

# Battery Replacement

Equipment Upgrades and Replacements



## Benefits

### Planning for System Reliability

Facilities are dependent upon their electrical power systems to maintain the continuity of their processes and meet production goals. The ongoing reliability and integrity of an electrical power system is based on an established program of maintenance for both the AC and DC systems.

As an electrical system ages, the DC system batteries are the most vulnerable components and will require an ongoing replacement program. The actual service life of your batteries is almost always shorter than the design life indicated by the manufacturer. They lose capacity over time based on age, usage, and operating environment. A proactive battery replacement plan will help ensure your battery system is never compromised.

### Benefits

- Improve system reliability
- Optimize power performance
- Reduce risk of system failure and unplanned downtime
- Minimize emergency replacements
- Ensure environmental compliance



## Ensure optimum electrical power system reliability and compliance with a proactive battery replacement program

Once a battery reaches less than 80 percent of its capacity, it is recommended for replacement. Batteries that are beginning to fail cause an imbalance that adversely affects the life of other batteries in the string. Investing in a battery replacement program that measures available battery life and plans for replacement before end-of-life will keep your power system running within specifications and reduce the risk of failure.

High Voltage Maintenance's (HVM) team of highly qualified DC power technicians have the knowledge and experience to help you manage your DC system batteries and develop a dependable replacement program.

As an accredited company of the International Electrical Testing Association (NETA), we offer unbiased, third-party battery system evaluation and replacement solutions for industrial and commercial facilities and power plants in accordance with the

Institute of Electrical and Electronic Engineers (IEEE), the North American Electric Reliability Corporation (NERC), and NETA requirements. Along with services customized to meet your system needs, our experienced team can provide capacity testing and battery monitoring systems for ongoing assessment and replacement planning. We also offer a mobile DC power solution to ensure a safe and secure DC power system throughout the replacement process.

Our comprehensive battery replacement services include:

- Application engineering and evaluation
- Individual cell change-outs
- End-to-end battery replacement
- Startup and commissioning
- Removal and recycling

## Battery Replacement Services

A proactive battery replacement program ensures that batteries are replaced before end-of-life. The rate of deterioration is difficult to predict and depends on many factors. An effective program should be coordinated with routine maintenance testing and monitoring that informs the replacement planning process.

## Application Engineering and Evaluation

A reliable DC power system starts with selecting the right battery and engineering the optimal configuration for your facility's budget, space requirements and power needs. HVM DC power system engineers deliver customized application engineering and system evaluation services to ensure your system design delivers the best form, fit, and function based on your facility's requirements.

## Individual Cell Change-Outs

Battery failures account for roughly 50 percent of unplanned downtime. A single cell can compromise the entire battery string. Routine maintenance can identify weak cells to target for replacement. Our DC power specialists can perform both ongoing maintenance and replacement services. Our battery experts will identify problem areas and determine which cells can be replaced to restore the integrity of the battery bank and extend its service life. Whether you are replacing like-for-like batteries or switching to a new battery type, our DC power specialists will recommend the best replacement plan and perform all installation services to ensure ongoing reliability.

## End-to-End Battery Replacement

As your DC power system ages, it will require upgrades and battery string replacement to maintain system integrity. Battery capacity may also need to expand to support your growing load requirements over time. HVM's DC power team can help you design a replacement program and deliver an end-to-end replacement solution including expert installation of new cells, startup and

commissioning, and proper recycling of spent batteries. Our battery experts have the knowledge and resources to meet your specific needs, such as servicing difficult to access battery systems or scheduling after-hours replacements. Our technicians work on all major brands, and can leverage our extensive battery purchasing power to offer affordable, effective battery replacements.

## Startup and Commissioning

New battery installations require startup and commissioning to ensure your DC power system has been correctly configured and will perform as designed. Our team will conduct testing to verify the DC power system's ability to support critical loads and its integration with the total power system. All testing is conducted in accordance with manufacturer, IEEE, and NETA testing specifications.

## Battery Removal and Recycling

As part of your battery replacement service, you can trust the HVM team to properly remove and recycle your old batteries in accordance with all government and industry regulations. This includes the management of any regulatory paperwork.

## Battery Replacement Planning

Gathering timely and accurate information on the status of your DC power battery system is critical to developing a cost efficient proactive replacement program. Our battery engineers can help with a customized design that meets your facility's needs.

## Capacity Testing

Capacity testing can assist in the replacement planning process. It is the most effective method for determining a battery's ability to support the required load and estimate its remaining life. Our battery specialists perform all capacity tests per IEEE standards and manufacturer specifications. Tests include load testing with individual cell monitoring to check battery bank capacity.

## Battery Monitoring

Using the Albér® monitoring system to assess your battery strings' performance and detect problems will ensure system reliability and help you know which batteries need replacement. HVM also provides 24x7 remote monitoring services, including monthly trending and reporting, as well as emergency service for rapid incident response.

## Mobile DC Power Services Unit

A mobile power solution that is safe and secure is ideal for performing battery replacement services. With our Mobile DC Power Services Unit, our DC power specialists can confidently perform battery change-outs, inspections, tests, and startup and commissioning services eliminating the risk of power dips or dropped loads.

## Summary

Your AC and DC power systems play an interconnected and equally critical role in ensuring the overall reliability of your electrical power system. Ensuring your DC power system is capable of delivering the capacity you need when you need it is your top priority. A proactive battery replacement program ensures the availability of your total power system and the reliability of your operation.

## Experts In Reliability

HVM's team of DC power specialists will deliver unparalleled expertise providing consistent quality maintenance and replacement services while keeping you safe and compliant.

## Order Information

To learn more about HVM's Battery Upgrade and Replacement Services, please contact us at 1 866-HVM-TEAM or visit [HVMcorp.com](http://HVMcorp.com).