

# HVM Executes Fifth-Year Annual Maintenance Program to Reduce Downtime and Maintain Reliability for a Solar Energy Facility

*HVM partnered with a leading solar energy operator to execute the fifth-year maintenance cycle of a customized, ten-year high voltage program, reducing outage time, maintaining system performance, and supporting long-term reliability and compliance.*

## Background

A leading solar energy operator partnered with HVM to develop a ten-year preventive maintenance program for its high voltage facility, which includes miles of solar panels, multiple substations, battery systems, and other electrical equipment that feeds power back to utility companies. Even brief interruptions in electrical performance can reduce energy production, introduce safety concerns, and create financial impact. Given the facility's role in supplying consistent power to utility grids, maintaining system uptime is essential to meet corporate requirements and sustain operational efficiency.

HVM has partnered with the facility for the past five years, building a relationship grounded in trust, technical expertise, and consistent service. The program originated from corporate requirements for annual maintenance testing, including visual, mechanical, and electrical inspection of all assets. Over the first four years, HVM completed scheduled maintenance, substation work, and annual testing, cataloging each piece of equipment and developing a detailed scope to confirm full coverage. By the fifth year, the program had expanded in scale and complexity, positioning the team to respond quickly to evolving operational demands and tighter scheduling constraints.

## Company Profile

This company operates a large-scale solar farm spanning miles of panels, supplying power back to multiple utility companies. Reliable electrical infrastructure is essential to maintaining consistent energy output and avoiding revenue disruption.

## Industry

Renewable Energy

## Location

Virginia, USA

## Benefits

- Aligned maintenance with corporate requirements and operational schedules to reduce disruptions and financial impact
- Minimized outage time during critical maintenance windows to support consistent energy production
- Improved visibility into high voltage and battery system condition to support proactive decision-making
- Protected long-term asset performance, reducing risk of unexpected failures and costly repairs
- Enhanced safety for personnel performing high voltage inspections

# Challenge

As the fifth-year maintenance approached, the customer requested that the original week-long testing schedule be condensed into a three-day, 24-hour outage to minimize downtime and revenue loss. For a facility generating and selling power back to the grid, every hour offline carries financial consequences. This shift required HVM to quickly reassess the scope, resources, and timing of the project while still meeting required annual maintenance standards. The accelerated timeline increased pressure to complete all inspections safely, thoroughly, and within a significantly reduced window without impacting long-term system performance.

The compressed schedule introduced both logistical and technical challenges. Work needed to take place after hours and over the weekend, requiring multiple technicians and engineers to alternate day and night shifts to maintain continuous progress. Each asset had to be tested in a precise sequence to avoid delays or rework. Coordinating multiple teams across regions, aligning schedules with the customer, and maintaining constant communication required real-time adjustments throughout the project. Executing high voltage testing within such a condensed timeframe demanded advanced technical expertise, disciplined planning, and careful oversight to keep the project on track while preserving operational continuity.

# Solution

HVM responded immediately, rapidly restructuring the fifth-year maintenance plan to align with the compressed three-day, 24-hour outage. The team reassessed the full scope, prioritized critical assets, and developed a detailed execution strategy that accounted for sequencing, shift coverage, and continuous operations. Several technicians worked alternating day and night shifts to perform comprehensive inspections and testing on all high-voltage and low-voltage equipment. This included high voltage and standard current transformers, motor-operated disconnect switches, SF6 circuit breakers, open fused hook switches, and SF6 cap switches. They also tested low-voltage systems such as the AC generator, relay, battery strings, and battery chargers, and performed diagnostic tests, including infrared scanning and oil sampling. Each asset was tested visually, mechanically, and electrically, allowing the team to identify potential issues while maintaining the pace required to meet the shortened schedule.

To keep the project on track, HVM maintained tight coordination with the customer and regional teams, making real-time adjustments to staffing, sequencing, and safety protocols as conditions evolved. This approach allowed the team to navigate the complexity of after-hours work, uphold corporate and industry standards, and complete all testing within the limited outage window. The execution reflects the broader ten-year program, where equipment is cataloged, scopes are clearly defined, and maintenance activities are aligned with operational priorities. Through this project, HVM reinforced its ability to adapt quickly, protect critical assets, and deliver consistent results through strong collaboration across technicians, sales, and operations teams.

## Results

- ✓ Reduced unplanned downtime by completing testing in three days instead of one week
- ✓ Early issue detection prevented disruptions and protected critical equipment
- ✓ Completed inspections improved safety and adhered to corporate and industry standards
- ✓ Consistent high- and low-voltage maintenance supports reliable power generation and revenue continuity
- ✓ Preventive maintenance improved scheduling, resource planning, and reduced emergency repairs

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