

Services & Support

Ensuring critical continuity of industrial facilities





“Chloride® offers a worldwide network of service professionals to support you during the start-up phases of your project. Our Global Services team and our authorised service partners are an international community of experts — all trained on the same global platform.”

Chloride® Service Department

Ensure Continuous Operation of Your Facility

Proactive equipment maintenance reduces downtime and extends equipment life, which in turn maximises return on investment and improves system availability. With a comprehensive service offering, Chloride® team supports entire critical infrastructure, improving electrical network availability and ensuring operator's peace of mind 24/7. Assistance with installation, start-up, commissioning, training, site assessment, battery maintenance, load bank rental, replacements, upgrades, compliance upgrades, 24/7 emergency service and remote assistance are just a few of the services that help ensure vital continuity of industrial sites.

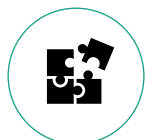
Zero Tolerance for Downtime

- Industrial facilities work on a nearly 24 x 365 basis and require critical equipment and machinery to be functioning at optimal levels. Your electrical assets and back-up power form the foundation of your emergency power system. But these are often exposed to harsh operating conditions and run the risk of unplanned outages and breakdowns.
- Any disruption in power supply can lead to costly downtime, equipment damage, and potentially dangerous situations. Industrial UPS systems provide critical backup power to safeguard your people essential equipment, processes, and systems during power outages or electrical disturbances.
- With so much at stake, it's important to protect your emergency power system by performing routine preventive maintenance — ensuring the maximum reliability of the backup system including the UPS, batteries, chargers, inverters and static switches.

Chloride® Services

Every emergency power system contains life-limited components that must be maintained according to the manufacturer's specifications. To maximize the life of these components, regular maintenance is critical. An effective preventive maintenance strategy can be one of the most cost-effective measures you can take to ensure the continuous power to both your critical processes and your entire plant.

Chloride can help you increase the availability and safety of your industrial assets, resulting in fewer unexpected outages and accidents. Through electrical testing, maintenance and engineering services, we make sure that you have the information you need to make smarter, more profitable decisions about each asset in your industrial facility.



PARTS

Obsolescence management, Spare parts, Spares for stock



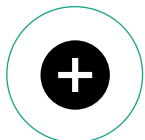
START-UP SERVICES

Warranty extension, Remote commissioning, Site operator training, Commissioning, Installation supervision



MAINTENANCE SERVICES

Refurbishment & upgrades, Remedial works, Preventive maintenance



LIFE EXTENSION SERVICES

Life extension upgrade, Major system upgrade, SMC/Salt Batteries



CHLORIDE® EXPERT SERVICES

Advanced certified training, Condition monitoring & maintenance, Site expertise audits, Site surveys

Parts

Obsolescence Management

Get the spare parts you need - guaranteed

Chloride® will define alternative spare parts or kits when a component is made obsolete by its manufacturer. Solution is validated by Chloride R&D department, tested and packaged for replacement. It allows to extend the useful life of the system.

Chloride guarantees that spare parts - or R&D validated equivalents will be available for at least 10 years after the product phase out.

Spare parts

Be prepared for component failure by having them on standby

Chloride recommends that spares are held by client to allow for rapid repair in event of component failure

Make sure you have the parts on hand for every situation. Repairs are inevitable. The key is to be ready when they are needed, so you can replace the necessary parts quickly and easily.

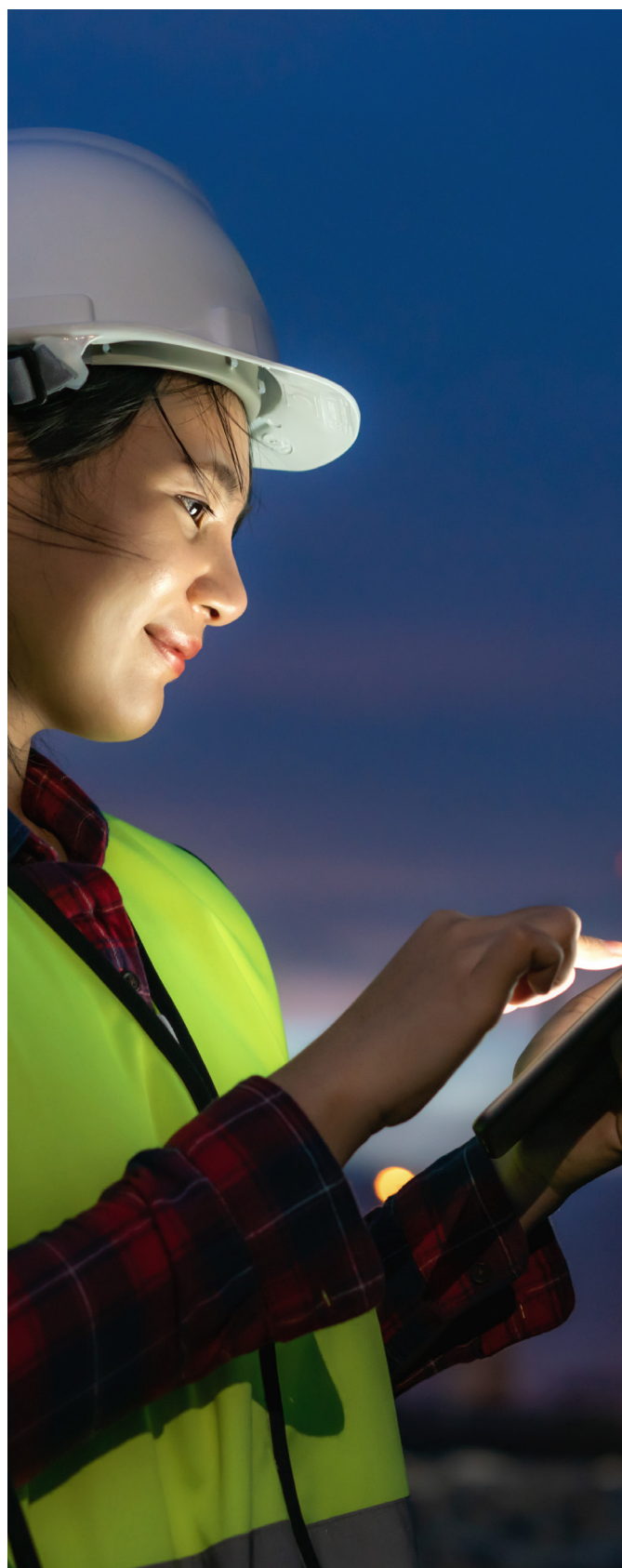
Through our annual service contracts, we provide preconfigured and tested PCB, so you can have the critical equipment you need in stock and ready to plug and play. The annual contract lowers costs and can help you avoid long delivery schedules by permanently stocking dedicated spare parts.

Spares for Stock

We are your peace of mind

Delegate the spare parts management to Chloride by simply telling us the criticality level and the application.

Benefit from reduced cost reduction by including your spare parts stock into an annual service contract with Chloride.



Start-up Services

Warranty Extension

Extend your warranty to achieve greater peace of mind

Chloride® provides three types of warranty coverage:

- Standard Warranty: according to Chloride® Services' Terms & Conditions
- Product Warranty Extension: for contractual warranty extension needs
- Warranty Services Agreement: all-inclusive solution

Extend your warranty to achieve greater peace of mind. Extending your warranty provides several benefits. A technical control visit from Chloride® will include system inspection, cleaning, adjustments and more. Our technical support team is available 24/7, and our intervention team can provide corrective maintenance whenever needed.

VALUE-ADDED WARRANTY SERVICE AGREEMENT IN 4 STEPS

| Contract | Technical Support | Preventive Maintenance | Curative Maintenance |
|---|---|--|---|
| Signed by both parties, includes: <ul style="list-style-type: none">• An agreed period for warranty extension• A detailed list of equipment for covered by the agreement• A detailed explanation of warranty extension coverage | A technical support team available for customers: <ul style="list-style-type: none">• 24 hours per day, 365 days per year• Technical hotline during the working hours• Dedicated hotline for assistance outside working hours | The involvement from Chloride and from the customer to keep the equipment in good operation conditions via: <ul style="list-style-type: none">• Routine Maintenance, done by customer's maintenance team, according to the detailed scope of work provided by Chloride• Technical Control visit: done by Chloride, according to an agreed schedule and which includes: Inspecting/cleaning of the unit, checking/adjustment of system settings, checking of operating conditions unit | Chloride team is ready to go within an agreed intervention time for: <ul style="list-style-type: none">• Corrective maintenance operations taken under warranty• Defined and agreed spare parts policy (kept available by Chloride or on-site) |

Remote Commissioning

Chloride® supports your team for a successful commissioning

Depending on the system type, range and location, Chloride offers remote commissioning services to ensure that your equipment is up and running quickly and efficiently without the need for on-site presence. Preliminary training, remote support and the analysis of the commissioning reports are all offered to ensure the validation of the warranty conditions for your systems and your batteries.

Installation Supervision

Support your site activities with the expertise of Chloride® customer engineers



| Equipment installation | Battery preparation | System cabling |
|---|---|---|
| <ul style="list-style-type: none">• Installing the system in technical room• Ensure Health & Safety requirements are met | <ul style="list-style-type: none">• Fitting and filling the battery cells• Interconnecting battery cells• Connecting the battery to the UPS via battery protection bow (if applies) | <ul style="list-style-type: none">• Interconnecting battery cells• Connecting the battery to the UPS via protection box (if applicable)• Cabling auxiliaries (temperature sensors, battery monitoring, etc...)• Interconnection of all parts of the system |



Commissioning

Trust your commissioning efforts to certified, experienced team

Chloride provides dependable acceptance testing and commissioning services in a wide range of settings. Our customer engineers have the deep knowledge of industrial applications in project conditions to commission full site systems and individual systems exactly as needed — reducing rework, change orders and maintenance costs.

Nearly seven in ten early equipment failures can be traced to design, installation or start-up deficiencies. Inspection and testing performed on electrical power systems and their components before initial power up are crucial.

For Chloride Industrial Uninterruptible Power Supply Systems (AC and DC UPS), we can perform all initial commissioning and tests. Our engineers have received certified training on AC and DC products and their various technologies, and our extensive experience means we can also modify and adapt systems to match your specific site requirements.

Site Operator Training

Get the best out of your project

Chloride provides customized training sessions for facility and maintenance engineers to make sure they are well-equipped to respond to any service requirements.

Proper maintenance requires expertise and well-trained personnel to reduce the risk of human error.



“Maintain your assets and keep them running longer. Most industrial systems are designed to operate reliably for 20 to 60 years — but only if they are properly serviced and maintained. We offer operation and maintenance services to keep your systems running at optimal performance. Our specialists can assess and service your electrical and environmental operating conditions, performing regular maintenance procedures to extend life expectancy of your high value assets.”

Chloride® Service Department

Maintenance Services

Refurbishment and Upgrade

Retrofit, renew and replace equipment as needed

Many systems include **fan cooling**, these fans are mechanical products which will degrade causing the fan to become less effective, reducing the airflow and the fan will eventually fail to rotate.

To ensure the UPS continues to operate and does not overheat, fans should be proactively replaced. The rate of replacement depends on the ambient temperature of the room at 25°C replacement time is typically 5 years, and at 50°C fans should be replaced after 3 years of operation.

Capacitors are not static electrical components which steadily operate in a circuit. Over time internal chemical reactions and leakage current slowly lead to electrical characteristics changes, gradually increasing the probability for a capacitor to fail. Capacitors are an integral part of the UPS and as such failing capacitors can cause load interruption and catastrophic failure leaving your load unprotected and causing damage to your battery system.

Capacitor life expectancy varies with ambient temperature, at 25°C replacement time is typically 8 years, and at 50°C capacitors should be replaced after 4 years of operation.

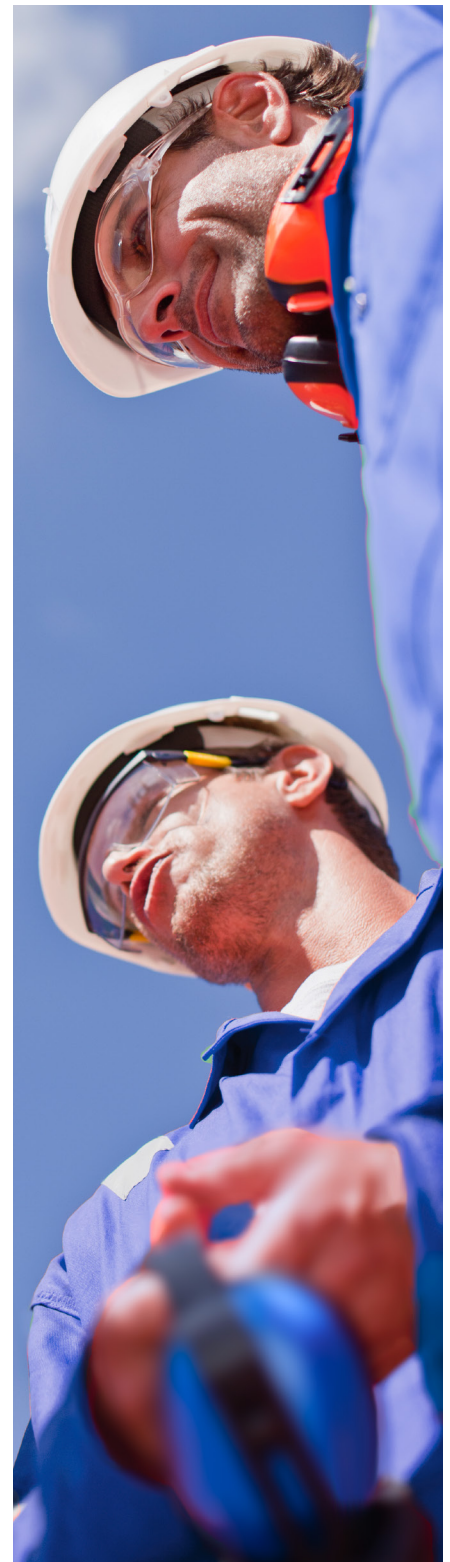
Finally, if a system has been offline for more than 12 months, capacitors should be reformed prior to operation.

Printed Circuit boards (PCB) also have a life expectancy. It is recommended to proactively replace parts prior to failure to ensure that UPS continues to protect the client's critical load without issues. Life expectancy for control electronic boards is typically 15 years at 25°C ambient temperature and 12 years at 50°C.

Auxiliary power supply boards typically have a life expectancy of 8-12 years at 25°C ambient temperature and 4-6 years at 50°C.

Retrofit a **Battery Monitoring system** into your existing installation, the battery will then be monitored 24/7 and can be used to trend battery health and report issues before they become a problem.

The **battery** is one of the most important parts of the UPS system, without it, there is no autonomy in the event of a mains failure. Battery life expectancy varies based on several factors such as battery technology, ambient temperature, and how well the battery was been stored and maintained before and after installation, however as the battery is a chemical product it will require replacing over time. Battery discharge test is the best way to prove battery performance, and when replacement is required, Chloride® can disconnect, remove, and dispose of old blocs, and install replacement blocs in line with battery manufacturers' recommendations, therefore ensuring that critical loads are protected.



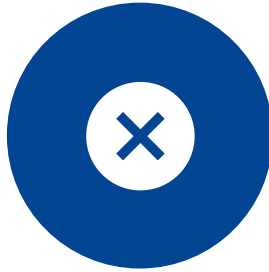
Remedial Works

Retrofit, renew and replace equipment as needed



Repair Services

Our technicians can repair or replace transformers and switchgear/circuit breakers. We can also inspect wiring connections for proper tightness and discrepancies. And we can replace broken or worn out parts as needed, so you can increase availability and improve performance.



Shutdown and Turnaround Services

Build long-term cycle efficiency with a successful turnaround. Whether you call them shutdowns, turnarounds or outages, the fact is they constitute the single largest identified maintenance expense. Chloride's services can help you control costs and limit the duration of the intervention.



Service Maintenance Agreement

Chloride® provides non-stop support to your facility. From planned and pre-outage diagnostics to equipment maintenance, upgrades and repair, we can help you determine the most cost-effective and manageable solution to ensure your asset overall performance, safety and reliability. Our range of services and programs include pre-outage planning, diagnostic testing and electrical maintenance, as well as maintenance and testing, and post-outage report and feedback.

UPS Preventive Maintenance

Preventive maintenance on UPS system and XP system

As the Original Equipment Manufacturer (OEM) of our UPS systems, we can ensure that they are maintained to the recommended standards, including updating firmware updates and in line with the latest customer notifications.

Our maintenance regime can be customised to align with your requirements, visits can vary from a nonintrusive inspection to full in-depth maintenance including cleaning sensitive parts of the UPS, checking mechanical tightness of connections and functional inspections of all UPS assemblies.

Additionally, our engineers are trained on first principles meaning they can maintain and fault-investigate third-party equipment, our expertise doesn't stop with our own equipment!

Life Extension Services

Life Extension Upgrade

Extend the life of your system and your warranty

The components of your electrical distribution system will eventually become worn or obsolete. When this happens, Chloride® can help you upgrade and retrofit your existing electrical assets with the latest technology — at a fraction of the cost of replacement.

Our life-extension services can transform your older equipment, regardless of age or manufacturer, to like-new condition. From preventive maintenance to complete retrofits, rebuilds and replacement breakers, we have the expertise necessary to improve the reliability and performance of your equipment on your site without interruption to your critical load.

An up-to-date Chloride® product technology means the latest features and services are made available to you:

- Improved graphical touchpad display, including 2000 time-stamped event log
- Event-Log export capability which allows enhanced remote support from service engineers
- Opportunities to utilise new ground breaking battery technology such as Sodium Metal Chloride (SMC) batteries - the safest battery compared to the market that allows for prolonged storage without capacity loss and no chemical aging (memory effect)



Chloride® Apodys- E (2009-2010)



Chloride® CP70Z Gen3 (2020)

Sodium-Metal Chloride (SMC) Battery Retrofit

A revolutionary game changer in battery technology

Salt Batteries are high temperature batteries mainly based on Sodium Chloride (Salt) reaction. This technology solves a number of issues encountered when using traditional VRLA or NiCd blocs.

- SMC Battery has real design of 20 years+ (Up to 30 years) - and is not affected by environmental conditions meaning that they can be installed in even the most harsh conditions.
- Due to the materials used they do not generate any emissions, and can be manipulated like de-energized equipment.
- Once de-energized, the SMC cells will revert back to a stable state, allowing for prolonged storage in stock, meaning blocks can be held in the event of failure with no time limit.
- No need for separate battery room - freeing up space and removing the requirement for cooling and HVAC saving operating & maintainance costs.
- The high energy density of SMC blocks mean that less footprint is required compared to traditional batteries, typically 3 times less footprint and 5 times less weight for similar capacity.
- SMC batteries can be repaired; they are 100% recyclable and do not contain any rare-earth materials, they do not contain any corrosive electrolyte to empty and to dispose of meaning that at the end of life, the batteries can be sent to specialized manufacturing sites to be completely recycled: ceramics and salt are reused for road aggregates and metallic parts are recycled for metal alloys.
- Management and monitoring of battery systems can be integrated into Chloride UPS systems - or as a stand alone system with new Chloride HMI (Available for deliveries in 2024).
- SMC Battery systems can be retrofitted onto many existing UPS and Charger systems meaning even legacy systems can benefit from this technology.

No gas emission 

No dedicated battery room 

3 to 5 times footprint reduction 

Fully recyclable 

Integrated UPS monitoring control 





Major System Upgrade

Modify your system for better performance without major capital expenditures

To keep your system running smoothly, you need to be proactive. That often means modifying the system to optimize performance — and nobody has more skills and experience than Chloride® to help you make those modifications.

Our experts can modify the load and control logic, or add new functions such as communication protocols. We also convert single systems to dual systems — whatever is necessary to keep your system running at peak efficiency and performance.

Battery Maintenance & Replacement

In the event of a power outage, a single bad cell in a string of batteries could compromise your entire backup system and leave you without protection. Frequent battery inspections identify weak or failing batteries. Periodic assessments of the cell and string state of health help identify when batteries need to be replaced to ensure system reliability.

How can you be sure your batteries will be there, ready to perform in the event of an outage? Work with Chloride's battery specialists to design a maintenance plan based on recommended testing and procedures that meet stringent government requirements. With our end-to-end battery management services, you can expect:

Battery Testing, Maintenance & Monitoring

- National service network of battery experts available 24/7
- Comprehensive maintenance and testing according to local and national standards.
- State-of-the art load testing equipment and software tools
- Experience with thousands of VLRA, VLA and NiCad battery testing projects
- Monitoring capabilities for early identification of defects and degradation

Battery Replacement

- Competitive prices on all manufacturers' batteries
- Hassle-free removal and proper disposal of spent batteries with management of regulatory paperwork

Systems MRO Replacement

Chloride® Industrial UPS systems are designed to operate reliably for over 20 years. Long term reliability highly depends on electrical and environmental operation conditions.

Regular maintenance by specialists is mandatory to meet these life expectancy figures

Get the equipment fixes you need

Each year, maintenance, repair and overhaul (MRO) are likely needed for at least one piece of equipment in your facility.

Fortunately, those improvements usually come out of the maintenance budget rather than the capital budget.

Chloride® provides a wide range of MRO services, including replacing aging equipment.

Our service experts can help you pinpoint the equipment problem and decide on the best, most cost-effective improvement, from minor repairs and maintenance to complete overhauls.

Even in good environments, key components of the UPS will age and will need to be replaced to ensure that your critical load remains protected, typical life expectancy for components include:

- Fans: Life Expectancy 4 to 5 years
- Capacitors: Life Expectancy 6 to 8 years
- Power Supply cards: Life Expectancy 10 to 12 years

Failure on any of these parts could see unexpected load transfers which can cause costly - in finance and labour resources.

A proactive replacement will ensure that parts are replaced prior to failure, and Chloride® can assist and advise you to ensure continued support.

By using Chloride®, you are assured that appropriate methods are used to dismantle and remount components.

As the Original Equipment Manufacturer (OEM) of our UPS systems, the correct procedures of calibration and setting are strictly followed - ensuring that the same processes are followed on site as they are in our manufacturing locations.



Advanced Certified Training

Specialist training and on new and legacy products

Chloride® can provide advanced training on our full product range - both on current and legacy systems. This offers a range of benefits, including enhanced product knowledge which will improve your teams troubleshooting skills, expanded capabilities and increased their confidence and expertise.

Condition Monitoring & Maintenance

Early detection of potential issues before they turn into major failures

Increased equipment reliability: Condition monitoring allows for the early detection of potential issues, such as wear and tear, component degradation, or other abnormalities, before they turn into major failures. For example by monitoring and trending the ripple voltage of capacitors, Chloride can ensure that an increased ripple is not negatively affecting other parts of the UPS system - such as the battery - reducing unplanned downtime and increasing equipment reliability.

Improved maintenance efficiency: Life expectancy of many components is temperature related, by monitoring and trending the system temperature this is one way that condition monitoring enables maintenance activities to be planned and scheduled more effectively - based on actual equipment condition rather than on fixed time intervals. This can result in more efficient maintenance practices, including reduced maintenance costs, optimised spare parts inventory, and improved labor utilisation.

Extended equipment lifespan: With regular maintenance and condition monitoring, Chloride can use their expertise to identify and address issues that can contribute to premature equipment failure. By addressing these issues in a timely manner, the lifespan of the equipment can be extended, resulting in increased return on investment (ROI).

Increased productivity: Reliable equipment and systems are essential for maintaining smooth operations and production schedules. Condition monitoring and maintenance help prevent unexpected breakdowns and production disruptions, leading to increased productivity and throughput.



Site Expertise Audits

Gain a better understanding of your systems and how to optimize their performance

Before you can fix a problem, you have to understand it. Chloride® offers an extensive array of survey and consulting services to help you identify issues quickly and develop tailor-made solutions.

We help you define technical solutions for your AC/DC UPS. We also have extensive experience solving issues related to distribution, grounding, power quality, harmonics and more. Our Global Services team can help you isolate and resolve problems faster, so you can focus on your business.

We will carry out a full visual inspection of the UPS and its location to confirm environment conditions, ventilation, component condition and software installed. Additionally will inspect the battery condition and any spare parts held by site. From here we will issue a full report noting any maintenance recommendations to ensure critical equipment continues to operate without issues.

Site Surveys

Gain a better understanding of your install base to enable regular maintenance recommendations and criticality of remedial works

Chloride® can preform site surveys to fully assess the equipment you have on your site. This will help in planning a full maintenance regime and identifying when remedial works should take place. Survey will enable us to gather important information about the equipment, its condition, and potential maintenance needs, allowing us to provide you with a comprehensive plan to ensure that your equipment runs smoothly and safely.

Find us on our website !

The screenshot shows the Chloride website's 'Services & Support' page. The header includes the Chloride logo and navigation links: Markets & Expertise, Products, Services & Support, About us, Careers, Newsroom, and Contact us. The main heading is 'Services & Support' with a subtext: 'Chloride provides service and maintenance throughout the life of its products to ensure their longevity. We offer you peace of mind.' Below this is a 'Find us' button. The 'Services & Maintenance' section features four cards with images of technicians:

- Life Extension Upgrade**: Upgrade your AC/DC system to meet power quality, supporting the life of your critical equipment and reducing the risk of system downtime.
- Power System Upgrade**: Upgrade your system for better performance without major capital expenditures.
- Site Expertise Audit**: Gain a better understanding of your systems and how to optimize their performance.
- Site Surveys**: Gain a better understanding of your install base to enable regular maintenance recommendations and criticality of remedial works.

Each card has a 'View Service Details' link.



www.chloride.com



Chloride™
Power to Protect

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