> **“We always look for new and innovative ideas and solutions to address our properties with high energy cost. Sunland Park and Cielo Vista are two that fit that bill.”**
>
> *— Andy Marsh, Senior Manager Mission Critical Systems*

emacx SYSTEMS
demand side management
and microgrid solutions

case study

Simon Property Group, Inc. headquartered in Indianapolis, Indiana, is a real estate investment trust engaged in the ownership, development and management of retail estate, primarily regional malls, premium outlet centers and community/lifestyle centers. Through its subsidiary partnership, it currently owns or has an interest in 324 properties in the United States containing an aggregate of 245 million square feet of gross leasable area in 41 states plus Puerto Rico. Operating modern shopping malls requires large chiller plants and HVAC equipment particularly for common areas. Individual tenants and retail space are typically submetered.

optimized loads

- Air Handler Units (AHUs)
- Pumps
- Chillers
- Exhaust Fans
- Compressors

emacx installation

- Energy Management Platform Aciex Hardware and Software
- Submetering
- BMS interface hardware
- Chiller mother board upgrade for remote control

financial & environmental impact

kW savings

Sunland Park Mall: **29 Points of Control** achieved
310 kW peak load reduction
Cielo Vista Mall: **13 Points of Control** achieved
135 kW peak load reduction

simple payback

Sunland Park Mall: **1.93** Years
Cielo Vista Mall: **1.89** Years

avoided generation capacity to power

Sunland Park Mall: **9** Homes
Cielo Vista Mall: **2.9** Homes

avoided CO2 generation equivalent

Sunland Park Mall: **177,698** miles driven by an average car
Cielo Vista Mall: **56,798** miles driven by an average car

a challenging need

With over 245 million square feet of leasable property, Simon Property Group was seeking a solution which would allow them to leverage the most innovative and advanced intelligent Peak Load Control systems, Aciex for properties with high energy costs. Historically, they have tried to reduce peak load in certain properties "manually" through load shifting and other measures. However, the results were not satisfactory and certainly not sustainable. Furthermore, a higher level of automation allows the individual properties to participate in DR events with more sustainable revenue.

a powerful solution — aciex

Simon realized that there needed to be an intelligent middleware solution between their new metering installation and the BMS upgrade in order to intelligently control their demand. An Emacx Energy Engineer worked with Simon to understand their operation, the mission critical systems, tolerances, and goals in order to develop an appropriate energy management solution. Emacx proposed a system not only including intelligent demand control capabilities, but also intelligent demand response as well.

The Aciex intelligent Peak Load Control (iDC) Application Module curtails the peak power within the utility interval of a facility through a sophisticated feedback-control process that operates in a fail-safe mode. These loads are automatically controlled to ensure maximum benefits and monitored without compromising building comfort. Trending charts synchronized with imposed utility billing interval equipped with intelligent monitoring technology and state-of-the-art microelectronics, Aciex measures and regulates power demands in real-time. Connected loads are curtailed to ensure that aggregate power demand remains below the desired threshold, based on live energy data and end-users' priorities. Aciex therefore mitigates disproportionately expensive demand peaks while maintaining end-user operations and comfort. By gradually changing the power flowing to individual components such as air handlers, fans, motors, and pumps, Aciex also avoids the destructive stresses associated with on-off demand controllers (both manual and automatic). Aciex was seamlessly integrated into the existing BMS system.

Emacx also educated Simon on how they could deploy intelligent demand response automatically in addition to day–to-day intelligent demand control. One feature our intelligent demand response software has is to initiate a DR-event with a hot button triggering the load shedding automatically.

Once the system was up and running Simon gained additional benefits from the system's robust M & V archiving. They now collect information that allows them to review past history load profiles, optimize the system, and troubleshoot, as well as, real-time power readings of all connected equipment like AHUs, pumps and chillers! The system has proved to be an affordable solution to a variety of needs including cost-savings, energy management, and monitoring that will produce benefits for years to come.