The Outlet

Silicon Valley Power, City of Santa Clara
1500 Warburton Avenue
Santa Clara, CA 95050
www.siliconvalleypower.com

Powering The Center of What's Possible

The Outlet

Powering The Center of What's Possible

Inside this Issue:

Limited Time 100% Bonus Rebate to Replace Fluorescent Lamps

Connect to Savings With Networked Lighting Systems

What Is Insulation R-value and What Does It Measure?

Silicon Valley Power Adds New Diverse Renewable Resources

Employee Profile: Jeffery Duncan

Would you like to read about a specific energy topic? Let us know by email at: savemoney@svpower.com

Silicon Valley Power Adds New Diverse Renewable Resources

Recently, Silicon Valley Power signed a power purchase agreement for a new 300 megawatt (MW) wind project in Baja, Mexico. This project will be our largest wind power purchase to date. The utility also signed a new Agreement for 100 MW of geothermal power located in the Geysers area in Sonoma County. Unlike other renewable resources, such as solar or wind power, geothermal power will add an additional generation resource to our power mix that is available 24 hours a day. Both projects are anticipated to begin delivering power in January 2025. Silicon Valley Power is also working to extend Agreements for existing large and small hydroelectric projects through 2028, which provide 125 MW of clean power to Santa Clara.

These new wind and geothermal resources help contribute to the City of Santa Clara's Climate Action Plan goals, as well as Senate Bill 100 (SB 100), California's 100% Clean Energy Act of 2018. They also help meet the load growth in Santa Clara due to economic development and increased demand due to building and transportation electrification.

For more information about our current generation resources, visit SiliconValleyPower.com/PowerMix

The Outlet

Silicon Valley Power's Quarterly Newsletter for Business

March 2023 • VOLUME 23, ISSUE 1

Powering The Center of What's Possible

Limited Time 100% Bonus Rebate to Replace Fluorescent Lamps

Under Assembly Bill 2208 (AB2208), California is set to begin phasing out compact fluorescent lamps (CFLs) and linear fluorescent lamps in 2024. The intent is to remove mercury from lighting. Over the last ten years, LED lighting has become an increasingly available and cost effective replacement to fluorescent lamps. LEDs also last significantly longer, which reduces maintenance costs, and they are more energy efficient than their fluorescent counterparts.

In response to this bill, Silicon Valley Power launched a bonus rebate last year to provide additional incentives for businesses in Santa Clara to switch to LEDs before the end of 2023. These bonus incentives are available for replacing pin-based CFLs and linear fluorescent tubes with LEDs. The bonus incentive doubles the rebate from $0.15 per kWh to $0.30 per kWh based on first year energy savings, limited to 100% of the equipment cost.

Rebates are paid based on calculated energy savings so retrofitting areas with high operating hours will have the best payback period. Because LEDs last significantly longer, businesses will also see maintenance savings due to the longer lamp life.

Santa Clara businesses are encouraged to contact one of our energy engineers to discuss options to upgrade your lighting to LEDs. Projects must be implemented before the end of the year to take advantage of this funding. Once the legislation goes into effect in 2024, Silicon Valley Power will no longer be able to provide rebates for LED upgrades to linear fluorescent or pin-based CFLs, as these will now be part of the energy code requirements. All projects require pre-approval before installation to be eligible for a rebate.

If you are unsure where to start, talk with one of our energy engineers or contact a Silicon Valley Power Trade Ally Network lighting contractor for a bid. These contractors have received training on our rebate programs and can assist in filling out the application forms. We always recommend obtaining multiple bids for any project.

For more information, visit SiliconValleyPower.com/lighting or contact an SVP energy engineer at 408-615-6650 to schedule a pre-inspection.

Connect to Savings With Networked Lighting Systems

Lighting controls have been in use for decades, but networked lighting control systems really connect the dots. In these systems, individual components can exchange digital data to optimize energy savings and lighting performance. One study showed that these control systems could provide an average energy savings of 49%, and possibly more, depending on building type.

How networked lighting control works

Although networked lighting control systems vary somewhat by manufacturer, they generally contain the following elements:

- Connectivity. Individual fixtures and control devices are capable of exchanging data with other devices within the system, as well as a central controller.
- Sensors measure occupancy and light levels, as well as other indoor environmental conditions, such as temperature and humidity.
- Information processing. Inputs from sensors are combined with programmed information (such as operating schedules) to identify and implement control settings to optimize lighting.
- User interface. Generally online or through an accompanying app, this allows system users to review information, configure control settings or control individual fixtures.

Controls form the heart of networked lighting systems and provide the savings. Most systems have the following control capabilities:

- Occupancy sensing. Turning lights on or off based on the presence or absence of people in a space.
- Daylight harvesting. Increasing or reducing light levels based on the amount of natural light in an area.
- High-end trim. The ability to set the highest light level for a space or group of fixtures.
- Scheduling. Automatically controlling lighting equipment based on time of day, week or year.
- Personal control. Individuals have the ability to adjust light levels for a fixture or group of fixtures in a space.

Some systems also have luminaire level lighting control, in which each fixture contains an occupancy or daylight embedded within the fixture itself.

Savings with networked light controls

According to a study by the Northwest Energy Efficiency Alliance and the DesignLights Consortium, networked lighting controls can provide average energy savings of 49%. Although all building types realized energy savings, warehouses (68%), offices (64%) and restaurants (59%) had the highest levels of savings.

A number of factors can impact energy savings in networked lighting control systems. These include building characteristics and occupancy patterns, as well as control strategies and settings used.

Although there is some similarity between different building types, individual building characteristics do play a role in how much energy savings can be achieved through networked lighting controls. Buildings with long operating hours and varying occupancy patterns can generally realize the greatest savings.

Savings are also dependent upon the control strategies and settings chosen. For example, implementing high-end trim can have a significant impact on energy savings. Shorter occupancy timeouts can also deliver greater savings.

Layering multiple control strategies can provide additional savings. Proper installation, programming and commissioning are also critical to optimizing savings.

Lighting controls provide healthy savings for a hospital

Toronto General Hospital installed a networked lighting control system in its non-patient common areas. The system detected daylight and occupancy for lighting controls. Additional capabilities included tuning light to specific tasks, load shedding (distributing demand for electrical power across multiple power sources) and personal control. The control system reduced lighting energy consumption by 74%, according to a case study, for estimated annual savings of $47,000.

continued from the article Connect to Savings With Networked Lighting Systems

Staff cell phones were linked to the lighting system to evaluate occupant movement patterns. This approach improved patient locating and transport scheduling.

As the hospital case study shows, networked lighting controls can also be integrated for use in other applications, such as asset tracking and wayfinding, that can save money and improve operations. If your lighting system is older and in need of an upgrade, consider getting it connected.

What Is Insulation R-value and What Does It Measure?

Building envelopes (walls, windows, doors and the roof) let heat in and out. This happens by heat conduction, convection and radiation. Insulation slows down this heat flow. The ability of insulation to resist heat flow is measured in R-value.

For insulation, R-value is the measure for overall thermal performance. The R-value indicates an insulation's resistance to heat flow; the higher the R-value, the greater the insulating effectiveness.

The R-value depends on the type of insulation and includes its material, thickness, and density. ASHRAE 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings recommends minimum roof insulation values from R-20 to R-35. Commercial wall insulation recommendations range from R-13 to R-25, depending on climate.

Employee Profile:

Jeffery Duncan

Senior Meter Technician

Background: Before coming to Silicon Valley Power (SVP), Jeffery worked in the electrical department for a coal mine and cement plant for 10 years. His work there was incredibly demanding due to the harsh conditions, but it helped him build up his skillset. In his current role as a Senior Meter Technician at SVP, Jeffery is responsible for installing and maintaining electric meters used for billing customers for their energy use. Jeffery is also responsible for ensuring accuracy of the meters.

Comment: Jeffery appreciates the opportunity to serve his community. "I enjoy working through the process of helping a customer get power for a new home or business. It makes me happy when I see a smile on their face."

Favorite pastime: When he's not working, Jeffery enjoys spending time with his family. He also enjoys watching boxing and collecting boxing memorabilia. "Boxing motivates me. Seeing the greats like Mike Tyson inspires me to be the best that I can by trying different things and being who I am."

Working at SVP: Jeffery appreciates working with his colleagues at SVP. "We do a lot of team building here. It feels like I'm a part of a family. It's the best place I've worked and I wouldn't want to move anywhere else."