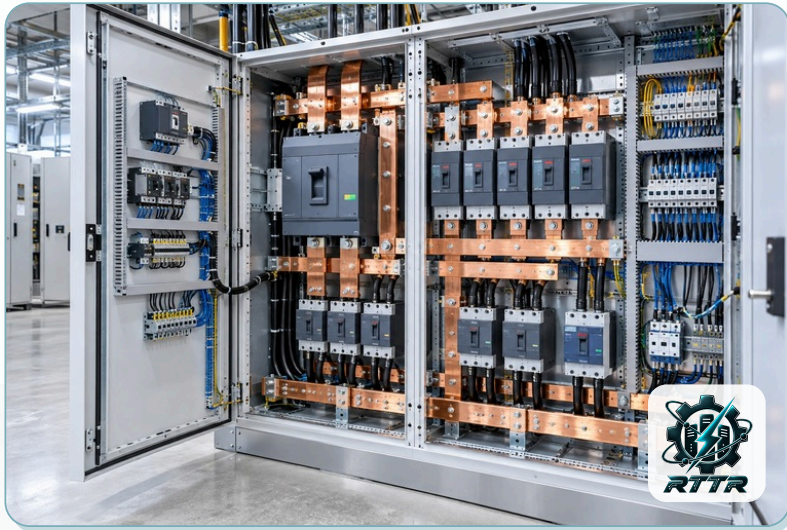


Historical activity-sector distribution

Source: supplied previous company catalogue, p.15. Historical data; electrical-cell production is a separate measure from project count.

Vision, mission & certified expertise

Reliability, responsibility and long-term customer value



SERVICES AT A GLANCE

- 01 Certified technical personnel
- 02 Multidisciplinary coordination
- 03 Multiple technology and delivery partners
- 04 Documented testing and handover

Our vision

To be a trusted engineering partner for reliable critical infrastructure, connected facilities and sustainable operation. We aim to connect the technical depth of specialists with the accountability of an integrated delivery partner.

Our mission

Connect sound engineering, appropriate equipment, disciplined site execution and verified performance with practical long-term support. Safety, reliability, efficiency and customer requirements guide engineering decisions from concept to handover.

Certified technical team and supporting partners

Our technical team includes certified engineers and specialists. Personnel and supporting resources are assigned around each discipline, equipment and platform. Multiple technology, manufacturing and technical partners support product access, specialist integration and delivery. Qualifications and relevant supporting records can be submitted as part of project review.

Connected engineering departments

Specialist capability with coordinated project interfaces



SERVICES AT A GLANCE

- 01** Data centers & consultancy
- 02** HD Hyundai Electric & Power / Energy
- 03** ICT, Security & Smart Systems
- 04** Mechanical & Marine
- 05** Technical training

Data centers & consultancy

Feasibility, audits, RFP/RFQ, detailed multidisciplinary design, critical power, cooling, CFD, DCIM/BMS/EMS, turnkey delivery and 24/7 AMC.

HD Hyundai Electric & Power / Energy

Electrical equipment supply and support; LV/MV boards, PLC and control, UPS, batteries, diesel generators, ATS, electrical maintenance, earthing/lightning, solar and cathodic protection.

ICT, Security & Smart Systems

Network topology, copper/fiber, CCTV, access control, CHD by Newabel rack security, smart systems, software integration and custom applications.

Mechanical & Marine

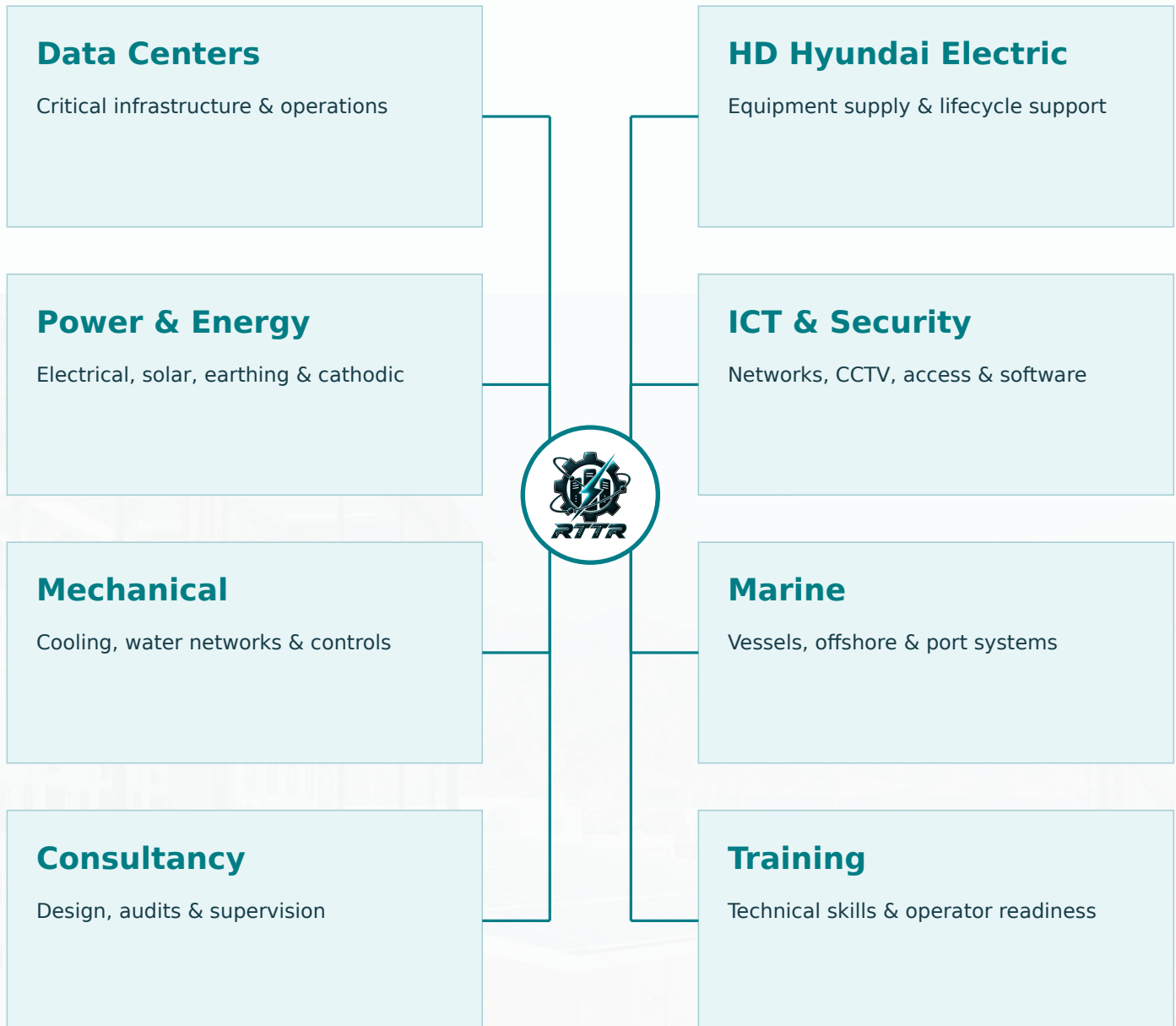
Precision and residential cooling, hydronics, pumps, valves, controls and AMC; marine communication, navigation, e-navigation, automation/engine support and VTS.

Technical training

Practical client workshops, specialist training and project-specific operator handover support.

The RTTR engineering network

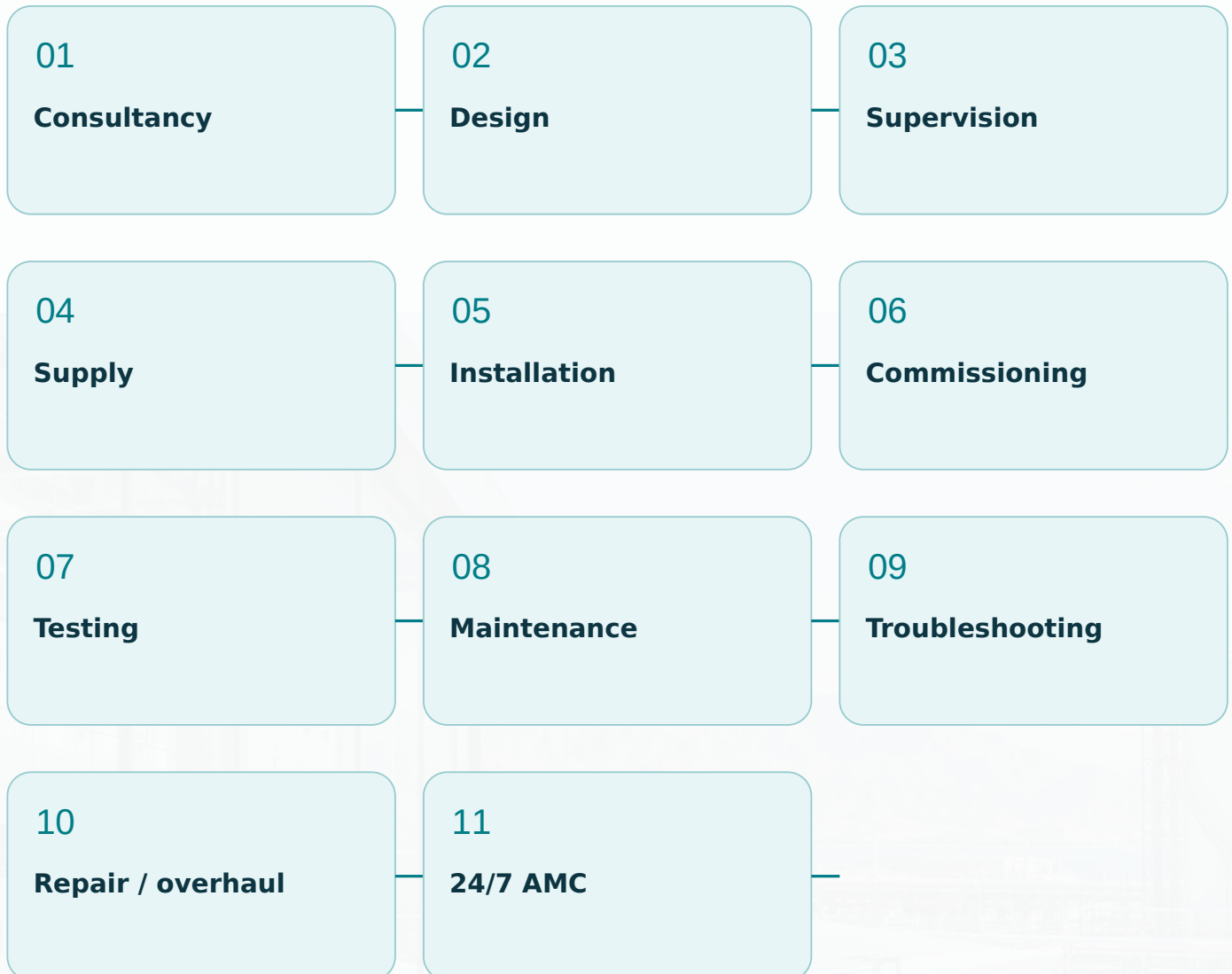
Specialist departments. One coordinated capability.



Specialist disciplines connected through one customer interface. Each proposal defines discipline responsibilities, equipment coverage and delivery records.

A complete lifecycle service

A clear scope from the first enquiry to operating support



From requirement to operation

Define the assets, equipment and acceptance criteria first. Engineering, work packages, testing and handover stay connected through a clear scope. Preventive maintenance, repair and 24/7 AMC are tied to agreed coverage, response arrangements, parts and responsibilities.

Engineering built on experience

Local coordination in Oman, supported by group engineering and manufacturing strength



SERVICES AT A GLANCE

01 ENGINEERING FOCUS

02 What this means for your project

ENGINEERING FOCUS

Engineering roots since 1998. Oman operations since 2018. Design, manufacturing and lifecycle services through one coordinated technical interface.

RTTR Engineering Group brings together design, manufacturing, supply, construction and lifecycle support across critical infrastructure and industrial services. Our engineering roots date to 1998, when the business began in electrical-panel manufacturing. Oman operations have developed since 2018, connecting a local customer interface with broader group expertise and specialist delivery resources.

This heritage connects the drawing office with the workshop and the operating facility. We understand that a successful system must be correctly specified, practical to install, verifiable at handover and maintainable during service. RTTR can deliver individual engineering assignments or coordinate a complete scope with an agreed responsibility and acceptance framework.

What this means for your project

Engineering continuity. Consultancy, studies and detailed drawings remain connected to procurement, field execution and commissioning.

Production access. Group production facilities and manufacturing partners support electrical assemblies, solar equipment, earthing materials and cathodic-protection supply.

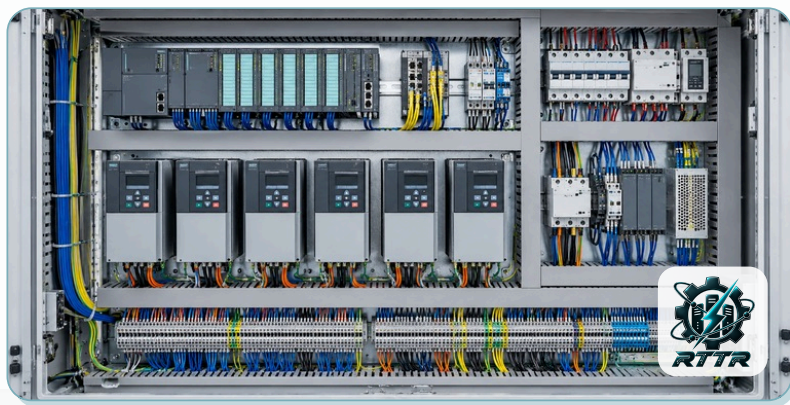
Local delivery interface. Customer coordination, site reviews, technical submissions and aftercare are managed through our Oman operation.

Operating support. Troubleshooting, refurbishment, preventive maintenance and 24/7 electrical support can extend the relationship after handover.

Our broader group record includes more than 1,500 projects. Group figures and partner-supported experience are identified separately in this profile.

A practical engineering purpose

Technical expertise shaped around the customer's operating requirement



SERVICES AT A GLANCE

- 01 ENGINEERING FOCUS
- 02 Certified technical expertise

ENGINEERING FOCUS

Certified technical resources, practical engineering and disciplined delivery. The project requirement determines the right expertise and manufacturing route.

Our vision To build a trusted engineering and industrial platform that advances dependable infrastructure, sustainable energy and long-term value for customers.

Our mission To connect engineering knowledge, manufacturing resources and disciplined project delivery-providing practical, quality-focused solutions from the first technical discussion through operation and maintenance.

Certified technical expertise

Our technical team includes certified engineers and specialists. Electrical, control and critical-infrastructure assignments are supported by experienced personnel, while corrosion-protection resources include NACE-qualified specialists. We select the technical team to match the actual discipline, project complexity and agreed service scope.

Accountable work packages. Define the engineering basis, responsibilities, interfaces and the evidence needed for acceptance.

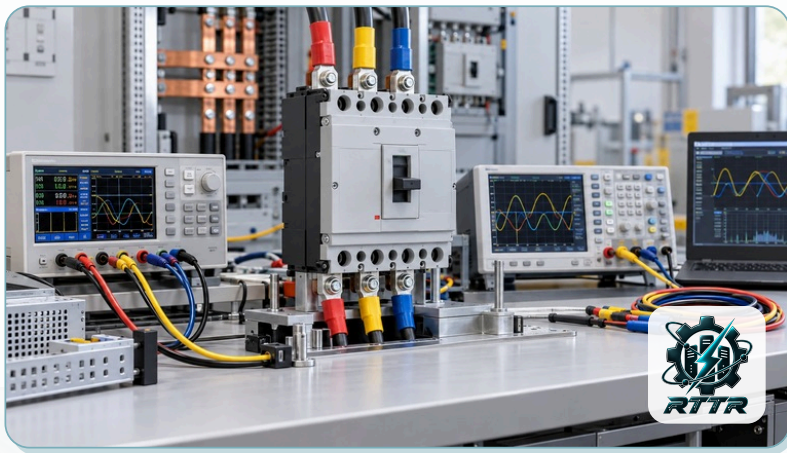
Controlled quality. Use review points, inspections, technical records and testing to connect the approved scope with the delivered system.

Partnership with purpose. Work with multiple manufacturing and specialist partners to provide the right production and delivery route.

Knowledge transfer. Provide the agreed drawings, software, test records and operating guidance so the client can manage the asset.

One group. Connected capabilities.

Disciplines that coordinate across the whole facility



SERVICES AT A GLANCE

01 ENGINEERING FOCUS

ENGINEERING FOCUS

Our departments connect power, digital infrastructure, mechanical plant, safety systems and the teams who operate the facility.

Power and energy rarely operate in isolation. Our departments connect the electrical supply with the data center, digital controls, mechanical plant, safety systems and the people who run the facility. Interfaces are coordinated within the agreed project scope.

Data centers. Consultancy, feasibility, design, CFD, procurement, turnkey delivery, testing, commissioning, DCIM/BMS, capacity optimization and AI-ready infrastructure.

Electrical equipment & services. Equipment representation and supply, LV/MV assemblies, automation, power quality, refurbishment, industrial electrical services and ongoing maintenance.

Power & energy. Electrical engineering, solar PV and hybrid energy systems, earthing/lightning protection and cathodic protection.

ICT, security & smart systems. Networks, structured cabling, CCTV, access control, smart buildings, automation and customer-specific monitoring applications.

Mechanical & MEP. Cooling, HVAC, precision cooling, refrigeration, ventilation, plumbing and coordinated mechanical/electrical interfaces.

Marine services. Specialist engineering and support assignments for marine applications, with a scope defined around the asset and operating requirement.

Consultancy, project control & training. Technical reviews, design coordination, supervision, commissioning oversight and practical training for operators and technical teams.

For projects involving several disciplines, the responsibility matrix and integration requirements are established before procurement and field execution.

Scale behind the service

Production capacity and project history from our company catalogue

2,000+

Successful projects

28

Years of heritage

6,000+

m² group production space

300+

Group technical resources



Engineering roots

Oman operations

Integrated capability

Figures describe the wider group record and resources, rather than the Oman operation alone. Engineering roots date to 1998; Oman operations began in 2018. The total project figure has been updated using company-supplied information.

Four specialist pillars

Shared delivery discipline, distinct engineering requirements



SERVICES AT A GLANCE

01 Selected examples from the documented portfolio

Electrical Power architecture, LV/MV panels, capacitor banks, PLC/HMI, manufacturing, supply, installation, commissioning, overhaul and 24/7 support.

Earthing & lightning protection Soil investigations, earthing studies, grids/electrodes, bonding, lightning/surge protection, installation, testing and maintenance.

Solar & renewable energy Feasibility, grid-connected PV, remote/hybrid systems, manufacturing-partner supply, structures, commissioning and long-term performance support.

Cathodic protection Surveys, design, sacrificial-anode and impressed-current systems, factory-direct materials, installation, field testing and monitoring.

Selected examples from the documented portfolio

Oman electrical delivery. The company catalogue records an electrical-panel package of 500 panels for an Oman utility application, together with local capacitor-bank, UPS and primary-substation design assignments.

Industrial & infrastructure work. Recorded group examples include cement-factory pump-station panels, railway distribution and compensation panels, and refinery electrical distribution.

Critical facilities. Oman examples include data center design, supervision, supply/commissioning and 24/7 operating support-linking the electrical system with critical-facility operation.

Examples summarize the supplied portfolio. Client and partner names are intentionally omitted; project-specific evidence can be addressed during qualification.

Electrical strategy & detailed design

Turn the operating requirement into coordinated engineering



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR provides electrical consultancy and design for factories, commercial and residential developments, utilities and critical facilities. We begin with the actual loads, supply arrangement, operating conditions and expansion plan, then develop a power architecture that can be built, tested and maintained. New projects and existing-system upgrades are assessed through the same disciplined engineering route.

The scope can include utility interfaces, transformers, generators, LV/MV distribution, motor loads, UPS systems, cables, protection, lighting and control. Studies, equipment schedules and drawings are coordinated so that the selected product, installation and operating philosophy remain consistent. Customer and authority requirements are incorporated into the agreed design basis.

Service scope

Establish the design basis. Review load profiles, demand, fault data, duty, environment, redundancy requirements and future capacity.

Develop the system. Prepare distribution topology, single-line diagrams, cable schedules, equipment ratings and coordinated layouts.

Evaluate performance. Assess load flow, short-circuit duty, voltage drop, protection coordination and practical energy performance.

Complete the documentation. Produce specifications, BOQs, detailed drawings, installation details, review records and an approval/action register.

Typical deliverables

Design basis; study reports; SLDs; equipment and cable schedules; specifications; BOQ; coordinated detailed-design package.

Client value. A clear engineering basis reduces mismatches between procurement, construction and the customer's operating need.

LV & MV switchboard engineering

Panels designed around the system, room and operating duty



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR designs a wide range of electrical panels, including main and sub-distribution boards, motor control centers, ATS and synchronization arrangements, control panels and project-specific LV/MV assemblies. The scope connects incoming supply, busbar architecture, outgoing circuits and control interfaces to the approved system design.

Panel design is more than selecting breakers. We review fault duty, protection, conductor and busbar capacity, installation temperature, ventilation, internal separation, access, cable entry and future extension. Manufacturer information and the applicable assembly requirements define the equipment and verification route. Existing interfaces are surveyed when the work is an extension or retrofit.

Service scope

Electrical configuration. Define incomers, bus couplers, feeders, protection, metering and the required operating arrangement.

Assembly arrangement. Coordinate enclosure, internal compartments, busbars, cable zones, maintenance access and labelling.

Control interfaces. Develop auxiliary supplies, interlocks, indications, remote signals and operating sequences.

Verification planning. Identify factory/site inspections, assembly verification evidence, functional checks and handover requirements.

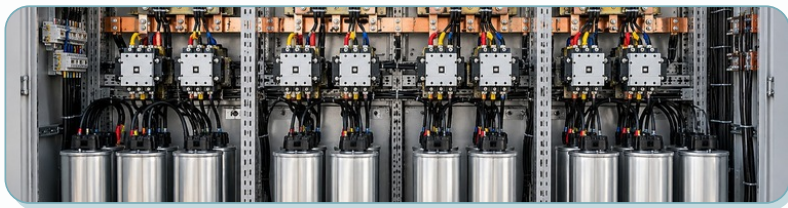
Typical deliverables

Panel SLDs; GA and shop drawings; device schedules; control schematics; terminal plans; BOQ; inspection and verification requirements.

Client value. The assembly is engineered as a complete system, with defined interfaces and acceptance evidence.

Capacitor banks & power-factor correction

Reactive-power compensation supported by actual measurements



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR designs, manufactures, supplies, installs and services capacitor-bank panels. Our group's manufacturing record exceeds 1,200 capacitor banks. The starting point is the site's reactive-power demand, load variation and power-quality condition. The proposed solution is developed from the operating profile rather than a fixed compensation percentage or a generic panel size.

The engineering review considers switching steps, controller logic, contactors or switching devices, protection, ventilation and the suitability of reactors or other harmonic-related measures. Existing systems can be inspected for failed capacitors, defective contactors, poor control response, overheating and inappropriate operating settings. Corrective work is then tested under the agreed operating conditions.

Service scope

Assess the demand. Measure or review reactive demand, load changes, harmonic conditions and existing compensation performance.

Engineer the bank. Select step arrangement, devices, controller, protection, discharge provisions and thermal-management requirements.

Build & commission. Prepare wiring and layout, inspect workmanship, verify operation and adjust the approved control settings.

Maintain & improve. Check capacitor condition, switching devices, connections, controller operation and the reasons for repeated failure.

Typical deliverables

Assessment report; compensation design; device and step schedule; drawings; manufacturing records; commissioning and maintenance reports.

Client value. The customer receives a compensation system matched to the actual facility and its operating profile.

PLC programming & electrical automation

Control logic that is documented, testable and maintainable



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR develops control and automation solutions for electrical panels and industrial systems, including PLC programming, HMI configuration, equipment interfaces and the associated control wiring. The programme is based on an agreed functional description that explains how the process should start, stop, respond to faults and recover.

We connect the software with the physical installation: I/O assignments, field devices, control voltage, interlocks, signals and operator commands. Changes to existing systems are managed through backups, version control and a planned testing route. The handover includes the agreed software files, operating descriptions and practical guidance for the customer's technical team.

Service scope

Define the function. Develop operating sequences, permissives, interlocks, alarms, manual modes and failure-response requirements.

Engineer the interfaces. Prepare I/O lists, tag schedules, wiring diagrams and communications mapping to connected equipment.

Program & verify. Develop PLC/HMI logic, simulate or bench-test where appropriate and verify the approved functions on site.

Support the lifecycle. Retain controlled backups, change records, fault guidance and operator familiarization materials.

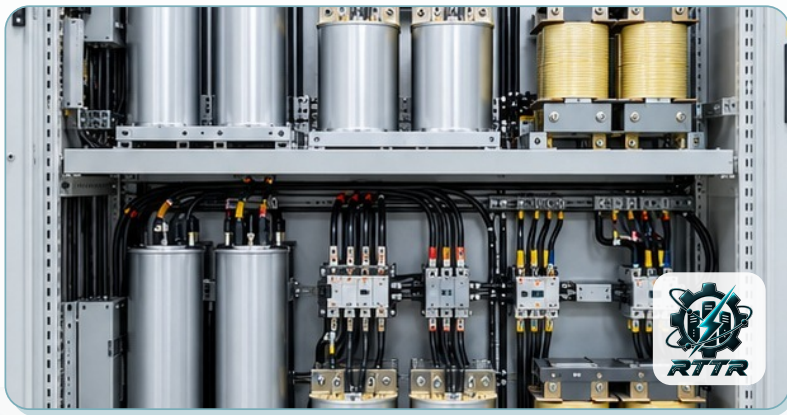
Typical deliverables

Functional design; I/O schedule; PLC/HMI files; wiring/communications drawings; test scripts; backups; training and handover records.

Client value. Clear control logic and records make future troubleshooting, modification and operation more dependable.

Panel manufacturing & wiring

From approved drawings to an inspected electrical assembly



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR provides panel manufacturing, assembly and wiring for approved distribution and control designs, supported by the group's factory capability and specialist manufacturing partners. Work includes component installation, busbar arrangement, internal wiring, terminal preparation, identification and the inspection records needed before release. Custom assemblies are developed around the customer's application and approved technical requirements.

The manufacturing route is linked to the design and component schedule. Substitutions are reviewed before use, drawings are controlled through revision, and construction records identify the parts and workmanship checks applied to the panel. The finished assembly is inspected and tested against the agreed requirements before delivery or installation.

Service scope

Prepare for manufacture. Approve layouts, device schedules, wiring diagrams, terminals, labels and inspection checkpoints.

Assemble & wire. Install approved components, control wiring and terminations with orderly routing and maintainable identification.

Control quality. Check component identity, workmanship, connections, access, segregation and the completed drawing revision.

Verify before release. Carry out the agreed routine and functional checks, record defects and close outstanding items.

Typical deliverables

Approved shop drawings; component register; wiring and terminal schedules; inspection sheets; test results; release and as-built package.

Client value. Traceable manufacturing and clear wiring reduce installation ambiguity and future service time.

Equipment supply & procurement

Procurement connected to duty, compatibility and delivery



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR supplies electrical equipment and coordinates manufacturer or vendor enquiries across the approved project scope. Protection devices, switchgear, transformers, cables, controls, metering, capacitor-bank components and associated materials are selected using the actual system requirements. Procurement is supported by our manufacturing resources and selected equipment partners, with project-specific technical approval and traceability.

For an existing installation, the enquiry includes nameplates, dimensions, accessories, control interfaces and operating history. Technical submissions are reviewed before procurement, and incoming inspection checks that delivered items match the approval. Critical spare parts can be assessed alongside the main purchase to support operation and future maintenance.

Service scope

Define the enquiry. Prepare duty, ratings, quantities, interface requirements, documentation and delivery constraints.

Evaluate the offer. Compare compliance, compatibility, accessories, availability, support and the project's acceptance requirements.

Coordinate delivery. Manage approval clarifications, vendor information, logistics and incoming-inspection records.

Plan the spares. Identify critical replacement parts by asset duty, failure consequence, lead time and installed population.

Typical deliverables

Technical enquiry; comparison matrix; approved submissions; equipment/material list; delivery records; spare-parts recommendation.

Client value. Supply decisions remain grounded in the installed system and the customer's lifecycle needs.

Installation & electrical commissioning

Controlled field delivery and documented operational release



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR installs and commissions electrical panels and associated infrastructure, coordinating equipment positioning, cabling, terminations, earthing, control interfaces and installation inspections. The scope is planned around site access, other trades, shutdown windows and the customer's operating constraints.

Commissioning connects the approved design with the completed installation. The method defines the appropriate checks, instruments, precautions, witnesses and acceptance criteria. Defects are recorded and closed, settings and interfaces are confirmed, and the agreed documentation supports the customer's decision to energize and accept the system.

Service scope

Plan site execution. Agree access, handling, sequencing, permits, shutdown arrangements and responsibility for interfaces.

Install & inspect. Verify placement, cables, terminations, earthing, controls, labels and workmanship against approved drawings.

Test the functions. Perform applicable electrical and functional checks, protection verification and intended interlock/sequence tests.

Handover for operation. Close punch items and issue test results, settings, operating guidance and updated drawings.

Typical deliverables

Installation methods; inspection records; commissioning plan; signed test sheets; defect closure; settings and as-built documents.

Client value. The completed installation has a documented acceptance basis and clear operating information.

Troubleshooting & equipment repair

Find the failure mechanism before replacing the component



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR provides fault diagnosis and repair for switchboards, protection and control devices, wiring and electrical-system interfaces. The process begins with the reported symptom, operating history and available evidence, followed by controlled inspection and equipment-appropriate tests.

A repeated trip, failed coil, overheated connection or unstable control sequence can have several causes. Our assessment separates the defective component from the conditions that contributed to its failure. The repair recommendation identifies reusable items, approved replacement parts, required shutdowns and the tests needed to verify restoration.

Service scope

Gather the evidence. Record fault symptoms, nameplates, settings, maintenance history and the impact on facility operation.

Diagnose the system. Investigate connections, insulation, control supply, protection, mechanical condition and interface logic.

Define the repair. Prepare the parts/work scope, repair method, responsibilities and planned operational restrictions.

Verify restoration. Document the work and results, close defects and identify follow-up measures to prevent recurrence.

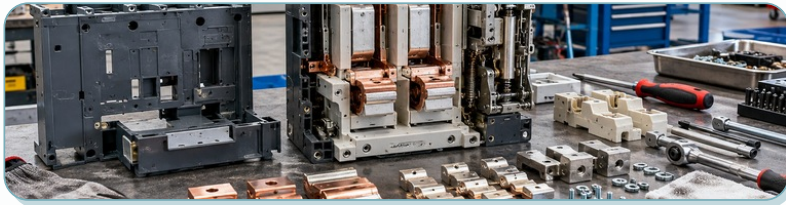
Typical deliverables

Fault-assessment report; repair scope; parts list; service record; before/after findings; acceptance tests and follow-up actions.

Client value. The repair addresses the underlying problem and provides evidence for the return-to-service decision.

Switchboard overhaul & refurbishment

Restore the assembly, its controls and its maintainability



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR undertakes overhaul and refurbishment of electrical panels, breakers and associated control assemblies. Work may include cleaning, component inspection, connection servicing, mechanism assessment, wiring repairs, replacement devices and restoration of damaged or deteriorated parts.

The initial condition survey determines whether service, repair, retrofit or replacement is the practical route. Obsolete parts, insulation damage, inadequate duty or major changes to the assembly may require a broader engineering upgrade. The agreed work package identifies what will be retained, replaced, modified and tested before the equipment returns to operation.

Service scope

Assess condition & duty. Review asset history, contamination, corrosion, overheating evidence, component wear and existing ratings.

Overhaul the components. Service mechanisms and electrical interfaces according to the relevant manufacturer and approved procedure.

Restore the assembly. Address wiring, controls, labels, enclosure defects and reviewed modifications to the panel arrangement.

Accept the completed work. Record replaced items, settings, test results, outstanding restrictions and maintenance recommendations.

Typical deliverables

Condition report; refurbishment scope; parts/modification register; service sheets; test evidence; updated diagrams and recommendations.

Client value. Customers can compare restoration with replacement using a clear technical scope and condition evidence.

24/7 electrical maintenance

Preventive care, urgent support and clear asset records



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR offers 24/7 maintenance and technical support arrangements for electrical installations, panels and factory power systems. The service can combine preventive maintenance, inspections, fault assessment, corrective work, callout coordination and periodic reporting.

The agreement defines the supported assets, maintenance tasks, attendance arrangements, response targets, communication route, spare-parts responsibility and escalation process. Critical loads and available shutdown periods shape the practical service plan. Recurring faults and unresolved defects are tracked through one action register rather than treated as isolated visits.

Service scope

Build the asset baseline. Identify equipment, criticality, drawings, condition, maintenance history and known operational risks.

Plan preventive work. Set inspections and service activities around duty, environment, manufacturer guidance and site access.

Coordinate urgent events. Establish technical triage, callout/escalation, customer communication and restoration responsibilities.

Report & improve. Review completed work, open defects, recurring problems, recommended spares and the next shutdown needs.

Typical deliverables

AMC scope matrix; service arrangements; asset register; PPM calendar; incident/service reports; monthly action and improvement register.

Client value. Continuous support is tied to a defined service model and measurable maintenance records.

Consultancy, supervision & project control

Independent technical attention from design to handover



SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

RTTR provides electrical consultancy, design review, technical supervision and owner-side project support. We review the engineering basis, drawings, equipment submissions and work methods, then follow the installation through inspection, testing and handover. The scope can be a focused package or part of a wider EPC engagement.

Supervision is coordinated with the customer, contractor and other disciplines. Technical queries, deviations, inspection findings and commissioning issues are documented with responsibilities and closure dates. The objective is to make requirements and outstanding decisions visible while retaining a clear distinction between design, construction and approval duties.

Service scope

Review the engineering. Assess system studies, SLDs, equipment schedules, controls, coordination and maintainability.

Check the submissions. Review materials, technical deviations, shop drawings, inspection plans and installation methods.

Follow site quality. Inspect agreed work stages, document nonconformities and coordinate corrective action.

Support acceptance. Witness specified tests, review results and verify that handover documents and defects are closed.

Typical deliverables

Review comments; technical-query log; inspection reports; nonconformity/action register; witnessed test records; handover review.

Client value. The customer gains a structured view of technical compliance, progress and remaining acceptance issues.

Testing, power quality & energy studies

Measured evidence for performance and improvement

RTTR provides electrical inspection, testing and performance studies that support design, commissioning, maintenance and remedial decisions. The scope can include load distribution, short-circuit and protection review, voltage drop, power factor, harmonic conditions, phase balancing and energy-consumption analysis.

Measurements are interpreted alongside the operating condition and equipment arrangement. A single spot reading is not treated as a complete energy or quality assessment. The agreed test method protects connected equipment and defines instruments, duration, test boundaries and the engineering basis for recommendations. Lighting calculations and efficiency reviews can be included where relevant.

Service scope

Define the investigation. Agree the symptom, assets, operating states, measurements and acceptance/review criteria.

Collect reliable data. Use appropriate calibrated instruments and retain readings, conditions, settings and test limitations.

Analyze the system. Connect results with load duty, harmonics, compensation, losses, protective coordination and equipment condition.

Recommend improvements. Prioritize corrective measures, validate proposed changes and document the expected operational benefit.

Typical deliverables

Study/test scope; measurement records; analytical reports; prioritized recommendations; verification plan and technical documentation.

Client value. Improvement decisions are supported by operating evidence and an engineering explanation.

SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

01 Design

02 Supply

03 Commissioning

04 Support

Earthing strategy & site assessment

A protection system engineered from the actual site

ENGINEERING FOCUS

A protection system engineered from the actual site. The earthing solution is based on the facility's actual conditions and can be verified and maintained.

RTTR designs, supplies, installs, tests and maintains earthing systems for buildings, factories, substations, data centers and critical infrastructure. The engineering starts with the soil, electrical fault data, layout, buried services and the operating requirements of the facility. Group production resources and specialist manufacturing partners support the supply of approved electrodes, conductors, joints and accessories.

The objective is a coordinated fault-current and bonding arrangement that controls hazardous potential differences and supports the installed equipment. Design is not reduced to a single generic earth-resistance target. Existing networks are surveyed for condition, accessibility, continuity and interfaces before extensions or improvements are recommended.

Service scope

Collect the inputs. Review site plans, electrical fault data, buried assets, structures and the required equipment connections.

Survey the existing network. Locate electrodes, pits, bonds and test links; record accessible condition and available drawings.

Define safety & performance. Establish the relevant design assumptions, fault duration, touch/step considerations and system interfaces.

Plan the delivery. Identify surveys, calculations, procurement, installation methods, inspections and future test access.

Typical deliverables

Site-assessment report; design-input register; existing-network observations; survey/test plan; preliminary scope and quantities.

SERVICES AT A GLANCE

- 01 ENGINEERING FOCUS
- 02 Service scope
- 03 Typical deliverables

01 Design

02 Supply

03 Commissioning

04 Support



Earthing strategy & site assessment

A protection system engineered from the actual site | continued

Client value. The earthing solution is based on the facility's actual conditions and can be verified and maintained.



Soil resistivity & grounding studies

Field measurements connected to design calculations

RTTR undertakes soil-resistivity testing and grounding-system studies to develop a defensible engineering basis. Field measurements are planned for the site geometry and conditions, then interpreted with the available geotechnical information and electrical-system data.

The study addresses electrode/grid arrangement, ground-potential rise, conductor duty and the relevant touch/step-voltage considerations. Seasonal conditions, neighbouring buried infrastructure and constraints on installation are considered when they materially affect the design. Measurement methods and assumptions are recorded so the customer can understand what the results represent.

Service scope

Plan the measurements. Select test locations and arrangements, review buried services and record the conditions during testing.

Interpret the soil. Assess the resistivity profile and the assumptions used for the engineering model.

Develop the calculations. Evaluate grounding arrangement, fault inputs, potential differences and conductor/electrode requirements.

Document the design. Prepare layouts, connection details, material schedules, BOQ and the agreed verification method.

Typical deliverables

Soil-resistivity report; design model/assumptions; grounding study; grid/electrode layouts; calculations; BOQ and specifications.

Client value. Field data and documented assumptions support the selected network and the customer's design review.

SERVICES AT A GLANCE

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04 Support

Earth grids, electrodes & bonding

A continuous network with accessible inspection points

ENGINEERING FOCUS

A continuous network with accessible inspection points. Controlled workmanship and accurate records make the network more dependable and easier to inspect.

RTTR supplies and constructs grounding grids, electrodes, inspection pits, test links and protective-bonding arrangements. The selected conductors, rods, plates and connections are matched to the approved design, corrosion environment and installation conditions.

Equipment, structures, cable containment and other relevant conductive parts are coordinated through the bonding design. Functional and protective requirements are reviewed together so that separate labels such as clean earth do not create an unintended safety conflict. Installation records retain the locations of buried elements and the connections that future maintenance teams will need.

Service scope

Select approved materials. Define conductor/electrode types, connection methods, pits, test links and corrosion-compatible interfaces.

Construct the network. Coordinate trenching, electrode installation, permanent joints, routing and civil/structural interfaces.

Bond the equipment. Connect the specified panels, transformers, generators, structures and technical systems.

Record & inspect. Inspect work before concealment and retain joint, route and accessible test-point records.

Typical deliverables

Material submissions; installation details; concealed-work inspections; connection records; continuity results; buried-network as-builts.

Client value. Controlled workmanship and accurate records make the network more dependable and easier to inspect.

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04 Support

Lightning & surge protection

Coordinate interception, conduction, bonding and internal protection

RTTR develops external lightning-protection and internal surge-protection scopes around the facility geometry, exposure, occupancy, incoming services and consequence of damage. The external system and the electrical/data interfaces are reviewed as one coordinated protection arrangement.

The design can include air terminals, down conductors, separation/bonding provisions, earth termination and coordinated surge protective devices. Site changes, rooftop solar installations and equipment additions are checked for their effect on the protected zones and interfaces. Installation and inspection records follow the approved project requirements.

Service scope

Assess the protection basis. Review risk, facility geometry, exposure, services and the relevant project design requirements.

Engineer the external path. Define interception, conductor routing, test joints and the earthing/bonding interface.

Coordinate internal protection. Review power, control and communications entry points, SPD duties and installation connections.

Verify the installation. Inspect routes, joints, bonding, protective-device condition and the recorded as-built arrangement.

Typical deliverables

Protection concept; risk/design inputs; layouts; SPD/connection schedule; material submissions; inspection and handover records.

Client value. A coordinated system addresses both the external lightning path and transients entering internal equipment.

SERVICES AT A GLANCE

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03 Commissioning

04 Support

Earthing installation, testing & handover

Establish a traceable baseline for the completed system

RTTR provides earthing-system installation, inspection and commissioning using approved materials and controlled workmanship. Testing is planned around the network arrangement, connected systems and the purpose of each measurement, with access and isolation coordinated with the facility operator.

The results establish a baseline for the installed network rather than a number without context. Test method, conditions, instrument details and connected/disconnected arrangement are retained. Deviations and inaccessible points are recorded, and the final handover combines measured evidence with drawings and maintenance guidance.

Service scope

Control the installation. Review materials, conductor routes, connections, test links, pit locations and work before concealment.

Verify continuity & bonding. Check the specified connections and identify missing, damaged or inconsistent interfaces.

Measure the network. Perform appropriate earth-resistance and related tests under the approved method and conditions.

Close the handover. Resolve defects and issue results, as-builts, inspection records and the future testing recommendation.

Typical deliverables

Installation inspections; test procedures; calibrated-instrument details; measurement records; defect closure; as-built and maintenance package.

Client value. The customer receives evidence that can be compared with future inspections and maintenance measurements.

SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

01 Design

02 Supply

03 Commissioning

04 Support

Maintenance & corrective improvement

Keep buried and exposed protection systems effective

RTTR inspects, tests, troubleshoots and maintains existing earthing and lightning-protection systems. Networks can be affected by corrosion, construction work, damaged conductors, changed equipment and loss of access to test points. Periodic checks help identify those changes before they undermine protection.

The service can be standalone or part of a wider electrical maintenance agreement. Findings are compared with available baseline records, and corrective work is defined around the actual defect and design requirement. A worsening measurement is investigated in context rather than treated as automatic evidence that additional electrodes are the only solution.

Service scope

Inspect the condition. Review exposed conductors, joints, bonds, pits, test links and changes to the facility.

Review the measurements. Trend results against methods, conditions, baseline data and the current network arrangement.

Diagnose deterioration. Investigate corrosion, broken connections, disconnected bonds, damage and changed system interfaces.

Implement improvements. Engineer and install approved corrective measures, re-test and update the maintenance records.

Typical deliverables

Inspection/test reports; condition trends; defect priorities; remedial design/work scope; verification results and updated records.

Client value. The protection arrangement remains connected to the facility as it changes over time.

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04 Support

Solar capability & manufacturer partners

Engineering, supply and lifecycle support for the actual energy need

ENGINEERING FOCUS

Engineering, supply and lifecycle support for the actual energy need. Customers can select an architecture and supply route shaped around their site and operating needs.

RTTR provides solar PV services for residential, commercial, industrial and remote applications, from feasibility to long-term operation. We work with multiple manufacturing partners for equipment supply and develop the system around the available site, energy demand, grid connection and customer priorities.

Our supporting manufacturing partners bring a documented implementation record exceeding 24 MW of on-grid and off-grid projects, including more than 100 solar-powered generators for remote telecom and metering applications. For each enquiry, the proposed architecture and product route are defined using the actual operating and installation requirements.

Service scope

Define the application. Review demand, available area, grid access, autonomy needs and the intended operating model.

Coordinate manufacturers. Develop enquiries for modules, inverters, batteries and balance-of-system equipment with the relevant suppliers.

Connect the disciplines. Coordinate electrical, mechanical and civil requirements, controls, protection, earthing and access.

Plan lifecycle performance. Include monitoring, cleaning, maintenance, spare parts and the route for troubleshooting and repair.

Typical deliverables

Solar project brief; feasibility route; equipment/supplier strategy; interface scope and agreed design/delivery programme.

Client value. Customers can select an architecture and supply route shaped around their site and operating needs.

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04 Support

Feasibility, yield & energy economics

Define the project before committing to equipment

RTTR undertakes solar feasibility and site assessment, reviewing electricity consumption, demand pattern, roof or land availability, shading, environmental conditions and grid interfaces. Preliminary capacity is matched to usable space and the operational objectives of the customer.

Production forecasts are developed with their assumptions and loss factors visible. The review can examine energy offset, self-consumption, storage needs and lifecycle costs using customer data and the applicable project conditions. Financial outcomes are assessed for the specific project rather than promised as a universal payback period.

Service scope

Survey the site. Review usable area, access, orientation, shading, structures and environmental constraints.

Understand the demand. Analyze consumption, load profile, critical periods and the proposed grid or off-grid arrangement.

Model the energy. Assess yield, losses, inverter/string choices, storage where required and performance assumptions.

Compare the options. Review capacity scenarios, lifecycle implications, implementation constraints and the next design stage.

Typical deliverables

Site assessment; consumption analysis; yield/assumption report; preliminary sizing/layout; option comparison and feasibility recommendation.

Client value. The customer's investment decision is supported by project-specific energy and site information.

SERVICES AT A GLANCE

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04 Support

PV design & grid-connected systems

A coordinated design from module layout to the connection point

RTTR develops integrated electrical, mechanical and civil design for solar PV projects at residential, commercial and industrial scales. The scope includes array arrangement, stringing, inverter selection, AC/DC distribution, protection, earthing, structures and the interfaces required for a grid-connected installation.

Grid data and the customer's existing electrical system are reviewed before connection details are finalized. The design addresses installation constraints, cable routes, voltage/current duties, operating limits and access for maintenance. Required approvals and protection interfaces are coordinated with the relevant parties for the specific project.

Service scope

Develop the architecture. Select capacity, inverter arrangement, strings, distribution and the operating concept.

Engineer the electrical system. Prepare cable/protection schedules, SLDs, earthing, surge protection and connection details.

Coordinate the physical design. Review roof/land layout, support structures, civil requirements, access and maintainability.

Prepare approval documents. Produce calculations, drawings, specifications, BOQ and the relevant interface/approval package.

Typical deliverables

PV design basis; layouts and string schedules; SLDs; calculations; structural/civil inputs; equipment schedule; specifications and BOQ.

Client value. A coordinated design reduces unresolved interfaces between the solar plant and the existing facility.

SERVICES AT A GLANCE

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04 Support

Off-grid, storage & hybrid power

Generation and autonomy matched to the load

ENGINEERING FOCUS

Generation and autonomy matched to the load. The proposed autonomy and operating strategy are supported by a documented design basis.

RTTR develops off-grid solar generators, battery-supported systems and hybrid architectures for remote facilities and loads where grid power is absent or insufficient. Applications can include telecom sites, metering stations, remote buildings and other isolated operating needs.

The system is sized from the load profile, autonomy requirement, environmental conditions and acceptable operating strategy. Battery capacity, inverter/charger duties, backup generation and control logic are assessed together. The design includes access, ventilation or thermal requirements, protection and a maintainable operating arrangement.

Service scope

Define the load & autonomy. Review hourly demand, peak/start-up duties, critical loads and periods without generation.

Select the architecture. Coordinate PV, batteries, inverter/charger, backup supply and the required power-management functions.

Engineer protection & controls. Define distribution, isolation, monitoring, operating modes and battery-system interfaces.

Verify practical operation. Plan commissioning, performance checks, operator guidance, service tasks and escalation for faults.

Typical deliverables

Load/autonomy assessment; hybrid-system design; component schedules; control philosophy; protection drawings and acceptance plan.

Client value. The proposed autonomy and operating strategy are supported by a documented design basis.

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04 Support

Solar procurement, panels & structures

Manufacturing partners connected to an approved system design

RTTR coordinates solar equipment supply through multiple manufacturer relationships. The scope can include PV modules, inverters, chargers, batteries, monitoring, cables, protection and other balance-of-system components. Product selection is reviewed for electrical compatibility, site environment, available support and the project specification.

We also design and manufacture solar-related electrical panels, including AC/DC distribution, combiner, protection and control assemblies. Fixed structures, carports and tracking-system enquiries are coordinated with their structural and installation requirements. Equipment documentation, approved substitutions and incoming inspection remain part of the delivery record.

Service scope

Prepare technical enquiries. Define equipment duties, interfaces, environmental requirements, quantities and required documentation.

Select compatible components. Coordinate modules, strings, inverters, batteries and protective devices as one system.

Engineer custom panels. Develop combiner/distribution/control arrangements, wiring, protection, enclosures and inspection plans.

Control supply & structures. Review manufacturer submissions, mounting interfaces, delivery condition and the installation package.

Typical deliverables

Technical comparison; approved supplier/equipment list; custom-panel drawings; mounting/interface details; procurement and inspection records.

Client value. Direct manufacturer coordination supports technical clarity and a documented equipment supply route.

SERVICES AT A GLANCE

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04 Support

Solar EPC, installation & commissioning

From approved design to a documented operating plant

RTTR provides solar project installation, quality control, testing and handover. Electrical, mechanical and civil work are coordinated through agreed drawings and methods, including structures, modules, cables, inverters, distribution panels, earthing and monitoring interfaces.

The commissioning plan reflects the architecture and complexity of the plant. Installation inspections, appropriate electrical checks, functional verification and the required grid/operating release are planned before handover. Documented results and operating information support the customer's acceptance and future maintenance.

Service scope

Plan the construction. Coordinate access, roof/ground work, lifting, trades, programme and inspection checkpoints.

Inspect installation quality. Verify mounting, cable management, protection, identification, bonding and approved component installation.

Commission the system. Complete the agreed tests, inverter/monitoring configuration, functional checks and defect closure.

Handover for operation. Issue drawings, equipment documentation, test records, operating guidance and the maintenance plan.

Typical deliverables

Installation/inspection plans; construction records; commissioning procedures; test results; as-builts; manuals and handover package.

Client value. The delivered plant has an identifiable acceptance record and a practical route into operation.

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04 Support

Solar monitoring, O&M & repair

Protect performance through evidence and planned care

RTTR provides solar-system monitoring, preventive maintenance, troubleshooting, repairs and lifecycle support. The work considers generation trends, inverter alarms, equipment condition, cleaning needs, electrical connections, structural condition and the effects of the site environment.

Performance changes are investigated against weather, operating conditions, system configuration and the available baseline. Maintenance tasks are selected for the plant and its equipment rather than applied as an unqualified generic list. Urgent support and extended coverage can be incorporated into an agreed service arrangement.

Service scope

Build the operating baseline. Retain plant configuration, approved settings, commissioning results and expected performance assumptions.

Monitor & investigate. Review generation, alarms, downtime, string/inverter behaviour and recurring operating issues.

Maintain & repair. Plan inspections, cleaning, equipment service, connection checks and approved corrective work.

Report the lifecycle need. Track defects, parts, performance trends and recommended improvements or replacements.

Typical deliverables

O&M scope; inspection/cleaning plan; monitoring reports; fault/service records; spare-parts list and improvement register.

Client value. Ongoing service connects technical condition with the plant's usable energy performance.

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- 02 Typical deliverables

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04 Support

Corrosion-control capability & factory partners

Engineering and direct factory supply for protected assets

ENGINEERING FOCUS

Engineering and direct factory supply for protected assets. The engineering scope and direct factory route remain connected from design through operation.

RTTR provides cathodic-protection consultancy, design, material supply, installation, testing, commissioning and ongoing maintenance for the agreed asset scope. Our capability covers pipelines, tanks and other buried or immersed metallic structures where cathodic protection is appropriate to the corrosion-control strategy. Coating assessment, specialist NDT and MFL inspection can be coordinated through the qualified project resources.

Our group's production resources and partnerships with several manufacturing factories support direct supply of cathodic-protection materials. Specialist delivery resources include NACE-qualified corrosion-protection personnel. Extensive project involvement supports our practical understanding of field interfaces, monitoring and maintainability. Manufacturer and project-reference details are coordinated for each customer enquiry and its disclosure requirements.

Service scope

Assess the asset. Review structure type, coating, environment, electrical continuity, existing protection and available records.

Select the protection route. Develop sacrificial-anode or impressed-current options around the actual design and operating conditions.

Coordinate the factory supply. Prepare material specifications, production enquiries, technical submissions and traceable supply records.

Deliver the lifecycle. Connect installation, commissioning, test points, maintenance access and the monitoring/reporting strategy.

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Corrosion-control capability & factory partners

Engineering and direct factory supply for protected assets | continued

Typical deliverables

Asset/project brief; corrosion-control scope; manufacturer supply route; design/delivery programme and reference-submission plan.

Client value. The engineering scope and direct factory route remain connected from design through operation.



Surveys, assessment & CP design

Understand the environment before selecting the system

RTTR undertakes cathodic-protection surveys and design development for new installations and existing-system improvements. The assessment considers the protected structure, coating condition, electrolyte, electrical continuity, neighbouring infrastructure and the operational information available from the customer.

The design establishes the protection approach, current demand, anode arrangement, power-supply requirements where applicable, cabling, test points and monitoring. Assumptions and interfaces are recorded, including isolation and bonding arrangements that may affect both corrosion control and electrical safety. Acceptance criteria are selected for the specific material, environment and project requirements.

Service scope

Collect field and asset data. Review layouts, structure/coating information, environment, existing measurements and maintenance history.

Develop the protection basis. Define design life assumptions, current demand, circuit arrangement and the selected CP method.

Coordinate interfaces. Assess continuity, isolation, earthing/bonding and possible interaction with adjacent structures or systems.

Prepare the design package. Produce layouts, calculations, specifications, material schedules, test-point details and commissioning requirements.

Typical deliverables

Survey report; design basis; calculations; anode/cable layouts; test-point schedule; specifications; BOQ and acceptance plan.

Client value. Project-specific data and assumptions support the protection system and its future assessment.

SERVICES AT A GLANCE

- 01 Service scope
- 02 Typical deliverables

01 Design

02 Supply

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04 Support

Sacrificial-anode systems

Galvanic protection selected for the asset and environment

ENGINEERING FOCUS

Galvanic protection selected for the asset and environment. The customer receives a documented galvanic system with a clear inspection and replacement route.

RTTR designs, supplies, installs and services sacrificial-anode cathodic-protection systems. The anode material and arrangement are selected for the protected structure, surrounding environment, required output and design-life assumptions. The solution is evaluated as a complete circuit rather than as a quantity of anodes alone.

Factory supply coordination covers the applicable anode characteristics, connection details, packaging and documentation. Field work verifies the installation, electrical connections, test access and the initial measurements. The operating plan includes checks for consumption, connection deterioration and changes affecting the structure's protection.

Service scope

Select the system. Review galvanic suitability, structure/coating data, environment, output requirements and life assumptions.

Specify the materials. Define the appropriate anodes, dimensions/mass, connections and project-required quality records.

Install & connect. Coordinate placement, cable connections, backfill where applicable, identification and inspection checkpoints.

Commission & maintain. Establish baseline measurements, verify connections and plan future checks and replacement assessments.

Typical deliverables

Galvanic-system design; anode schedule; factory submissions; installation/connection records; baseline tests and maintenance guidance.

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Sacrificial-anode systems

Galvanic protection selected for the asset and environment | continued

Client value. The customer receives a documented galvanic system with a clear inspection and replacement route.



Impressed-current protection

Controlled DC supply connected to a verified field network

ENGINEERING FOCUS

Controlled DC supply connected to a verified field network. The installed system has a traceable field configuration and operating baseline for ongoing control.

RTTR develops impressed-current cathodic-protection systems using the approved anode arrangement, DC power supply, cable network and monitoring interfaces. The scope can include transformer-rectifier equipment, junction boxes, anode beds, reference electrodes, test stations and the associated electrical installation.

The design and commissioning review connect output capacity, circuit resistance, control arrangements and asset protection needs. Interfaces with other metallic structures, earthing and electrical supplies are considered in the project assessment. Commissioning records establish the operating baseline and approved settings for subsequent monitoring.

Service scope

Engineer the circuit. Define the power supply, anode arrangement, cables, connections, control and monitoring requirements.

Coordinate manufacturing. Prepare rectifier/anode/material enquiries and review technical documentation and supplied equipment.

Install & verify. Inspect field connections, equipment interfaces, cable identification and the completed network.

Commission the operating point. Verify functions and field measurements, record settings and resolve defects under the agreed acceptance plan.

Typical deliverables

ICCP design; rectifier/anode schedules; cable and junction-box layouts; factory/site inspections; settings and commissioning report.

Client value. The installed system has a traceable field configuration and operating baseline for ongoing control.

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04 Support

Direct factory material supply

Approved technical requirements and traceable procurement

RTTR's cathodic-protection supply route draws on partnerships with multiple manufacturing factories. Materials and equipment are sourced directly from those manufacturing partners according to the approved project requirements, connecting technical selection with production and delivery coordination.

The supply scope can include appropriate galvanic or impressed-current anodes, power-supply equipment, reference electrodes, cables, junction boxes, test posts, connection accessories and other specified materials. Exact products, quality requirements and availability are defined in the technical enquiry and supplier submission. Factory documentation is retained as part of the customer's procurement record.

Service scope

Define the material requirements. Prepare specifications, quantities, dimensions, electrical characteristics and project-required documentation.

Coordinate factory submissions. Review proposed products, drawings, production information, quality evidence and delivery arrangements.

Inspect the delivery. Check identification, condition, quantities, supplied documents and compliance with the approval.

Support installation & spares. Link supplied materials to site drawings, storage requirements, consumables and future replacement needs.

Typical deliverables

Technical enquiries; approved factory submissions; material/quality records; delivery inspections; supply traceability and spare-parts schedule.

Client value. Direct manufacturing coordination provides a clear technical and commercial route for the supplied materials.

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04 Support

Installation, testing & commissioning

Connect the design to the asset and measured performance

ENGINEERING FOCUS

Connect the design to the asset and measured performance. Measurements and installation evidence establish a defensible baseline for the protected asset.

RTTR installs and commissions cathodic-protection systems through a controlled field work package. The scope includes equipment placement, anode installation, cables, test facilities, connections and the agreed electrical and asset interfaces. Buried or concealed work is recorded before it becomes inaccessible.

Testing verifies the installed circuit and the protection-related measurements required by the project. Reference-electrode condition, measurement method, operating state and relevant IR-drop considerations are addressed in the approved procedure. Where required by the scope, interrupted measurements and interaction checks are coordinated with the affected systems.

Service scope

Prepare the execution. Agree asset access, permits, survey information, installation details and inspection checkpoints.

Inspect the field work. Verify placement, cables, joints, identification, test posts, continuity and isolation interfaces.

Apply the acceptance tests. Use the approved measurement procedure, instruments, reference electrodes and protection criteria.

Complete the handover. Record results/settings, resolve deficiencies and issue as-builts and operating/maintenance guidance.

Typical deliverables

Installation methods; concealed-work records; circuit inspections; field-test sheets; commissioning results; as-built and handover package.

Client value. Measurements and installation evidence establish a defensible baseline for the protected asset.

SERVICES AT A GLANCE

- 01 ENGINEERING FOCUS
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03 Commissioning

04 Support

Monitoring, troubleshooting & maintenance

Keep protection performance visible throughout the asset life

RTTR provides periodic inspection, monitoring, troubleshooting and maintenance of cathodic-protection systems. Reviews can include field potentials, rectifier output, anode circuits, reference electrodes, cables, test stations, isolation and the conditions of the protected asset.

Deterioration can arise from damaged cables, consumed anodes, defective power supplies, changed coatings, isolation failures or changes to neighbouring systems. Measurements are reviewed in context and compared with the commissioning baseline. Corrective work is engineered around the identified cause, with re-testing and updated records following repair.

Service scope

Plan the monitoring. Define assets, test locations, frequency, operating-state information and reporting/escalation needs.

Assess trends & defects. Review field results, rectifier behaviour, continuity, isolation and changes affecting the asset.

Repair the system. Coordinate approved replacement materials, power-supply repairs and field corrective work.

Verify & document. Re-check the protection performance, retain test conditions and update settings, drawings and action records.

Typical deliverables

Monitoring plan; measurement trends; condition/fault reports; repair and material scope; verified results and maintenance action register.

Client value. An ongoing record helps the customer respond to changes before protection performance is lost.

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04 Support

Critical power & environmental services

Ten explicit service scopes



CAPABILITY INDEX

Critical power & environmental services

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02 **UPS monitoring installation, integration & repair**

03 **UPS batteries, cabinets & battery stands**

04 **UPS battery monitoring systems**

05 **Diesel generator installation, repair & servicing**

06 **Fuel systems & filtration packages**

07 **ATS panel design, fabrication & lifecycle service**

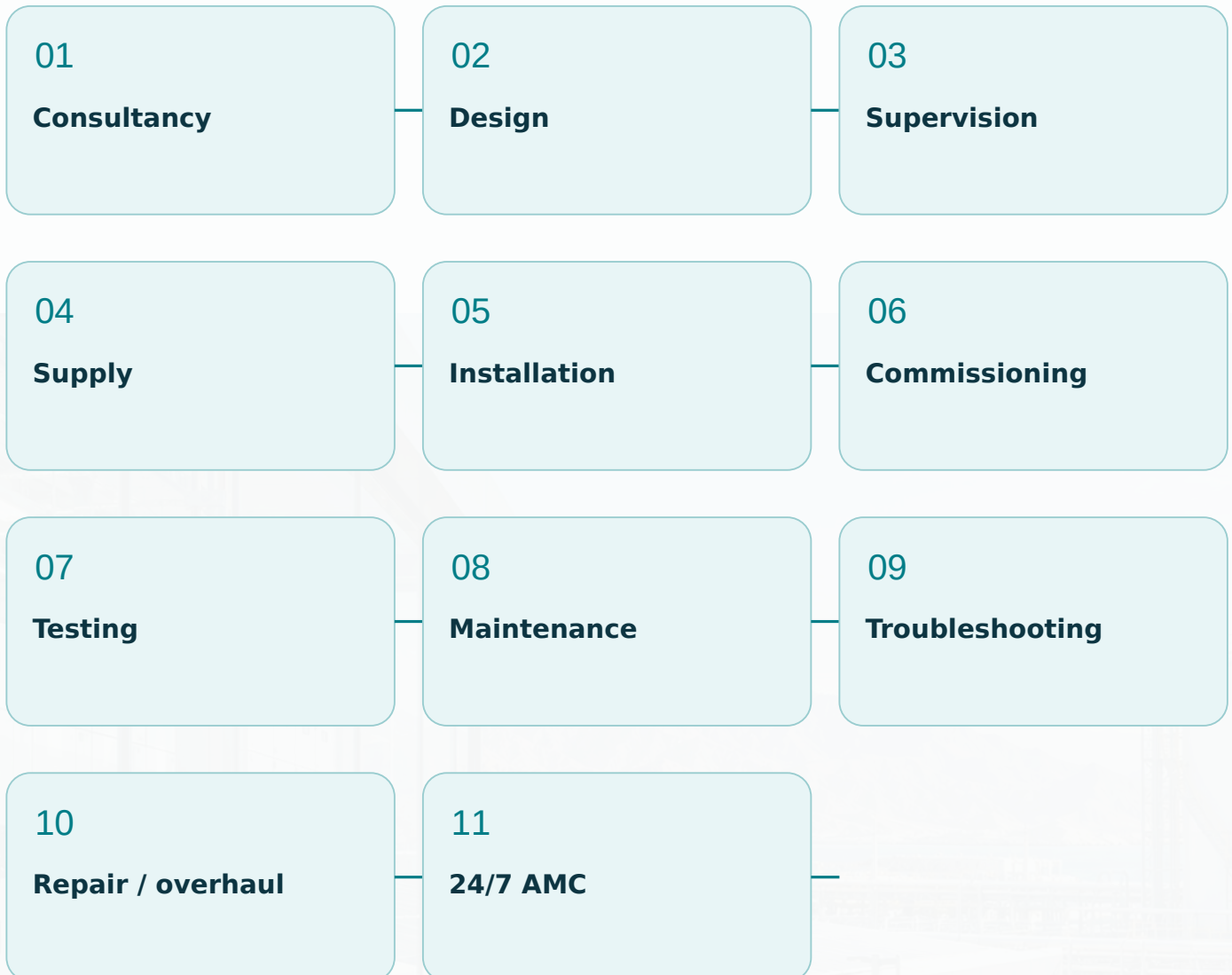
08 **EMS design, supply, installation & monitoring**

09 **Water leak detection systems**

10 **Rodent & insect deterrent systems**

A complete service scope

Critical systems



From requirement to operation

Define the assets, equipment and acceptance criteria first. Engineering, work packages, testing and handover stay connected through a clear scope. Preventive maintenance, repair and 24/7 AMC are tied to agreed coverage, response arrangements, parts and responsibilities.

UPS installation, commissioning & repair



SERVICES AT A GLANCE

- 01 Installation & commissioning
- 02 Fault diagnosis & repair
- 03 Bypass and load testing
- 04 Preventive maintenance & 24/7 AMC

We install, commission, troubleshoot, repair and service UPS systems for data centers, industrial facilities and buildings. The work covers standalone and modular arrangements, electrical interfaces, operating modes and coordinated maintenance planning.

Scope & delivery

Assess & design: Survey loads, available supply, autonomy objectives, equipment condition, bypass routes, protection and access. Define installation or repair requirements for the selected UPS.

Install & commission: Coordinate input/output connections, earthing, battery interfaces and model-specific settings. Verify rectifier, inverter, static/manual bypass and operating transitions using an approved test plan.

Diagnose & repair: Review event logs, alarms, power modules, fans, capacitors and control interfaces. Identify faults, replace approved parts and verify operation after corrective work.

Test & support: Perform agreed functional and load-bank tests, record results and provide O&M, preventive maintenance, troubleshooting and contracted 24/7 support.

Project outputs

UPS assessment; installation and settings records; test reports; corrective-action log; preventive-maintenance plan

UPS monitoring installation, integration & repair

We install, commission and repair UPS monitoring hardware, communication interfaces and software configurations. Operators receive a verified view of status, alarms and available measurements through the agreed monitoring platform.

Scope & delivery

Define points: Identify supported UPS data, monitoring cards, communication methods, alarm priorities, network requirements and software/licence needs.

Install & configure: Fit compatible interfaces and gateways, configure network access and supported SNMP or Modbus communications, and build the approved point database.

Integrate & repair: Connect to DCIM, BMS or EMS as agreed. Correct addressing, point mapping, units, firmware/configuration issues and communication faults.

Prove the alarms: Verify readings against the UPS display, simulate agreed alarm conditions, check timestamps, notification routing and communication-loss alarms, then hand over backups and records.

Project outputs

Point list; interface matrix; configured monitoring; alarm test records; software/configuration backups

SERVICES AT A GLANCE

- 01** Monitoring cards & gateways
- 02** DCIM / BMS / EMS interfaces
- 03** Alarm mapping & dashboards
- 04** Communication repair & verification

01 Design

02 Supply

03 Commissioning

04 Support

UPS batteries, cabinets & battery stands

We supply, install and commission UPS batteries and suitable battery stands or cabinets. Battery selection and replacement are coordinated with the UPS, duty, required autonomy, charger settings and site conditions.

Scope & delivery

Engineer the arrangement: Confirm chemistry and compatibility, string voltage, capacity, autonomy target, footprint, access, ventilation and structural support requirements.

Supply & assemble: Provide batteries, stands/cabinets, connectors, DC protection and required accessories. Coordinate layouts and maintain access for inspection and replacement.

Install or replace: Carry out an agreed isolation and replacement sequence, verify polarity and connections, apply manufacturer torque/settings and label strings and blocks.

Commission & maintain: Record baseline voltage, temperature and condition checks; perform agreed autonomy or discharge tests and provide inspection schedules and replacement records.

Project outputs

Battery schedule and layout; installation records; baseline measurements; commissioning report; maintenance/replacement plan

SERVICES AT A GLANCE

- 01** Battery selection & supply
- 02** Battery stands & cabinets
- 03** Installation & safe replacement
- 04** Commissioning & condition checks

01 Design

02 Supply

03 Commissioning

04 Support

UPS battery monitoring systems

We supply, install and commission battery monitoring systems for supported UPS battery arrangements. String and block-level condition data, trends and alarms help the operator identify developing issues and plan maintenance.

Scope & delivery

Select & design: Survey battery strings and chemistry, choose compatible sensors/controllers and define measurement points, cabling, network and alarm requirements.

Install & commission: Fit monitoring modules and sensors, assign correct battery/string identities and verify voltage, temperature, current and resistance/impedance data where the selected system supports them.

Configure & integrate: Set approved thresholds, trends and notification workflows, and integrate available information with EMS, DCIM or BMS through supported interfaces.

Validate & support: Compare sample readings with test instruments, test alarm and communication-loss events, record baselines and provide periodic calibration/verification and fault support.

Project outputs

Monitoring architecture; sensor and point schedule; baseline records; alarm matrix; interface tests; operator handover

SERVICES AT A GLANCE

- 01** Supply & install monitoring
- 02** Block / string measurements
- 03** Thresholds, trends & alerts
- 04** Platform integration & verification

01 Design

02 Supply

03 Commissioning

04 Support

Diesel generator installation, repair & servicing



SERVICES AT A GLANCE

- 01 Installation & commissioning
- 02 Periodic servicing
- 03 Engine / electrical diagnosis
- 04 Load tests & maintenance support

We install, commission, service, troubleshoot and repair diesel generators for critical and industrial facilities. Mechanical, electrical and control interfaces are coordinated with the site operating arrangement.

Scope & delivery

Survey & plan: Review duty, equipment condition, loads, starting arrangement, fuel, cooling, exhaust, access and electrical/ATS interfaces. Establish the installation or repair scope.

Install & integrate: Coordinate positioning, connections, starting batteries, earthing, controller settings, fuel interfaces and start/stop signals with the installed transfer system.

Service & repair: Perform planned inspections, oil/filter/coolant and starting-system services as appropriate. Diagnose engine, alternator, control, sensor and protection faults and carry out agreed repairs.

Commission & verify: Test starts, protective alarms, voltage/frequency stability and load performance under an approved plan; verify ATS interaction and deliver service/test records and AMC support.

Project outputs

Site survey; installation/interface records; service log; load and functional test reports; maintenance programme

Fuel systems & filtration packages

We design, supply, install and commission diesel fuel systems and filtration packages. Tank arrangements, fuel transfer, filtration, controls and monitoring are engineered as one coordinated generator-support system.

Scope & delivery

Design the fuel route: Assess storage and day-tank needs, transfer duty, recirculation, filtration requirements, piping routes, access and monitoring interfaces.

Supply the package: Select tanks, pumps, filters, water separation and polishing packages where specified, valves, level sensors, controllers and compatible accessories.

Install & commission: Install supports and piping, connect equipment and controls, and verify leak-tightness, flow, level operation, alarms and transfer sequences under approved procedures.

Service & troubleshoot: Inspect and replace filters, diagnose pump/control and transfer faults, service selected components and provide maintenance schedules and handover documents.

Project outputs

Fuel-system drawings; equipment schedules; control sequence; installation/test records; O&M and maintenance plan

SERVICES AT A GLANCE

- 01** Fuel-system design & supply
- 02** Filtration / polishing packages
- 03** Tanks, pumps, piping & controls
- 04** Installation, testing & support

01 Design

02 Supply

03 Commissioning

04 Support

ATS panel design, fabrication & lifecycle service

We design, supply, fabricate, install and commission automatic transfer switch panels, and provide their servicing, troubleshooting and repair. The panel design is coordinated with sources, loads, protection, generator controls and the required transfer philosophy.

Scope & delivery

Engineer & manufacture: Define source ratings, load duty, selected poles/neutral arrangement, short-circuit withstand, enclosure, busbars, protection and interlocking. Prepare drawings and manufacture the agreed panel.

Install & configure: Coordinate incoming/outgoing connections, earthing, source sensing, controller settings, timing and generator start/stop circuits.

Test the transfer sequence: Verify interlocks, source-loss and restoration, generator start, retransfer and manual/bypass functions where provided. Transition modes are explicitly specified for the selected equipment.

Maintain & repair: Inspect switching devices, connections, controls and alarms; troubleshoot transfer failures, service or replace parts and retest after corrective work.

Project outputs

SLD and wiring drawings; panel/FAT records; approved settings and sequence; SAT report; service and repair records

SERVICES AT A GLANCE

- 01** Design, supply & fabrication
- 02** Installation & commissioning
- 03** Interlocks & transfer controls
- 04** Servicing, repair & 24/7 AMC

01 Design

02 Supply

03 Commissioning

04 Support

EMS design, supply, installation & monitoring



SERVICES AT A GLANCE

- 01** Design, supply & installation
- 02** Monitoring platform commissioning
- 03** Temperature / humidity & contacts
- 04** Dashboards, alarms & integration

We deliver Environmental Monitoring Systems (EMS) and their monitoring platforms for critical rooms and facilities. Sensors, controllers, gateways, alarms and dashboards are coordinated with the actual operational requirement. Electrical energy monitoring/EPMS interfaces can also be integrated when included in the brief.

Scope & delivery

Define the architecture: Survey rooms and risks, choose environmental points and supported digital contacts, establish sensor locations, network topology, controller capacity and monitoring requirements.

Supply & install: Provide compatible sensors, controllers, gateways, cabling and software/licences as scoped, and install labelled devices with correct room and asset assignments.

Configure the monitoring: Build dashboards, alarm priorities, thresholds, trends, user permissions and notification routing. Integrate EMS with BMS/DCIM and electrical energy data where specified.

Test & hand over: Check readings and room mapping, simulate alarm events and loss of communications, verify logs and notifications, and deliver as-builts, configuration backups, training and maintenance support.

Project outputs

EMS architecture; room/sensor and point lists; alarm matrix; dashboard configuration; test report; backups and training

Water leak detection systems

We design, supply, install and commission water leak detection systems, and provide their servicing and repair. Detection routes, zones and alarms are designed around the actual water sources and the assets requiring protection.

Scope & delivery

Survey & zone: Identify pipework, precision cooling, plant rooms, raised floors and other exposure points; select sensing-cable or spot-detector arrangements and zone/location requirements.

Supply & install: Install compatible sensing cables, detectors, controllers and interfaces with suitable fixing, protected routes, labelling and accessible test points.

Commission & integrate: Configure zones and alarms, verify location mapping, interface with EMS/BMS/DCIM where supported and test each detection route under an approved method.

Service & repair: Diagnose cable/controller/communication faults, replace defective components, clean or reset sensors appropriately and retest the repaired zones.

Project outputs

Detection-zone layout; equipment/point list; installation and alarm test records; as-builts; maintenance plan

SERVICES AT A GLANCE

- 01** Design & equipment supply
- 02** Sensing cable / spot detectors
- 03** Alarm integration & commissioning
- 04** Repair, servicing & verification

01 Design

02 Supply

03 Commissioning

04 Support

Rodent & insect deterrent systems

We design, supply, install and commission specified rodent and insect deterrent systems for technical facilities. The selected solution is reviewed for target species, coverage, operating conditions and compatibility with the protected environment.

Scope & delivery

Survey & specify: Review entry routes, cable trenches, voids and plant areas; define target pests, coverage and the selected equipment technology with manufacturer guidance.

Supply the system: Choose suitable controllers, emitters or other specified deterrent devices, power supplies, supports and accessories for the actual installation environment.

Install & commission: Position and connect devices according to the approved plan, verify power and controller operation, check device coverage/settings and document commissioning.

Inspect & maintain: Provide periodic inspection, device checks, corrective repair and adjustments. Deterrent systems complement housekeeping and entry-point sealing; performance depends on site and equipment conditions.

Project outputs

Coverage/layout plan; equipment list; commissioning records; operating instructions; inspection schedule

SERVICES AT A GLANCE

- 01** Site survey & system design
- 02** Suitable deterrent equipment
- 03** Installation & commissioning
- 04** Inspection & system maintenance

01 Design

02 Supply

03 Commissioning

04 Support

From requirement to operation

A controlled path across all four engineering disciplines

01 | Understand & assess. Collect the available drawings and operating information, survey the asset or site, identify constraints and agree the engineering requirement.

02 | Design & approve. Develop the design basis, studies, calculations, drawings, equipment/material requirements and the acceptance framework. Resolve discipline interfaces before release.

03 | Manufacture & procure. Coordinate factory resources and selected partners, technical submissions, quality checkpoints, traceability and the approved delivery programme.

04 | Install & commission. Manage site methods, inspections and integration. Test against the agreed procedure, record results, correct deficiencies and establish the operating baseline.

05 | Support & improve. Provide the defined maintenance, monitoring, troubleshooting, repair, training and upgrade route, with records that remain usable throughout asset life.

Flexible engagement models

We can undertake consultancy and design, owner-side supervision, equipment/material supply, a defined installation or commissioning package, turnkey EPC, refurbishment and overhaul, or a maintenance agreement. Electrical 24/7 support is established through a defined service agreement, including coverage, responsibilities, escalation and response arrangements.

The quotation identifies boundaries, interfaces, deliverables, exclusions, programme and acceptance conditions. This makes the commitment concrete and reviewable before work begins.

SERVICES AT A GLANCE

01 Flexible engagement models

01 Design

02 Supply

03 Commissioning

04 Support

Continue the technical discussion

Clickable RTTR service routes and supporting technical resources

RTTR electrical engineering Design, panel engineering, installation and lifecycle support. • [Open resource ↗](#)

RTTR earthing & lightning protection Site assessment, earthing, bonding and protection interfaces. • [Open resource ↗](#)

RTTR solar & renewable energy Solar engineering, system delivery and operating support. • [Open resource ↗](#)

RTTR Power & Energy profile The dedicated profile page and download route. • [Open resource ↗](#)

IEC 62305 | Lightning protection Publisher reference for the lightning-protection standards framework. • [Open resource ↗](#)

IEC 62446-1 / 62446-2 | Solar PV Publisher references covering PV documentation/commissioning and maintenance. • [Open resource ↗](#)

AMPP | Cathodic protection Professional resource explaining corrosion control and cathodic protection. • [Open resource ↗](#)

PV maintenance reference: IEC 62446-2 [↗](#)

Company facts and portfolio figures are based on the supplied company catalogue dated February 2026, published RTTR information and the approved service brief. Standards and equipment requirements are selected for the actual project; final specifications and acceptance criteria govern delivery.

SERVICES AT A GLANCE

01 [Open resource ↗](#)

02 [Open resource ↗](#)

03 [Open resource ↗](#)

04 [Open resource ↗](#)

01 **Design**

02 **Supply**

03 **Commissioning**

04 **Support**

Let's define the right solution

One engineering interface for power, energy and protected infrastructure

Send the information currently available. RTTR can clarify the requirement, arrange a survey where needed and develop a practical consultancy, supply, project-delivery or maintenance scope.

Electrical. Share the SLD, load list, voltage/fault data, panel or equipment photographs, drawings, fault history and shutdown window.

Earthing & lightning protection. Provide the site layout, soil/test records, utility and structural information, existing earthing arrangements and the reason for the assessment.

Solar. Include energy bills/load profiles, available roof or land, location, grid arrangement, intended operating model and backup/storage requirements.

Cathodic protection. Identify the asset, dimensions/material, coating/condition, environment, existing CP arrangement, field measurements and access requirements.

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Discuss your project ↗

Email RTTR ↗

Engineering scenes in this profile are conceptual illustrations created for RTTR and are not represented as photographs of completed projects. Scope, supply route, service levels and commercial commitments are defined in the project quotation or agreement.

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03 **Commissioning**

04 **Support**