



PROJECT AT A GLANCE

CUSTOMER

Magnolia School District

ABOUT

Located in Anaheim, CA,
MSD serves 6,000
Pre-kindergarten through
sixth grade students.

OPPORTUNITY

Eliminate Overnight Load
from plug load devices.

SOLUTION

520 Bert Smart Plugs running
Measurement, Control, Analysis
and Threshold.

RESULTS

Baseline Load Reduction:
31% Reduction

Annual kWh Savings:
69,901 kWh

OPPORTUNITY

Controlling plug and hardwired loads is important to districts like Magnolia School District in Anaheim, California. From projectors to laptop charging carts and Smart TVs, technology has taken hold in classrooms. Unfortunately, these loads are not managed by building automation systems, meaning MSD had no way to automatically turn devices off when the staff went home. Devices ran 24/7 - even though school buildings were empty about 70 percent of the time.

SOLUTION

Magnolia selected ENGIE Services U.S. to develop and deliver a district-wide sustainable energy program that is expected to save over \$14 million in energy costs over the life of the project. The comprehensive program included new HVAC units, HVAC/lighting controls, solar shade structures and plug load management.

During the Investment Grade Audit, Bert identified over 500 devices, including vending machines, printers, copiers, projectors and smartboards throughout the district's nine schools that could be turned off nights and weekends. Using exclusive data from years of plug load energy management along with the detailed audit data from the schools, Bert engineers calculated the district could save almost 52,000 kWh annually. Based on the savings estimate, Magnolia and ENGIE moved forward with Bert, ordering 520 Bert Smart Plugs.

Bert also identified over 100 Smart TVs that were not included in the savings estimate because the TVs contained processors managed by the district's IT department. Bert does not usually install Smart Plugs on computers because many IT departments want the ability to perform overnight updates. At Magnolia, Bert worked with IT to coordinate a schedule that allowed Bert to turn off the TVs without impacting computer updates.

Meet BERT Your energy control freak.



MAGNOLIA SCHOOL DISTRICT

By controlling the Smart TVs, Bert significantly increased total energy savings while keeping the number of Bert devices installed the same. Bert installers were able to plug the TVs and projectors/smartboards from the same outlet into a single Bert. In TV-only locations, Bert substituted higher load TVs for some of the smaller load devices listed on the IGA. Detailed information about the installation - including the location, device(s) being controlled, and the Bert MAC address was captured real-time - allowing Bert to give ENGIE and Magnolia immediate "as-builts" that reflected all changes.

"We know the energy savings are guaranteed so we do everything we can to meet or exceed our IGA savings estimates," says Bert Project Manager, Eduardo Ramirez. "By taking the extra time to work with MSD's IT department, total kWh savings for the project increased by 35 percent," he adds.

RESULTS

Bert eliminated the Overnight Load at Magnolia School District. After the TVs were controlled, annual kWh savings rose from 51,875 kWh to 69,901 kWh.

ACTUAL HOURLY STANDBY LOADS - ALL MSD DEVICES

Actual Hourly Baseline Standby Load: 46 Watts

Actual Hourly Daytime Standby Load: 97 Watts

Actual Hourly Overnight Standby Load: 22 Watts

ACTUAL HOURLY STANDBY LOAD - SMART TVS ONLY

Actual Hourly Overnight Standby Load: 33 Watts

THE POWER OF BERT

When it comes to Intelligent Buildings, Bert controls the small things and delivers big. With 30,000 units installed in over 700 buildings, Bert's end-to-end solution typically lowers plug load expense by at least 30 percent, saving users over 5 million kWh annually. Using patented technologies and the facility's existing Wi-Fi network, Bert remotely measures, analyzes and controls plug and hardwired loads, ranging from individual 120V/15A devices to 277V/20A circuits. Frequently installed as a standalone solution, Bert delivers even greater value by integrating miscellaneous electric loads to Building Automation Systems (BAS), enabling the BAS to control all building loads and to collect additional measurement, temperature and other building data for increased efficiency and comfort.

Learn how K-12 schools, colleges, offices, local governments and sporting venues save money and energy by visiting www.bertbrain.com.

MEASUREMENT



Real-time energy usage data by device, group, or building for hour, day, week, month or year. Most recent measurement data also stored locally for backup.

ANALYSIS



Administrative software; analyzes energy consumption; runs M&V reports; creates and stores multiple schedules including; School Year, Vacation, Demand Response and Load Shifting.

CONTROL



Mass remote control logic turns loads off nights, weekends and holidays when buildings are unoccupied. Plug devices into Smart Plugs and wire circuits with Inline Series Berts to control plug and hardwired loads.

THRESHOLD



Prevents sensitive equipment from turning off until the shutdown cycle is complete or the compressor has turned off.

TEMPERATURE



Real-time temperature data and temperature-based control using high/low set points.