

San Gabriel Valley Energy Wise Partnership

Story of An Energy Leader



City of Pomona's Energy-Efficient Streetlights

Installing Energy-Efficient Streetlights Means Big Savings For the City of Pomona

Estimated Savings from New Technology

- Location: Pomona, CA
- Application: Induction Streetlights
- Savings Expected: \$26,200 per 1,000 Streetlights Converted
- Unique Strategy: Community-based survey and involvement
- Results: Up to 50% reduction in energy consumption with up to two times the light life
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ESTIMATED SAVINGS
\$144,942
per year

ENERGY SAVINGS
up to
999,600
kWh saved annually

GREENHOUSE GASES
AVERTED
up to
679
Tons of CO₂

ENOUGH SAVED
ELECTRICITY TO
POWER
44
homes for one year

Pomona Installs Energy-Efficient Lights to Cash In On Savings

The City of Pomona is currently installing up to 4,130 induction streetlights after a successful pilot project and community outreach initiative that tested the various streetlighting technologies available. Using funds from their Energy-Efficiency and Conservation Block Grant (EECBG) to install the streetlights, Pomona estimates it could reduce energy consumption by up to 50 percent, which could lead to up to \$144,942 of General Fund savings per year.



Energy-Efficient Streetlights Beginning to Compete in Marketplace

Energy-efficient light technologies have made advancements in recent years. **Induction** light technology has been widely commercially available since the early 1990s. Unlike the predominant High Pressure Sodium Vapor (HPSV) lights that use a metal filament to excite sodium gases, induction lights use a small current of electricity to run through a long coil to create an electromagnetic field that powers light-emitting gases. Depending on models and usage, induction lights can reduce energy consumption by 10 to 50 percent. Additionally, because reactive filaments degrade more quickly than coils, induction lights can last up to four times longer than HPSV lights.

First introduced to the streetlight market in 2005, **light-emitting diode** (LED) technology has become more financially competitive in recent years. LED lights runs a small electric current through a metal semiconductor, which then emits light. Project results have shown that LED can reduce energy consumption by up to 50 percent. In addition, because the semiconductors can last longer than

filaments in traditional HPSV lights, the usual life of the new LED fixtures is nearly twice that of traditional HPSV streetlights, which could save on maintenance costs in the future. Also, LED lights offer much stronger “directionality” of light, allowing light to be pointed to certain areas, rather than the more diffuse light that HPSV lights offer. As an emergent technology, however, LED lights still must progress to become more competitive. There is a lack of standardization amount types and styles, lingering concerns over heat management in fixtures, and questions about actual light lifespan in the field. See Table 1 for a comparison of HPSV, LED, and induction streetlights.

Southern California Edison Studies Energy-Efficient Streetlights

SCE owns and maintains over 700,000 streetlights (known as LS-1), or nearly 80 percent of streetlights in its territory. Over 97 percent of these streetlights use traditional HPSV technology. In 2009, SCE completed a six-month study of LED streetlights to measure their efficiency, performance, and potential energy and cost savings for customers.

The study found that LED lights did result in lower energy usage, ranging from between 20 and 40 percent. However, the higher per fixture costs of LEDs creates financing challenges for full scale implementation. SCE continues to study the issue as LED and comparable energy-efficient technologies become more competitive.

While SCE is not currently proceeding with full-scale conversion of streetlights that it owns and operates (LS-1), SCE is exploring an early adopter rate for LS-1 customers, in which customers would share in the capital costs for replacing lights in order to reap the benefits of a lower charge on energy consumption. This option is still being discussed with the California Public Utilities Commission. For customer-owned lights [that is, customer-owned, flat-billed lights (LS-2); and customer-owned, metered lights (LS-3)], converting to energy-efficient lights continues to be an option.

Attribute	HPSV	LED	Induction
Lumen Level	Low	High	High
Initial Cost Per Fixture	Low	High	High
Avg Lamp Lifespan	Up to 6 Yrs	Up to 12 Yrs	up to 25 Yrs
Heat Management Req'd	Low	High	Low
Color Rendition	Poor	High	High
Avg Power (W)	100-250	50-150	50-150
Annual Energy Used (kWh)	485-1295	178-614	230-640

Table 1. HPSV, LED, and Induction Comparison

Story of An Energy Leader

The City of Pomona Will See Savings After Street Light Conversion

Pomona Focused On Getting Best Deal With Competitive Pilot Project

As part of the American Recovery and Reinvestment Act of 2009 (ARRA), the EECBG program created incentives for local governments to employ new energy-efficient technologies. Pomona chose to use part of its \$1.43 million award to convert to more energy-efficient streetlights.

In order to select a technology and vendor, Pomona initiated the Energy Efficient Street Lighting Pilot Project to pre-qualify vendors/contractors. Using LED and induction-type lights from twelve contractors representing seven manufacturers, Pomona installed the new lights at seven different points along a 1.5-mile stretch of Mission Boulevard (between Hamilton Boulevard and San Antonio Avenue). See map below.

In a unique approach to community input, the Project team surveyed residents, as well as students and employees of nearby schools and businesses, to get a sense of how they felt the new lights improved visibility, created fewer dark spots, and emitted light that is the appropriate brightness. The survey results showed that a large majority of stakeholders approved of the energy-efficient streetlights. This fresh approach is being seen as a model of community involvement in new public works projects.

After compiling the pilot project results and holding a competitive bidding process, Pomona chose Tanko Streetlighting Services to install 4,130 induction-type lights throughout the city—over 36 percent of the city's street lights. The City will use



nearly \$1.35 million of their federal grant to complete the installation which began in Fall 2010.

Reduced Energy Consumption Will Save Budget Dollars

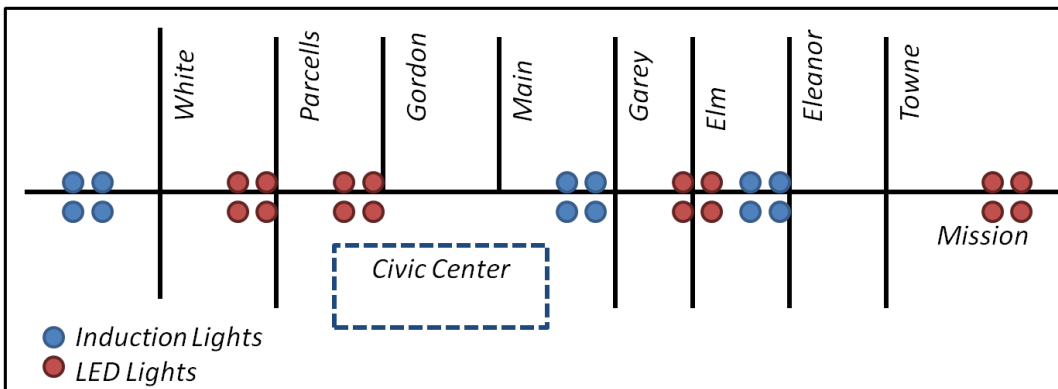
After examining results of the pilot project, and drawing from existing

programs in other jurisdictions, Pomona expects to reduce annual energy consumption by up to 238 kilowatt-hours for each converted streetlight. This would translate to \$35,000 per 1,000 lights per year. With the current program aiming to install 4,130 streetlights, Pomona is expecting nearly \$144,942 of General Fund savings per year and nearly \$2.5 million for the useful life of the product. This is enough saved electricity to power 44 homes and equates to nearly 679 tons of greenhouse gases averted.

As part of the San Gabriel Valley Energy Wise Partnership, the City of Pomona expects to receive a one-time energy incentive payment of \$79,927 once energy savings have been verified.

What's Next

The streetlight installation work is scheduled to be completed in summer 2011. The City of Pomona expects to convert additional streetlights in the future as additional funding becomes available.



Earn Even More Savings with other SCE Offerings

Southern California Edison offers a range of energy management solutions for municipalities to help manage electricity costs.

Learn about energy management solutions for governments and institutions:

www.sce.com/business/ems/governmentandinstitutional/

See The San Gabriel Valley Energy Wise Partnership website for more details about exciting energy programs in the San Gabriel Valley:

www.sgvenergywise.org

For More Information

www.sce.com

Contact your SCE Account Representative
Call (800) 990-7788



San Gabriel Valley Council of Governments