EAGLE EYE
POWER SOLUTIONS

Traditional Load Testing Vs. SMART Load Testing:

Discharge testing is an essential practice for all critical backup battery preventative maintenance programs. Discharge testing provides a controlled approach to simulating outages, and is the only form of battery testing that will determine the actual capacity of the battery string. The financial risks that can occur due to plant downtime, personnel safety, and serious equipment damage are too severe to ignore load testing. However, the costs associated with traditional load testing can be significant due to equipment, time, and staffing expenses. Traditional load testing also involves risk caused by potential of user error. SMART Load Testing offers time and cost savings while eliminating risk.

Example of Cost Savings:

Compare the time savings of performing a discharge test the traditional way versus the SMART way. Field studies reveal time savings up to 6 times (12 times for larger discharge tests) using a SMART load bank versus a traditional with volt meter along with eliminating risk of inaccurate reports and damaged batteries.

Traditional Way of Load Testing:

The traditional way to perform a discharge test involves a traditional (dummy) load bank, a voltmeter, and a dedicated technician (or multiple technicians depending on the battery size). Take a 5 hour test on a 48VDC bank with 24 cells for example. Before starting the discharge test, the technician must go through and record the voltages of every cell and verify that all batteries are fully charged. During the test, the technician will continue to check the cell voltages every 15 minutes while also maintaining the discharge current leaving little time for anything else. The technician must pay close attention to ensure that none of the cells have fallen below end voltage to avoid damage. After the 5 hour test has concluded, the technician will test the cell voltages a final time. With the test concluded, the technician must then write a report on the test.

Best case scenario, a 5 hour discharge test on a 48VDC battery requires 6 dedicated hours of labor from one technician. If performing 10 tests per month, the total labor adds up to 6 hours x 10 tests x 12 months per year = 720 dedicated hours. At $40 per hour with benefits, total annual labor cost to perform the discharge testing alone is $28,800. This number doubles with the addition of another technician as might be necessary with larger 125VDC batteries.

SMART Way of Load Testing:

The SMART way to perform a discharge test involves a SMART load bank with DAC, a laptop computer, and a technician. Take the same 5 hour test on the 48VDC bank with 24 cells for example. The technician must connect the load bank and DAC kit to the battery system, once familiar this process can take as little as 10-15 minutes. The technician will then start the discharge test. During this time, the technician is not required to be at the battery bank as the load bank will automatically control the current, monitor the total and cell voltages every second while simultaneously recording all data accurately in the software. If at any point during the test an end voltage is met, the test will automatically stop discharging and an audible alarm will sound. After the test is complete, the technician can generate a report in the software that will display the recorded cell voltages, discharge current, and total current.

Best case scenario, the technician has dedicated about an hour of labor to the test and walked away with an accurate, detailed report. If performing 10 tests per month, the total dedicated labor adds up to 1 hour x 10 tests x 12 months per year = 120 dedicated hours. At $40 per hour with benefits, total annual labor cost to perform the discharge testing alone is $4,800. Testing of larger battery systems requires little to no extra time as the only extra work required is additional DAC connections.

Conclusion:

Total annual labor savings for discharge testing the SMART way versus the traditional way (utilizing the above example) is $24,000 for smaller batteries and up to around $48,000 for larger batteries that require multiple technicians.