

## CUSTOMER CASE STUDY



# COLOCATION

## Power System Assessments for Data Centers

### Customers

- Data centers for a global financial management company and an international networking company

### Challenges

- Inadequate understanding of systems ability to withstand faults and other adverse system problems resulting from aging equipment, environmental conditions, system faults, etc.
- Lack of awareness of arc flash incident energies, flash protection boundaries, and resultant work practices and PPE.
- Changes and additions to the system resulting in uncertainty about the ability of the equipment to withstand or interrupt over currents.

### Solution

- Thorough examination of fault currents, protective devices, flash protection boundary distances, and PPE requirements for workers

### Results

- Improved safety for workers and validation that protective devices were adequate

This case study focuses on two colocation hosting providers supporting a global financial services company and an international networking company. The business owners of both facilities desired improved worker safety by ensuring workers were aware of flash protection boundary distances and PPE requirements; moreover, both businesses desired an understanding of potential hazards and associated risks to their equipment and recommendations to mitigate any identified inadequacies.

Schneider Electric proposed and executed thorough analyses of available fault currents, recommended protective devices settings, flash protection boundaries, and required PPE for workers.

### The Challenge

Our global networking and financial management business partners took proactive stances towards the safety of their data center workers and the resilience of their power systems in the face of meeting customer demand to have their information available 24 hours per



*Schneider Electric proposed and executed thorough analyses of available fault currents, recommended protective devices settings, flash protection boundaries, and required PPE for workers.*

day seven days per week. Specifically, our partners faced the following challenges:

- How do I provide the safest environment possible for my workers in light of the fact that they will need to monitor equipment while it is energized?
- I understand that my electrical system faces internal and external hazards related to environmental conditions, aging equipment, etc.:
- Are our electrical hazard mitigation mechanisms appropriate to minimizing incidents?
- Are breakers and fuses coordinated to improve reliability & mitigate equipment damage?

In addition to these questions, all Data Center facilities encounter the following opportunities to improve efficiencies and reduce costs:

- The average data center consumes the equivalent amount of energy as a medium sized town; 76B kWh were used in 2010 to support U.S. Data centers – that accounted for 2% of all electricity used in the country\*.
- The amount of global data will grow at the rate of 4,300% by 2020\*; data centers will need to grow to hold the data and/or increase efficiency to maintain more data using the same amount of energy.

### The Solution

Faced with having to improve safety and reliability, the most important first action step for a company to take is to understand its current situation. The organization can then move forward to take action to make the necessary changes to get to the desired state of resilience. A proper understanding of current state requires the following:

- Evaluation of the electrical system's protective devices, including relays, fuses, and circuit breakers, and the equipment to which they are



- applied. This will be accompanied by recommended optimum settings for all adjustable devices and a list of deficient equipment to be replaced.
- Calculation of fault current levels throughout the electrical network compared to the interrupting duties of the devices within your system; this is also to include a report indicating equipment ratings and recommendations for improvements.
- A determination of arc flash incident energies and a review of both the mitigation possibilities and the facilities safety program as outlined in the National Fire Protection Association standard 70E.

### The Result

Armed with comprehensive analysis, both Data Center partners had the following information and action steps:

- Confirmation that all analyzed equipment was adequately rated for the projected fault current levels.
- Flash protection boundary distances of each electrical equipment to foster safety for facility workers.
- Recommended Personal Protection Equipment to mitigate risks to workers.
- Optimized settings for over current protective devices to assure system reliability and power availability.



*Faced with having to improve safety and reliability, the most important first action step for a company to take is to understand its current situation. The organization can then move forward to take action to make the necessary changes to get to the desired state of resilience*

