SOUTHERN CALIFORNIA EDISON®
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**Contact your account representative for additional information and assistance.**

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– www.sce.com

**Energy-Related Learning**
– www.sce.com/ctac
– www.sce.com/agtac

**Statewide Transmission System Status**
– www.caiso.com

**Utility Regulation**
– www.cpuc.ca.gov
– www.energy.ca.gov

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**INDUSTRIAL SEGMENT**

SOUTHERN CALIFORNIA EDISON

# POWER BULLETIN

VOL. 9 No. 11 November/December 2009

# Strengthening SCE's Electric Network: Transmission Projects

Even as the current economic downturn is causing many businesses to reduce operations, Southern California Edison (SCE) must still serve new customers and continue to build facilities now to meet anticipated new loads in the future. To keep pace and ensure future service reliability, several years ago SCE began a major infrastructure expansion and replacement project. Between 2001 and 2007, SCE invested approximately $1.84 billion in transmission and sub-transmission projects.

SCE continues to make significant investments in our transmission grid to serve new customer load, maintain reliability, access renewable energy resources, and support a competitive and robust electricity marketplace. Current plans are to invest approximately $4.9 billion in additional transmission infrastructure over the next five years as part of an up to $19.8-billion investment to expand and renew the region's essential distribution and transmission grids, making the power grid greener and smarter for SCE's customers. Transmission investments include projects that are expected to:

- facilitate the development and delivery of renewable resources to customers,
- maintain reliability of the electric system,
- reduce system congestion and related customer costs, and
- serve growing customer load in the long run.

The projects that make up SCE's transmission expansion program will ensure that California businesses and residents have the solid, robust transmission system essential to a dynamic region. A list of SCE's current and completed transmission projects is available at ***www.sce.com/PowerandEnvironment/Transmission.***

SCE also is making substantial investments in new substations, transformers and distribution facilities, plus advanced technologies that will move us toward a more integrated "Smart Grid."

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## Supply-Demand: Looking Back at 2009

As SCE looks ahead to further strengthening our system to meet customers' future energy needs, we look back on a relatively mild summer in which we reached our 2009 peak demand (21,786 megawatts (MW)) on Sept. 3, 2009. (SCE's all-time system peak of 23,303 MW occurred on Aug. 31, 2007.)

Despite a summer that did not see major heat storms, SCE still tapped into some of its demand response and interruptible programs to meet power needs when transmission or distribution issues occurred that impacted the power delivery grid.

Even though this summer did not have any high and extended temperature events, that does not mean next summer will follow suit. The National Weather Service has predicted a mild El Niño this winter, and that is usually followed by higher summer temperatures.

SCE continues to develop additional levels of customer energy-efficiency and demand response programs, in addition to existing programs, to help meet future grid needs and help you improve your bottom line.

So, contact your account representative to discuss 2010's energy-efficiency and demand response programs that can enable you to help keep the electrical system whole and save energy and money.

For more information on all of SCE's programs to assist you in improving your bottom line, visit ***www.sce.com/b-rs/large-business/***.

## Put Your Energy Into Holiday Savings

Here are some simple tips to help you celebrate the holiday season more efficiently and safely:

*Efficiency Tips:*

- Select more efficient LED (light-emitting diode) or miniature lights, or use lower-watt bulbs as replacements for standard strings.
- Set holiday lights on a timer so they do not stay on longer than needed.
- Replace standard lighting with compact fluorescent bulbs, halogen lamps and high-intensity discharge lights (HIDs) for year-round savings.

*Safety Tips:*

- Only use UL (Underwriters Laboratories Inc.)-approved lighting and cords.
- Do not insert nails or tacks through any electrical cords, and replace damaged, brittle or frayed cords.
- Keep electrical connectors off the ground and away from moisture.
- Never use lighted candles on trees or decorations.
- Keep holiday lights away from carpeting, furniture, drapes or other combustible materials.

For more information on energy efficiency and safety, visit ***www.sce.com***.

**INDUSTRIAL SEGMENT FOCUS**

# Fume Hood Sash Controller Cuts Airflow to Save Energy

*Automated sash controls save a local biotech company $2,517 in energy costs per fume hood each year.*

Fume hoods are known for protecting laboratory personnel against exposure to hazardous and toxic materials. Unfortunately, they are also known as energy hogs. In fact, a single hood running 24 hours a day consumes roughly three and one-half times more energy than the average house, said Lawrence Berkeley National Laboratories.*

With over 85,000 fume hoods in use today in California hospitals, biomedical facilities, university research centers, and metal fabricating and finishing industries, this laboratory workhorse offers exceptional opportunities for energy savings. Now a study from SCE shows that fume hoods can perform effectively, yet operate in a way that provides significant energy savings by reducing airflow when the fume hood is not in use.

## Looking Under the Hood

Whether bench-top or walk-in, fume hoods use negative air pressure and fans to trap and draw toxic or smelly vapors safely out of the hood. A sliding window or "sash" protects users and the boxy hood body draws gases and vapors upward and out of the work area. Baffles control airflow to the work surface and an exhaust plenum distributes air evenly across the hood's "face."

Hoods are significant energy users since they exhaust large volumes of air, which must be replaced by a proportional amount of makeup air that is usually filtered, cooled or heated and sometimes purified. A typical six-foot-wide hood exhausts 1200 cubic-feet-per-minute (cfm) of air.


*An automated sash positioning control system helps conserve energy by closing the sash to reduce the exhaust and makeup air flowing through the fume hood, when the fume hood is not in use.*

An automated sash positioning control system helps conserve energy by closing the sash to reduce the exhaust and makeup air flowing through the fume hood, when the fume hood is not in use.

## Thinking "Outside the Box"

SCE studied fume hoods operated with and without automated sash controls with a large biotechnology firm based in Southern California. Twelve fume hoods were analyzed; their operation was tracked 24 hours a day for 14 days to determine the difference in energy consumption with and without automated sash positioning control systems.

All fume hoods tested had vertical sash configurations and variable air volume systems—a requirement to install automated sash controls. Variable air volume systems are operated through a building's mechanical system, not as a stand-alone system.

Energy savings occur in variable air volume hoods when a hood's sash is not completely open. Automated sash positioning control systems lower the sash to a minimum setting when it is not in use to reduce exhaust flow and makeup air to the hood. Yet a constant face velocity, required for safety, is maintained.

## Obtaining a Two-Year Payback

Each fume hood with an automated sash controller, at one corporate facility, saved 17,145 kilowatt-hours (kWh) per year of electricity or 22 kWh per cfm of airflow.

Monitoring results revealed a 58% reduction in airflow cfm use for fume hoods with sash controls. When normalized to 1000 cfm, this translates to an average reduction of 443 cfm per hood, from 770 cfm for fume hoods without controls to 327 cfm for those with automated sash positioning control systems. This airflow data was used to generate load profiles for other California climate zones.

An annual total electric and gas cost reduction of $2,517 per hood per 1000 cfm was observed for hoods with the automated sash positioning control system.

With installation costs of roughly $4,500 for the automated sash positioning control system and savings in utility costs of $2,517, the sash control pays for itself in less than two years.

For questions about automated sash positioning control systems, contact your account representative. To learn more about how you also can benefit from SCE's wide array of energy management programs and services, contact your account representative or visit ***www.sce.com/b-rs/rebates-savings.htm***. Plus, get the latest on a wide array of energy-efficient industrial control technologies at one of SCE's free Energy Center classes. To sign up, log onto ***www.sce.com/energycenters***.

* Mills, E. and Sartor, D. Energy Use and Savings Potential for Laboratory Fume Hoods. Lawrence Berkeley National Laboratory, Energy Analysis Department. Berkeley, Calif., Dec. 6, 2004.

*This case study is provided for your general information and is not intended as a recommendation or endorsement of any particular product or company. Funding for this case study is provided by California utility customers and administered by SCE under the auspices of the California Public Utilities Commission.*