



Power Consultancy for a Progressive Tomorrow



Raychem RPG's Services Division offers a wide range of consultancy & service solutions to the utilities and industrial customers for optimized use, enhanced performance, better reliability and cost-effectiveness of electrical network and equipment.

Backed by decades of experience in the industry and state-of-the-art technology, our panel of experts provide end-to-end customer-tailored solutions to better reliability of electrical connections, protection of electrical assets and reduction of power thefts & losses.





Raychem RPG





Why you should choose Raychem as your preferred consulting partner:



Global Expertise

Our team of engineers and innovators collaborates with global leaders in the field to provide turnkey solutions to our customers

Over the years, Raychem has carved a niche for itself with the superior quality of its work delivered and has managed to garner the trust of all its customers

Trust

Experience

Our workforce brings with it a vast experience in the industry which is backed by a superior skill-set to provide customized solutions in power engineering

Our cutting edge solutions help improve reliability and efficiency of a power system, thereby maximizing output and increasing ROI

Maximize ROI

Customized Solutions

We strive to provide customer-tailored solutions to help improve system reliability & efficiency and optimize the cost of the system



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Our state-of-the-art Innovation centre uses cutting edge technology for designing and engineering of a power system to suit the customer's needs

Focus on Innovation

Best Safety Practice

Employee and workers safety is of paramount importance to us. We ensure best safety practices to provide healthy and safe working conditions across all our sites

Real time information about the progress is updated with the help of an advanced level software and mobile application

Information Anywhre, Anytime

Quality Assurance

Our dedicated team pays highest attention to detail and focuses on delivering best products and services to all our customers

Raychem RPG believes in creating value over profits. That is why, our priority is to create maximum value for our customers. This belief also reflects in our packages wherein it is linked to the benefits that customer gets from their investment

Performance-based Remuneration



With the advancement of technology, our power system networks have also advanced. These networks demand regular upgradation, maintenance and cable management. This is where Raychem RPG comes in. We provide expert services and solutions w.r.t low, medium and high-voltage connections for a large variety of cable types for both underground and overhead installations. Our core competencies include power system studies for Industrial as well as utility networks.

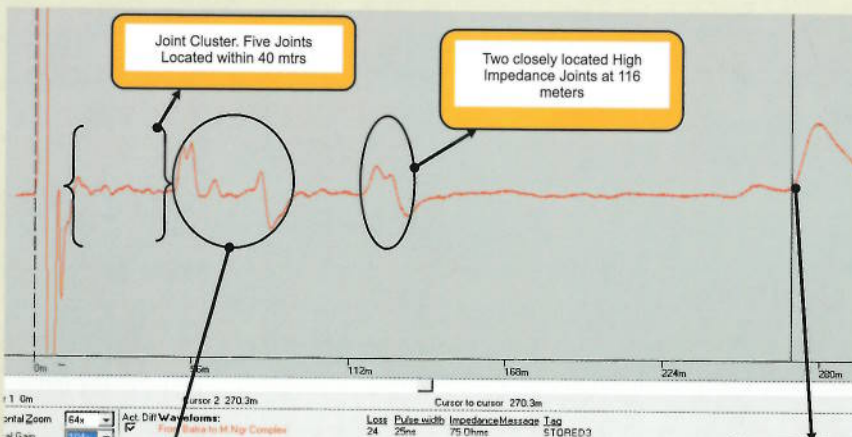
- **Health checkup / Diagnostics of cable networks**

- Signature analysis
- Faults identification and restoration

System-Component	Diagnostic Service	Benefits
Cable route	- Route measurements	Determine length, height profile and possible hotspots
Surroundings	- Determine thermal resistance ground - Soil research - DTS temperature measurements	- Thermal resistance ground - Condition of soil (density, moisture, grain - distribution) - Temperature of surroundings
Sheath	- DC sheath test and fault localization - Lead research	- Condition of outer sheath - Condition and expected life time of lead sheath
Cable insulation	General - Partial discharge measurements - Loss-factor measurements - Capacitance measurements - AC voltage test - Fault localization - DTS (Distributed Temperature Sensing) - DAC (Damped AC voltage) test Paper - Magenta test - Moisture test - Visual inspection Plastic - Visual inspection - Water treeing test	Detection of local defects Indication for the overall condition of the cable insulation Eliminate weak spots Localize insulation faults in case of a breakdown Determine temperature along the cable system AC test with partial discharge and loss-factor measurements Overview of electrical degradation by discharges Determine moisture content General condition of the paper layers General condition Presence of water treeing
Accessories	- Visual inspection - Resistance measurements - Röntgen research - Partial discharge measurements	Overview and repair of anomalies Quality of contacts Condition of surge arrestors Condition and correct connection of the cross-bonding



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Five High Impedance Joint located within 30 meter span (between 50-80 meters)

Total 13 Joints in span of 275 meters of PILCA cable. Full replacement required for system reliability/requirement

Full Length = 275 meters at 80 NVP



Cross-bonding Design and Installations



Condition assessment & maintenance of cable system

• **Signature Analysis:**

Condition Monitoring of Electrical Cables using TDR

Outcomes:

- Analyzing fault behavior & pattern in a circuit
- Identifying high impedance zones
- Suggestion/Recommendation of optimized solutions

• **On-site dielectric diagnostics of MV, HV and EHV cable systems**

In order to avoid outages, mostly faults need to be addressed and repaired on-line. Raychem RPG performs various on-site diagnostic tests on cable systems. One of our most reliable tests,



EHV Joints



EHV Installations

the Partial Discharge (PD) test helps us to not only identify the faults in the system but also the condition and overall health of the system's insulation.

- **Condition assessment & maintenance of cable system**

Raychem RPG offers condition assessment & maintenance services for aged cable systems which help you plan your preventive and corrective maintenance and manage your assets better.

- **Preventive maintenance:** Preventive maintenance helps maintain a healthy cable system in a reliable condition. Preventive measures can only be taken before an impending function loss in the system
- **Corrective maintenance:** Corrective maintenance comes into play when the normal functioning of a system fails and a corrective measure is needed to restore the working of the system

- **Contract maintenance**

Rayline: With round-the-clock comprehensive Cable Fault Management Services for power distribution utilities, Raychem RPG offers complete end-to-end solutions towards maintenance of cable faults, including excavation, testing, jointing and backfilling.

Adding Value to Customers

Fault Analysis: Analysis at scheduled intervals for the failure of Cable Joints & Terminations, preventive measures and remedial solutions

Coordinates of Jointing: Coordinates for each & every joint (with drawings) are maintained for ease of operations in future

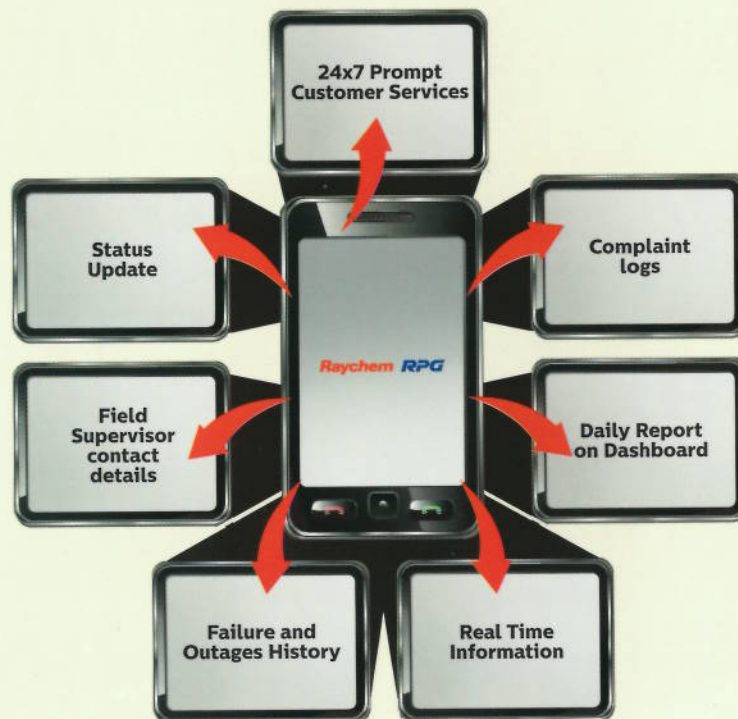
Cable Fault Data Management: Dashboard sent on daily basis to customer. Feeder wise data maintained to assess situation of each feeder / suggestion for necessary steps

Testing Facility: Healthiness of cable checked before & after cable jointing work

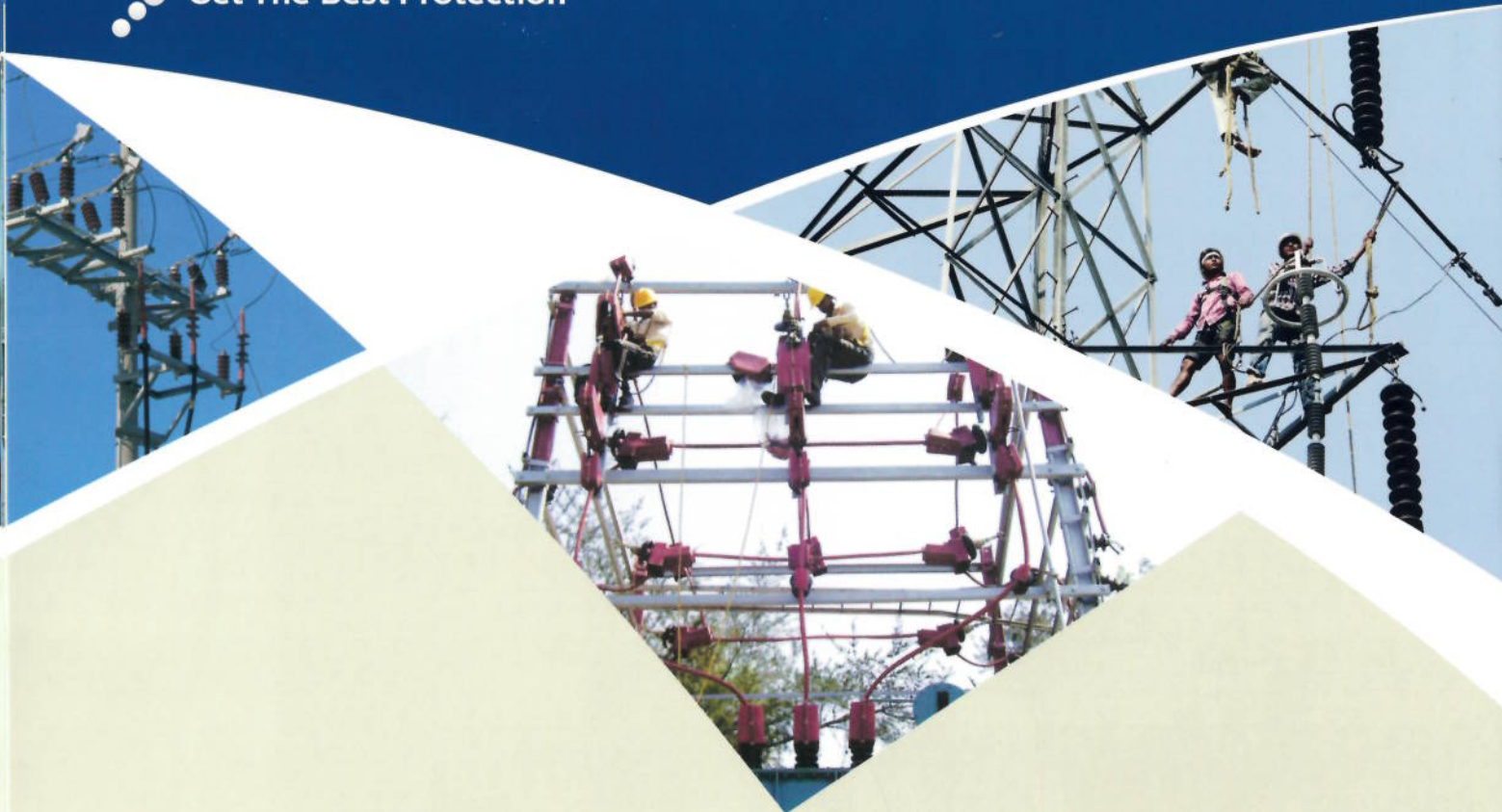
Time Reduction: Data of response time is maintained which facilitates in achieving the desired time reduction

- **Mobile Application: Putting technology to good use**

We are driven by the firm belief that our most valuable asset is our customers. We constantly strive to adopt best business practices to facilitate our relationship with our customers. In our efforts to service our customers better, we encourage the use of mobile apps that enable complaint logs, access failure information, outages history, real time status on progress, prompt customer support etc.



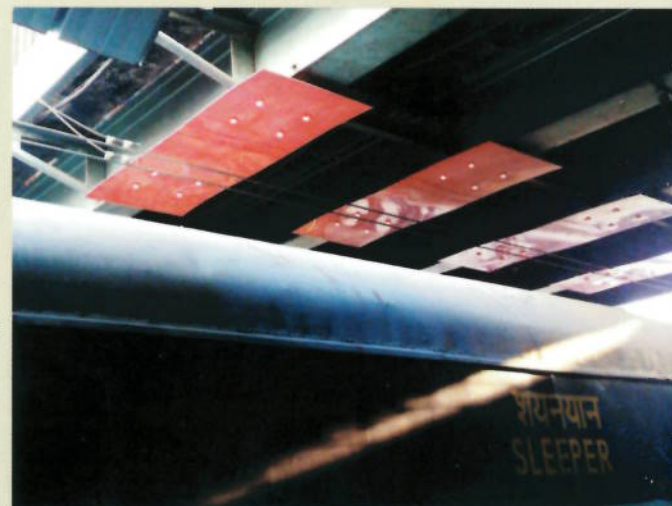




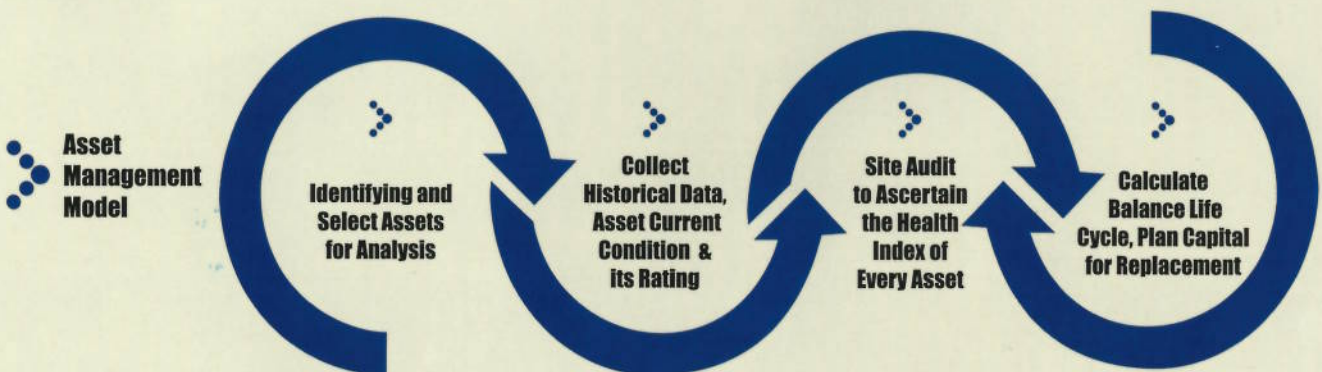
A world leader in asset management and protection solutions, Raychem RPG provides best-in-class protection services for power systems and equipment. Our excellent project management skills help us to provide better power system consultation for optimizing the operational expenses and enhancing performance.

Our complete portfolio includes:

- Better risk management for ageing assets
- Protection & fault level study
- Insulation enhancement and coordination study
- Advanced non-destructive conductor assessment
- Site audit to check condition of equipment
- Periodic condition monitoring of equipment
- Enhance reliability and capacity of equipment
- Root Cause Analysis (RCA) of tripping, failures or blackouts
- Op-Ex optimization
- Facilitate long-term investment planning
- Recommendation for system improvement
- Audit of electricity safety rules
- Arc flash hazard analysis



Customized Insulation Enhancement Solutions for Railways





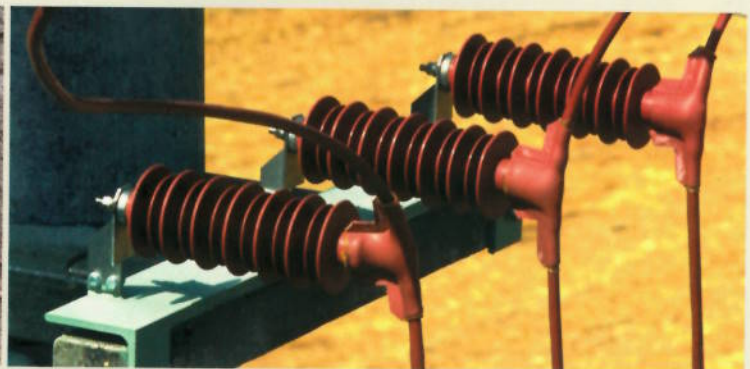
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Earthing System Consultancy for asset safety and reliability:

As one of the experts in Earthing solutions, we provide various customized and cost-effective solutions to power transmission and distribution infrastructure right from utilities, industries, Railways to building projects etc.

Service Provided:

- Mathematical Modelling & Simulation
- Programming & Designing by using advanced software
- Focus on the study to minimize the problem in earthing
- Recommendations to minimize the problems in earthing and existing networks





Over 27% of the total electrical energy produced in India is lost on account of Aggregate Technical and Commercial (AT&C) losses, which is very high as compared to global standards.

On the one hand, technical losses occur mainly because of the poor quality of conductor used, loose/inappropriate connections, transformer capacity mismatch and use of inappropriate equipment for transmission & distribution of electricity. On the other hand, commercial losses are a result of meter tampering, power theft and collection inefficiency.

At Raychem, we understand these problems and the effect that it has on productivity. That is why, we offer unique solutions which help Indian utilities to bring down the losses significantly.



Service Portfolio:

- Thermoscan analysis
- Undergrounding of feeder pillars and modernizing service pillars
- Anti-theft distribution boxes
- Replacing conventional connectors with low loss Ampact wedge connectors
- Replacing bare conductor with LV Aerial Bundled Cable & Accessories
- Installation of covered conductors
- Enhancement of insulation system at critical points
- Energy efficiency study and recommendations



Installation of Covered Conductors



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Examples that made difference:

Before

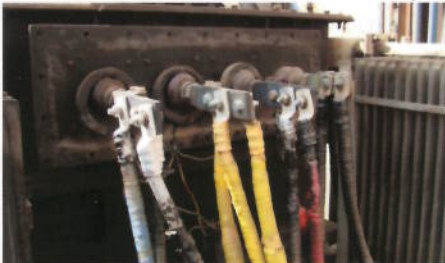


Prevented theft by modernizing service pillars

After



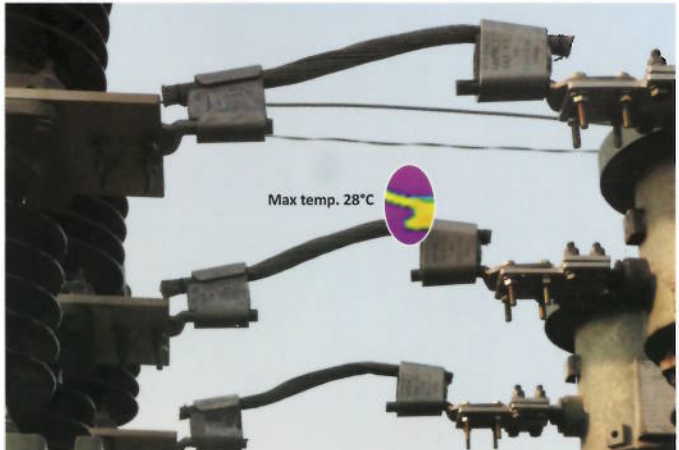
Before



After

Reduced i²R Losses at transformer bushing by replacing bolted type connectors with TRAFCONCONNECT

Before



Reduced power losses after replacing conventional PG Clamps with Ampact

After



Connecting Our Thinking to Push the Limits
of What's Possible.



At Raychem, we work to increase connectivity and decrease just about everything else: size, weight, complexity – and time & cost to install. Because we're integral to almost every technology, we can take a systems-wide view of designs and engineer solutions that pull innovation from one industry to the next to find new ways to tackle new challenges.

Our complete portfolio for Designing, Engineering & Testing Capability:

- Conceptualization and designing custom solutions with cutting edge technology, advanced tools and softwares
- Cable structure and support system designs
- Basic and detailed engineering
- Testing and commissioning
- Engineering supervision
- Network calculation, analysis and optimisation
- Partial Discharge (PD) Testing
- Hi-Pot Testing





Jointers Training: A jointer's job requires precision, accuracy and a high level of safety precautions. We organize special training programmes for technical and practical skill enhancement of a jointer. We make sure that we impart in-depth training regarding the latest equipment and technical know-hows of equipment and personal safety measures that can help make a jointers job as safe as possible.

Training and skill enhancement of all people in the assessment and maintenance of cable system

Asset management training for a basic overview of the concept

Training on best O&M Practices to enhance operating efficiency of electrical networks and assets





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