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Meet your sustainability goals in 2020

SANTA CLARA greenpower is an easy and cost-effective way to reduce your business' environmental impact and support local, independently certified wind and solar projects. SANTA CLARA greenpower offers business participants three 100 percent renewable energy options to fit every business' budget and sustainability goals. Participating in SANTA CLARA greenpower encourages new wind and solar projects on the electric grid by increasing the demand for renewable energy.

Businesses across Santa Clara have continuously participated in this successful community program for over 15 years. In 2019, business customer enrollment made up over 318,000 megawatt hours of renewable energy, contributing to 92 percent of program sales. Businesses who participate are provided with valuable marketing opportunities to differentiate themselves and become a Santa Clara environmental leader. Silicon Valley Power offers a variety of options based on your participation tier, including marketing collateral, social media recognition and business features.

To learn more about joining the community of local businesses supporting green power, visit siliconvalleypower.com/green.

Meet your sustainability goals in 2020

Although lighting is critical for maintaining a comfortable indoor environment for staff, customers and visitors, it accounts for more than 20 percent of energy use in a typical commercial building.

A lighting upgrade can reduce operating costs substantially, but it should involve more than just selecting the most energy-efficient products available. Through careful planning and equipment selection, you can create a lighting system that optimizes visual comfort and makes the most effective use of the available space.

Equipment options

When choosing equipment, keep in mind the effectiveness of the overall system.

• Lamps — Lighting technology is undergoing rapid change as traditional incandescent, halogen, fluorescent and high-intensity discharge sources are being replaced with solid-state LED lamps.

• Sensors — There are a variety of sensors available to reduce the energy consumption of lighting systems. Occupancy and vacancy sensors use either infrared or ultrasonic techniques to detect motion in a space. Photosensors can be used with daylighting controls to dim or turn off lights when adequate natural daylight is available.

• Fixtures — When upgrading, you can replace just the lamp, use a retrofit kit or replace the entire fixture.

Some lamps use the existing ballast and can be “dropped in” the existing fixture. Others require bypassing the ballast and wiring the lamp directly to supply voltage. New fixtures have a higher initial cost but deliver the best light quality.

Lighting system design

A lighting upgrade will have the most impact if the system is designed to match the specific needs of the application and space. Key considerations include light quantity, light distribution and color quality.

• Quantity — The quantity of light needed depends largely on the application or the tasks being performed. The Lighting Handbook, published by the Illuminating Engineering Society, provides recommended light levels for a variety of applications and visual tasks. Space dimension, the availability of outdoor light and surface reflectivity are also important factors.

• Distribution — Direct down-lighting fixtures are commonly used because they provide good illumination at floor level, but they can also leave walls and ceilings dark and create glare. Indirect fixtures illuminate the ceiling and upper walls, where the light is reflected downward. Indirect lighting improves visual comfort and illuminates areas using less light, but its more effective in areas with ceiling heights of 10 feet or more.

• Color quality — Two measurements define color quality: correlated color temperature (CCT) and color rendering index (CRI). CCT describes the color appearance of a light; a low CCT creates a warm,
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relaxed atmosphere, like you would find in a public space, while a high CCT fosters a more focused environment, such as an office setting. CRI indicates how well a light displays colors on objects; the higher the CRI, the more accurately it displays colors.

Work with a qualified lighting specialist to make sure you have the right lighting design to match your needs.

Controls

Automatic lighting controls can reduce lighting cost by 50 percent or more. Start with the first type and add the others in a layered approach.

• Timers
• Occupancy/vacancy
• Task tuning
• Daylight harvesting
• Personal control
• Demand response
• Receptacle control

Optimize efficiency through system maintenance

The benefits of a lighting upgrade will not last long if the system is not maintained properly. Over time, lamps burn out, light output decreases, and dirt accumulates on lamps and fixtures.

Address maintenance at the beginning of the upgrade process. Simplify maintenance schedules by using as few types of light sources as possible. Consider group relamping; not only does it save on labor costs over traditional spot relamping, it also ensures brighter, more uniform lighting.

1. Technology assessment

Start with a building technology systems assessment that considers facility age and location, computing power, technology infrastructure and compatibility with IoT technologies. Examine all documentation relating to building design and construction, as well as systems installation and maintenance. Lighting, HVAC and mechanical systems, as well as telecommunications and electrical infrastructure, are critical to the success of a smart building upgrade. A detailed analysis of these systems will determine what measures need to be implemented to improve building intelligence.

2. Establish priorities

Using information from the technology assessment, develop a list of system modifications and smart technology upgrades needed to take your building from where it is now to where you want it to be. Rate these measures in terms of their importance to your smart building upgrade. Review each item in terms of potential roadblocks to implementation. These could include budget issues or technology gaps with legacy systems. Modify your list in terms of those measures that must be implemented quickly and those that can be deferred for future implementations.

3. Develop a plan

Develop and implement a smart building upgrade plan that aligns with the current and desired future state of your facility, as well as your overall organizational strategy. Consider how the upgrade process will affect your budget, operations and your business objectives. A multiyear upgrade plan will allow time for resolving budgetary issues, scheduling for facility interruptions and making modifications due to changing organizational goals and emerging technologies.

4. Design and implementation

Now, it’s time to start making your intelligent building a reality. Carefully research and evaluate smart technologies from a variety of vendors. As with any new technology, testing and performance standards for smart systems are in their infancy. It’s important to ensure that devices provide the intelligent integration that manufacturers claim. Also, make sure that smart devices and systems under consideration are compatible with your overall goals and upgrade plan.

By carefully implementing and applying IoT technologies in your facility, you can reduce installation costs in the short term and maximize building system performance and efficiency down the road. See Smart Controls from the National Institute of Building Sciences (wbgd.org/resources/smart-controls) for more information.

Update on SVP generation resources

Senate Bill 100 was passed in 2018 and set the target for the State of California and all electric utilities to be carbon neutral by 2045. Through decades of careful planning and partnerships with other public power utilities, Silicon Valley Power (SVP) has developed a portfolio of electric generation resources that is both geographically and fuel diverse to ensure a reliable and sustainable power mix.

In 2018, several of the transmission lines to our generation facilities were impacted by wildfires. At the peak of the fire season, over 130 megawatts (MW) of carbon-free resources were undeliverable to Santa Clara. Currently, over 50 MW of renewable generation resources remain unavailable until transmission lines are repaired. We anticipate 30 MW to be back on line by end of the first quarter 2020. In addition, one of our state-of-the-art natural gas power plants that uses the best available control technology is currently offline for mechanical repairs, adding 72 MW to our generation deficit.

In order to supply power to our customers when resources are unavailable, SVP must purchase power from available resources on the electric grid to make up the difference. Based on what is available in the energy market, the result is that the resources we delivered in 2019 and plan to deliver in 2020 may have a higher carbon content than the resources we had to replace. SVP is committed to providing the cleanest power possible and is working to bring most of our generation resources back online before summer.

Riad Sleiman

Principal Electric Utility Engineer

Background: Riad spent the first 14 years of his career at Burbank Water and Power, where he gained a 360-degree perspective of the transmission and distribution sides of electrical engineering. He was hired by Silicon Valley Power (SVP) because of his detailed knowledge of and experience in leading groups such as System Planning, Customer Engineering and Engineering Analytics. He is currently working to modernize SVP’s geographic information system. This process involves integrating all advanced meter data in order to track and maintain assets so that the utility can proactively identify problem areas before they become issues.

Comment: Riad was excited to join SVP because the utility is growing at a rate that is unparalleled in the industry. “SVP is small, but it’s big. No other utility is experiencing the same type of growth as SVP. We have big customers, big electrical loads and a big future.”

Favorite pastime: “I build robots in my free time,” Riad said. “I am currently building a robot that can process music tones and dance to the beat!”

Working at SVP: “I’m so grateful to be around people who are happy to be at work. You can clearly see that everyone at SVP is really invested in the work they do. Everyone wants to do whatever they can to move the company forward.”