

# CRITICAL INFRASTRUCTURE SUSTAINABILITY

UScellular & MDI Access | Chicago, IL

## High-Efficiency UPS Supports Green Critical Infrastructure

### CHALLENGE

As a large cellular company with sustainability as a key focus, UScellular (USC) partnered with MDI Access (MDI) to build a more reliable and energy-efficient critical power system for USC's data centers, spanning their 48,000 sq. ft. property.

### SOLUTION

By teaming up with MDI, USC substantially decreased data center energy consumption and received significant government rebates. Much of this success can be attributed to installing several energy-efficient Mitsubishi Electric SUMMIT UPSs, amongst other green initiatives to support their critical infrastructure.

### RESULTS

With MDI's support, USC saved significantly on utility and installation costs, and received over \$800k from their utility company to fund their sustainability efforts. Their energy-efficient data centers have optimal support and have experienced no downtime.

**OVERVIEW.** [UScellular \(USC\)](#) is a growing cellular company who needed to upgrade their critical infrastructure to not only be more reliable, but also more sustainable. They teamed up with [MDI Access \(MDI\)](#), their longstanding partner, to research and help develop the greenest and most energy-efficient plan for their data centers. This involved a series of approvals, not only from the Critical Assessment Board but also their local utility company, [Commonwealth Edison \(ComEd\)](#) who would potentially provide financial incentives to companies who are implementing energy efficiency in their operational practices.

**CHALLENGE.** USC needed a critical power upgrade for their data centers. Aging Uninterruptible Power Supplies (UPS) were becoming less reliable and required constant maintenance visits. Simultaneously, USC was trying to implement more energy-efficient UPS systems to decrease data center energy consumption and transition to a more sustainable critical infrastructure. This new initiative would require a long process of research, approvals, and implementation, so USC turned to their longtime partner, MDI, to start the process. As they worked together, Mike Popovic (USC) and Bob Matthews (MDI) developed a plan to make USC's facilities as green as possible. Implementing a new critical infrastructure would also be a labor-intensive process that would have to be carried out very meticulously. According to Mike Popovic, USC's Data Center Manager, "If anything went down in the production data center, it could take months to correct the fault with the system."

**SOLUTION.** Knowing that there was incentive money from ComEd to install energy-efficient critical infrastructure, the team worked with [Franklin Energy](#), ComEd's incentive partner for pre-approval of the project. According to the rules of ComEd, what USC decided to choose for their business needed to be approved as the best solution available. Once the new equipment is approved, they then put money towards the project. MDI worked with the Franklin Group to prepare all the required documentation and calculations required by ComEd. Upon reviewing all the data, capital expenses, and operating costs, they found that payoff for the project was just over 2 years. "We already knew there would be money savings there, and we use that data today," says Popovic. "The utility costs are well below what we were paying 11 years ago." Reliability and energy efficiency were top factors that convinced them to go with Mitsubishi Electric's high efficiency UPS: [The SUMMIT Series® UPSs](#). In addition to being an energy-efficient UPS, the SUMMITs run cooler and quieter in comparison to the previous legacy UPSs the facility had used. Since USC opted for the highest efficiency UPS on the market, ComEd committed over \$300k to the project.

As the project began to take form, the outlined method of replacing the 4 systems would take 12 weeks, doing one UPS at a time, following USC's rules for work on critical infrastructure. "There were only certain times you could do a wraparound maintenance bypass, and to do this kind of work was usually Saturday night going into Sunday morning- 11:45 pm and done by 6 am. Each unit would have to be taken offline during a scheduled window. Then replaced and started up during the next scheduled window," Matthews explains. Matthews and Popovic sat down and determined that there would be over 24 transfers to and from bypass if they followed the initial plan of just switching out one UPS at a time. They determined that this plan was unacceptable due to risk of human error and the fact that they couldn't affect the production load- critical to USC's operations. To shorten the installation timeline and reduce risk, they determined the best course of action would be to bring the generators online, take the A side offline, then install and commission the new equipment. This was then repeated on the B side to complete the replacement and reduced the number of transfers down to 4. Even though USC has an N+1 generator plant as standard, a third roll up generator was brought onsite to further reduce any risk. Full product maintenance was performed on the generator sets, belt replacements were done, and additional work to ensure



that there would be no interruptions during the installation. Taking the load down was just not an option, so installation had to be coordinated and carried out incredibly meticulously.

**RESULTS.** Popovic explains how switching to Mitsubishi Electric SUMMIT UPSs has reduced the company's overall utility costs by lowering their data center energy consumption and increasing their efficiency from 75-78% all the way to 97.9-98%. "The facility was about 25% full and we were spending over \$1M a year in utility costs. Right now, we're almost 100% full and we're spending about \$500-700k a year. That's at 100% full. So think, if we didn't put the Mitsubishi SUMMIT UPS in place, we would have been probably at \$2M a year in utility costs," he says. "We've seen a substantial savings using your products."

Additionally, USC's installation process was significantly shortened from an originally quoted 12-week project to a 4-week one, saving USC approximately \$40k, as well as limiting the possibility of human error. ComEd wrote a check to USC for over \$300k in rebates for this project. Other projects within the 48,000 square foot facility that encompasses the data center and labs have received over \$800k for all their green initiatives.

USC credits MDI with helping them achieve such remarkable milestones throughout their partnership. "Throughout the years, MDI has assisted us with growth with whatever available technologies there are. They also help us with existing old technologies, so they're our one-stop-shop for your [Mitsubishi's] product as well as other data center related components or infrastructure we have here and sites throughout the entire United States," says Popovic.

## ABOUT: **MDI ACCESS**

Located in Chicago, IL, [MDI Access](#) has been a reliable and trusted name in the business of sustaining uptime. They've provided their clients with innovative, cost-effective infrastructure/ critical power and data center solutions since 1992. Their clientele spans the United States, as well as parts of Canada and Asia where they have retrofitted 1M+ square feet of central office and data center space. Whether the project is a large-scale data center, communications facility, cage build out, multi-site rollout or is a small-scale solution, MDI remains committed to their process: define, design, model, construct, commission.

Learn more about MDI Access at [www.mdiaccess.com](http://www.mdiaccess.com).

## ABOUT: **uscellular**

Based in Chicago, IL, [UScellular](#) is an American mobile network operator and was founded in 1983 as a subsidiary of Telephone and Data Systems Inc. As a telecommunications veteran, they are the fourth largest wireless carrier in the United States. They have grown tremendously since their establishment decades ago and continue to be a leader in the industry. USC's journey has involved strategic partnerships with brands like Google and AT&T Mobility, and to date USC has achieved the highest roaming speed for their customer base.

Learn more about UScellular at [www.uscellular.com](http://www.uscellular.com).

## ABOUT THE PRODUCT/ SUMMIT SERIES® UPS

Mitsubishi Electric's energy-efficient [SUMMIT Series® UPS \(500 & 750kVA\)](#) replaces the Silicon (Si) IGBT with advanced capability Silicon Carbide (SiC) semiconductors. Mitsubishi Electric began development of SiC semiconductors during the early 1990s and now offers this proven technology in the SUMMIT Series® UPS.

Efficiency up to 98% is achieved across all load levels with SiC's lower switching losses, high switching frequencies, and improved thermal conductivity range. The SUMMIT Series® UPS achieves the highest efficiency on the ENERGY STAR website when tested in VFI mode. This model also achieves an industry-leading equipment reliability figure of 99.9995%.



## ABOUT US

Since 1964, Mitsubishi Electric has manufactured precision engineered, high-quality [uninterruptible power supplies](#) to protect our customers' mission critical equipment during times of power instability.

Mitsubishi Electric leads the industry in designing and manufacturing reliable, environmentally-friendly UPS systems to extend uptime, prevent data loss, and protect against power surges. [The Critical Power Solutions Division \(CPSD\)](#) offers systems in both single and multi-module configurations in a broad range of kVA capacities.



[MitsubishiCritical.com](http://MitsubishiCritical.com)  
[CPSsales@meppi.com](mailto:CPSsales@meppi.com)  
800-887-7830  
724-772-2555