

ITPro Today™

Tech and Ingenuity Supercharge a Sustainable Hotel

Karen D. Schwartz | Mar 07, 2023

Hotel Marcel in New Haven, Conn., has become the first net-zero hotel in the U.S. by relying on renewable energy. With advanced technology contributions from Lantronix and its Authorized Value-Added Reseller (VAR) Sinclair Digital Services, Hotel Marcel operates completely on its energy-efficient DC microgrid. The hotel's renewable energy solution is powered in part by Lantronix's cutting-edge Power over Ethernet (PoE++) switch.



Hotel Marcel, based in New Haven, Conn., wants to lead the way when it comes to sustainability in the hospitality sector. With this goal in mind, a team of eco-conscious design, architecture and technology experts have built the first net-zero hotel in the United States. Hotel Marcel is also one of only 10 LEED (Leadership in Energy and Environmental Design) Platinum-certified hotels in the country. Since its opening in 2022, the hotel has won countless awards related to its sustainability.

Renewable Energy and Microgrid Technology Power Hotel

To meet its goal of generating all its own power, the hotel relies on renewable solar power onsite to produce electricity for the entire property. Engineers installed triple-glazed windows for efficient insulation; a heat pump system for hot water, space heating and cooling; and elevators that generate their own electricity. Even the hotel's laundry room runs on renewable electricity instead of natural gas.

“ We were very keen on using Power over Ethernet for lighting and intelligent occupancy sensors and integrating it with mechanical blackout and sheer shades to create quiet, dark and efficient rooms . ”

- Bruce Redman Becker, FAIA, LEED AP of Becker + Becker and owner of the Hotel Marcel

Early in the process, Becker's team installed an energy-efficient, DC-powered microgrid for the hotel's converters, microcontrollers and batteries. The localized, solar-powered DC microgrid runs independently of the main power grid and is powered by an Ageto ARC controller, which enables grid services as well as resilience sequencing.

Becker knew from learning about other sustainable hotel endeavors, including the Sinclair Hotel of Fort Worth, Texas, that low-voltage Power over Ethernet (PoE) would make a significant difference. Unlike high-voltage power, low voltage uses



Lantronix SM24TBT2DPB PoE++ Switch

The Lantronix SM24TBT2DPB Smart Managed Gigabit Ethernet PoE++ high-performance Layer 2 managed switch is the only UL-certified switch with true 24x90-watt power and direct high-voltage DC power. It features 52 Gbps switching capacity and complies with the latest IEEE 802.3bt PoE++ standards.

The SM24TBT2DPB can be powered by low-line and high-line AC or DC power and Digital Electricity™ from VoltServer, making it ideal for use in a wide variety of smart building applications. It can provide full PoE++ output on all 24 ports when equipped with the dual hot-swappable PS-ACDC-1200 power supplies or can be configured in “redundant mode,” offering 1080 watts of backed-up power.

For more information, visit: <https://www.lantronix.com/products/sm24tbt2dpb/>

LANTRONIX®

lantronix.com/about-us

less electrical current and sends power and controls on the same cable, reducing the amount of infrastructure required and resulting in greater energy efficiency. These systems also operate at levels as low as 24 volts, making them safer and installable without an electrician.

Lantronix Smart Managed Gigabit PoE++ Switches for Direct, High-Voltage DC Power

To enable PoE throughout Hotel Marcel, Sinclair Digital advised implementing Lantronix's Smart Managed Gigabit PoE++ switch, which would support direct, high-voltage DC power and the latest PoE standard.

According to Sinclair Digital COO Hannah Walker, "Lantronix increased the power of its PoE switch technology to 90 watts as opposed to the typical 60 watts. So if you had a network switch with 24 ports, you can now pass 90 watts per port, which gives you a lot of capacity."



“ Using Lantronix PoE++ switching solutions, we distributed power and controls through the Marcel Hotel by using low-voltage DC, which is the best way to create a sustainable Net-Zero building. ”

– Hannah Walker, COO, Sinclair Digital Services

Racks of switches now populate four original electrical closets throughout the property and are connected via fiber that runs between the floors. The switches power lighting and motorized window treatments and are integrated with the HVAC system. Becker said that the hotel's 55 PoE++ switches have reduced lighting energy use by more than 30 percent.

Breaking Barriers with Net-Zero Energy Usage

With its focus on sustainability practices, it's unsurprising that Hotel Marcel continues to break barriers. Today, it is certified as the only Passive House hotel in the United States. Passive House, which focuses on building energy and efficiency, is a well-established standard in Europe and is gaining popularity in the U.S.

Hotel Marcel's Renewable Energy Source Keeps Power and DC Microgrid Rolling During Outages

The hotel's renewable energy source seamlessly provides power, enabling the hotel to continue operating without disruption, even when there is a power outage.

For example, during a power outage in June 2021, the hotel's on-site power source and DC microgrid continued to provide energy while it hosted a 150-person event.

Power Outage Event duration: 2h 36 minutes

Energy delivered by the DC microgrid: 516 kWh

Carbon-based fuel consumed: 0

Disruptions to the hotel: 0



Graph view of DC microgrid during the electric grid outage

About Hotel Marcel

Hotel Marcel started life as the Armstrong Rubber Company Building in 1968. After a period of vacancy in the late 1990s, the building was listed on the Connecticut Register of Historical Places in 2020 and then the National Register of Historical Places in 2021. Those designations added challenges for converting the building into an eco-friendly hotel. But with a steadfast vision by lead architect, developer and owner Bruce Becker, along with partner Sinclair Digital, the hotel opened in spring 2022 and is now a model net-zero energy hotel.

About Sinclair Digital Services, Inc.

Sinclair Digital recently expanded from its role as a traditional hotel developer to a consultant that partners with hotel developers to choose and implement PoE and other energy-saving technologies. It had previously built the Hotel Sinclair using energy-efficient materials, including the Lantronix PoE++ switch.

About Lantronix

Lantronix Inc. is a global provider of secure turnkey solutions for the Internet of Things (IoT) and Remote Environment Management (REM), offering Software as a Service (SaaS), connectivity services, engineering services and intelligent hardware.