Solar Operations

INTRODUCTION

In collaboration with Grace Technologies, Invenergy incorporated a new tool to enhance their electrical safety practices and optimize operational efficiency. Invenergy is a global leader in clean energy solutions, operating wind, solar, storage, green hydrogen, and natural gas facilities. By incorporating the ChekVolt® into their Lockout/Tagout (LOTO) procedures, Invenergy strengthened safety and compliance practices, while improving productivity. This case study delves into Invenergy's industry-leading approach, shedding light on the remarkable outcomes achieved through the strategic partnership with Grace Technologies.

Invenergy has enhanced safety practices, efficiency, and compliance practices streamlining their LOTO procedures and minimizing downtime by integrating the ChekVolt®. Beyond the immediate benefits, partnering with Grace Technologies offered Invenergy additional advantages. Being an American company based in Davenport, IA, Grace's proximity allowed Invenergy to visit our factory and witness the product in action. This firsthand experience further solidified their confidence in the quality and reliability of the ChekVolt®.

The impact of the ChekVolt® goes beyond individual installations. As a leading player in the clean energy industry, Invenergy's adoption of the ChekVolt® sets an example for other organizations to prioritize electrical safety and leverage innovative solutions like Permanent Electrical Safety Devices (PESDs). By implementing the ChekVolt® across solar sites, Invenergy demonstrates their commitment to employee safety, operational efficiency, and regulatory compliance.

- **Discovery:** Invenergy discovered ChekVolt® as a potential solution through a colleague and recognized Grace Technologies' reputation for visual voltage indicators. They collaborated with Pete Storm, a Grace representative, and a US-based distributor to integrate the ChekVolt® into projects.
- **Motivation**: Seeking a safer and more efficient LOTO process, Invenergy needed a non-fused voltage test device compatible with bus connections.

> The appeal of the ChekVolt® lies in its **test points rated for 1000VAC, UL/IP rating for outdoor use, and non-fused design** with high-impedance resistors.

- **Integration Process:** Grace proved to be an excellent partner during the product roll-out. Invenergy visited the Davenport factory to witness the manufacturing process and quickly piloted ChekVolt at a solar site within two months. The ChekVolt® was installed on utility-scale solar inverters with ~630VAC bus connections, primarily used for absence of voltage checks during the LOTO process.
- **User Feedback:** The installation process was straightforward, involving panel mounting and wiring. The only challenge was working at night to minimize solar site downtime. Site technicians enthusiastically supported the ChekVolt®, recognizing its potential to enhance safety and efficiency. They appreciated its easy installation and the ability to perform LOTO procedures independently.
- **Time Savings:** Invenergy performs planned annual maintenance and addresses unplanned faults. The ChekVolt® has particularly aided in efficiently handling unplanned maintenance situations. Troubleshooting inverter faults required the inconvenience of taking

an entire feeder offline or conducting nighttime troubleshooting.

The ChekVolt® significantly **reduced LOTO procedure times, saving approximately 2 hours per inverter**. Downtime to equipment not **directly involved in maintenance was also minimized**.

- **Compliance and Safety:** The ChekVolt® ensures compliance with OSHA and NFPA 70E requirements while enhancing safety and efficiency in LOTO procedures. With its high impedance protected test points, the ChekVolt® enables safe and efficient absence of voltage testing. By providing clear indications of voltage presence and offering reliable testing capabilities, it empowers maintenance personnel to prevent accidental contact with live voltage.
- **Future Adoption:** Building on the success of the pilot project, Invenergy is eagerly embracing the future with plans to deploy the ChekVolt® in additional solar sites. Recognizing the immense benefits it has brought to their operations, Invenergy is excited to extend the reach of this innovative solution across facilities. With the ChekVolt's ability to enhance safety, streamline LOTO procedures, and improve maintenance efficiency, its widespread adoption promises future success for Invenergy's renewable energy operations.

Grace's continuous commitment to advancing electrical safety and providing cutting-edge solutions aligns perfectly with Invenergy's mission to deliver clean energy solutions. The partnership between Invenergy and Grace Technologies continues to thrive, with ongoing collaboration and mutual dedication to enhancing safety and productivity in the renewable energy sector.

Through the integration of ChekVolt®, Invenergy has transformed their LOTO procedures, ensuring safer operations and reducing downtime. The success story of Invenergy highlights the positive impact of incorporating innovative electrical safety products like ChekVolt® into industry-specific operations. Grace Technologies remains at the forefront of electrical safety, empowering organizations to achieve a safer, smarter, and more productive future.

GRACE TECHNOLOGIES

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