

Memorandum

City of Lawrence

City Auditor

TO: Members of the City Commission

FROM: Michael Eglinski, City Auditor

CC: David L. Corliss, City Manager
Cynthia Wagner, Assistant City Manager
Diane Stoddard, Assistant City Manager
Jonathan Douglass, Assistant to the City Manager

Date: October 17, 2013

RE: Updated information on street lighting

The city currently spends about \$600,000 a year for street lights owned, maintained and operated by Westar Energy. Westar Energy bills the city on a monthly basis. Essentially, the city “leases” lights from the utility company. A tariff approved by the Kansas Corporation Commission governs the relationship, defines the services, and sets the prices.

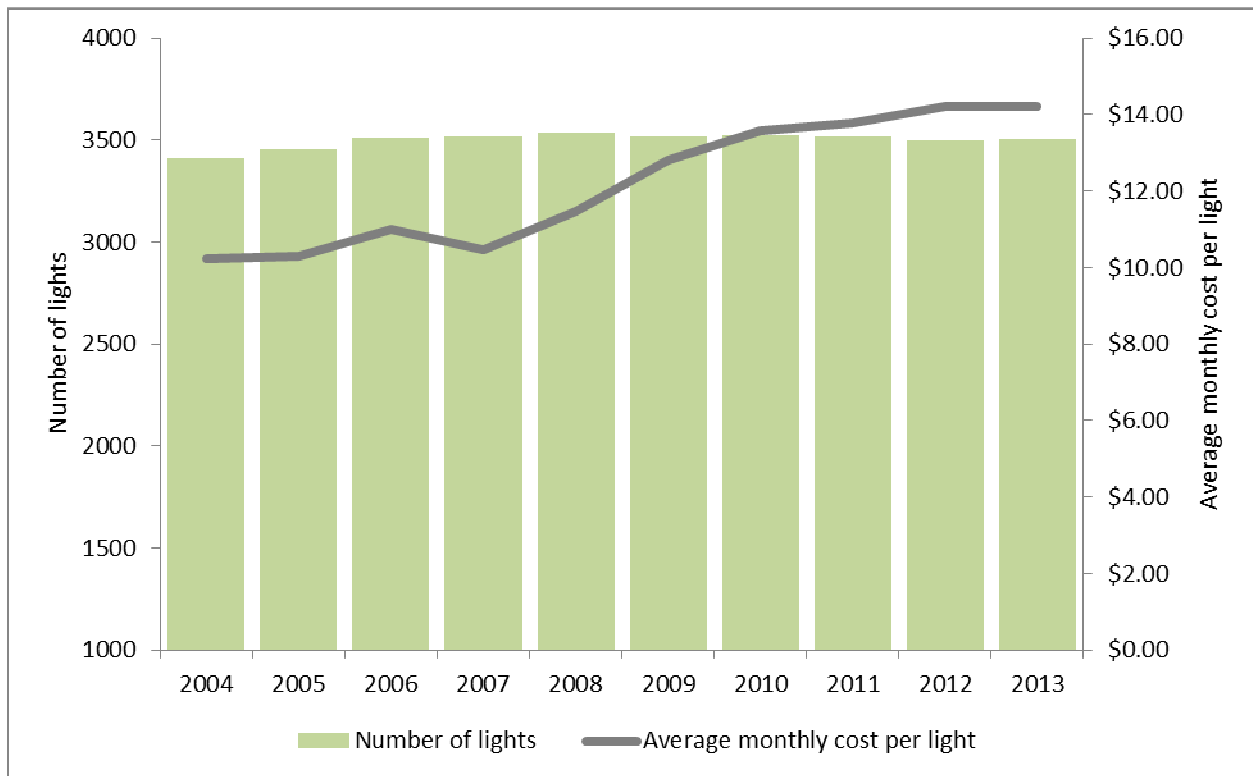
The 2009 *Performance Audit: Street Lighting* reviewed the city’s costs of street lighting and the potential for saving if the city were to purchase the street lights from Westar Energy. This memo updates several of the analyses from the 2009 report and provides some additional information on purchasing street lights and LED street lights.

I have not made any recommendations based on this memo. However, in 2009 I recommended that the city evaluate the feasibility of acquiring the street lights from the utility company.

City costs to provide street lighting increased

The city spends more on leased lights now than in 2008. The number of leased street lights has remained relatively flat while the charge for each light has grown. In 2008, the city leased 3,535 street lights and in 2013 that had changed to 3,503. The average cost per light over that same period of time had increased 24 percent from \$ 11.46 to \$ 14.23.

Figure 1 Street lights and costs per light



The city's costs will increase under the rates currently being considered by the Kansas Corporation Commission. If the Kansas Corporation Commission approves these rates, then the rates for the city's most common street lights will increase by about 10 percent. Westar Energy had initially requested that the rates for street lights be reduced, but through a stipulation and agreement as part of the Kansas Corporation Commission's review, the rates were revised and if those rates are approved they will result in significant increases for cities.

Figure 2 Impact of potential rate increase

Type of high pressure sodium vapor light	Number of lights	Base rate (monthly)	Proposed new base rate (monthly)	Rate increase
250 watt	832	\$13.69	\$15.17	10.8 %
100 watt	1050	\$ 8.19	\$ 9.10	11.1 %
150 watt	851	\$ 8.52	\$ 9.31	9.3 %

Street light services generate a strong return for Westar Energy. The Kansas Corporation Commission analyzed the utility company's returns for different customer classes based on the rates currently in place and found that lighting generated the highest returns.

Figure 3 Westar Energy rate of return by customer class

Customer class	Rate of return (under current rates)
Residential	7.6 %
Small general service	7.7 %
Medium general service	10.0 %
Churches and schools	9.3 %
High load factor	6.6 %
Lighting service	10.6 %
System wide	8.0 %

Street light bills include a payment for the street light as well as adjustments and surcharges. The various adjustments and surcharges represent 21 percent of the total bill in a recent month. The adjustments and surcharges include a retail energy costs adjustment, property tax surcharge, transmission delivery charge, environmental cost recovery rider and franchise fee.

Figure 4 Street light charges

Item	Explanation	August 2013 bill
Energy/lease charge	Westar Energy charges for installing, owning, operating, and maintaining each installation (lamp, fixture, bracket, secondary cable, and pole). The fee includes electric energy and the costs of owning, operating, and maintaining the lights. The fee is based on the number of lights and varies depending on the type and wattage of the lamp and the type of pole.	\$39,519.15
Fuel charge	Westar Energy recovers fuel costs. The company allocates this “retail energy cost adjustment” to customers based on the kilowatt hours delivered to each customer.	\$6,538.97
Property tax surcharge	Westar Energy charges or credits customers for increases or decreases in the property tax compared to the property taxes at the most recent rate review. The company allocates the adjustment to customers based on kilowatt-hours.	\$340.98
Transmission charge	Westar Energy charges to recover costs associated with building and maintaining the transmission system. The charges are based on kilowatt-hours.	\$1,057.77
Environmental charge	Westar Energy charges to recover investments in equipment installed to meet environmental standards. The charges are based on kilowatt-hours.	\$12.33
Franchise fee	Westar Energy collects a franchise fee of 5 percent on the sum of the various charges. The city established the franchise fee and Westar pays it to the city on a monthly basis.	\$2,373.47
Total		\$49,842.67

Comparing resident survey data from 2007 and 2011 shows no change in how satisfied residents of Lawrence are with the adequacy of street lighting. In both years, satisfaction in Lawrence was below the average of benchmark cities. However, in 2011, the benchmark city average increased and the results for Lawrence were further below the average rating.

Other Kansas municipalities have purchased street light systems

A number of area municipalities recently purchased street light systems, but none of those were Westar Energy customers. Lenexa, Overland Park, Mission, Fairway and Leawood have all purchased light systems from Kansas City Power & Light. KCPL provides both metered and unmetered service to cities that have purchased lights under rates approved by the Kansas Corporation Commission in 2012.

Overland Park purchased lights in the summer of 2013

Overland Park purchased about 2,000 street lights from Kansas City Power & Light in the summer of 2013. Overland Park:

- Was motivated to buy street lights to reduce costs and to help an effort to reduce energy use;
- Negotiated the purchase with KCPL;
- Agreed on a purchase price and a rate for unmetered street lights owned by the city;
- Agreed to shift to metered rates for street lights the city replaces, which may include LED technology;
- Worked with KCPL to have a field inventory of street lights for purchase by the city;
- Contracted out the maintenance of the purchased street lights;
- Included maintenance performance standards in the maintenance contract;
- Issued bonds to fund the purchase; and
- Realized immediate savings

Staff in cities purchasing lights described efforts to address street light costs that were growing quickly and savings resulting from reduced costs of operating lights bought from the utility company. Even when the cities issued bonds to purchase the street lights, staff said that they would have immediate cost savings compared to leasing the lights from the utility.

Staff in cities purchasing lights identified savings from purchasing the street lights. Savings for the five Kansas cities that have purchased street lights from KCPL total about 40 percent of the costs before the cities bought the lights. This level of savings is consistent with the range of savings identified in the 2009 performance audit.

Lessons learned in other cities

Officials in areas where cities have purchased or considered purchasing street lights and others knowledgeable about street light purchases cite a number of similar lessons learned. Understanding the common lessons learned could help the city should it pursue purchasing the street lights.

- **Valuing a street light system is difficult.** To determine the value of the system requires good information on the equipment in the field (e.g. lamps, poles, and wiring) and the age and condition of the equipment. A utility selling a system expects to receive a fair price.
- **Working together helps share knowledge and costs.** Municipalities have sometimes worked together to represent their interests with the regulators and share experiences and knowledge about street lighting. Cooperation allows municipalities to share costs of technical experts who can analyze options and represent interests.
- **Representing interests with the regulators ensures consideration of municipal interests.** The Kansas Corporation Commission reviews rates, service, and safety of utilities. Representing municipal interests helps ensure that the regulators consider the effects of changes on municipal governments.
- **Using a competitive process to provide maintenance helps ensure best value and performance.** Municipalities provide maintenance in different ways – through municipal employees, through a contract with the utility company, or through a contract with private maintenance contractors. Comparing options and allowing for competition ensure the most cost effective maintenance.

Source: *Performance Audit: Street Lighting*, May 2009.

LED street lights becoming more common in the area and across the nation

Cities in the area and across the nation are using LED street lighting to provide improved service with lower costs. LED street lights can reduce operating and maintenance costs because the lamps last longer than other common lights and can also reduce energy consumption.¹ LED street lights can also provide better visibility.

Prices of LED street lights have been declining. In one year, from 2009 to 2010, prices for some LEDs dropped by 50 percent. The U.S. Department of Energy expects the prices of LED lighting to continue to decline in the coming years. As prices decline, LED street lights have become more attractive to cities.

A number of area cities participated in a program aimed at testing LED street lighting. The Mid America Regional Council coordinated a U.S. Department of Energy grant program for cities with populations under 35,000. Both KCPL and Westar Energy developed rates for LED pilots

¹ The City Sustainability Coordinator estimated that replacing the 3500 current street lights with LEDs could reduce energy use equivalent to 1,770 tons of CO₂ emissions annually.

approved by the Kansas Corporation Commission in 2012. Cities participating include: Basehor, Lansing, Tonganoxie, Edwardsville, Fairway, Gardner, Merriam, Mission, Prairie Village, Roeland Park, Spring Hill and Westwood.

A number of large cities across the nation are using LED street lighting. Among the cities with significant LED street lighting are: Philadelphia, PA, Portland, OR, Sacramento, CA, New York, NY, Palo Alto, CA, Minneapolis, MN, San Francisco, CA, and Oakland, CA.

Consortium helps share information on LED street lights

Over 200 municipalities in 46 states participate in a consortium on LED street lighting. The U.S. Department of Energy sponsors the Municipal Solid-State Street Lighting Consortium to collect, analyze and share technical information and experiences related to LED street lighting. The consortium's mission is to:

- Increase knowledge of LED street lights to help distinguish good performing products
- Provide structure and guidance/oversight to evaluating technologies for street lights
- Provide a forum for sharing information and data

Scope, method and objectives

The City Auditor designed this performance audit to provide the City Commission with information about changes since the 2009 *Performance Audit: Street Lighting* and specifically to answer:

- How have costs and the city's system changed?
- Have other cities purchased street lights?
- Have other cities used LED street light systems?

The City Commission asked for additional information on street lighting when the *Audit Recommendation Follow-Up March 2013* was presented.

This performance audit focuses on the street lights in Lawrence owned by Westar Energy. In addition to those street lights, the city owns some street lights, primarily downtown, at roundabouts, and in some newer developments.

The City Auditor reviewed the 2009 Performance Audit: Street Lighting and Audit Recommendation Follow-Up March 2010, updated some of the analysis from those projects, identified area cities that had purchased street lights, interviewed staff from those cities, reviewed materials from Mid America Regional Council and the Department of Energy's Municipal Solid State Lighting Consortium. The auditor also reviewed tariffs from several electric utilities and materials from Westar Energy's recent rate case.

The City Auditor conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require planning and performing the audit to

obtain sufficient, appropriate evidence to provide a reasonable basis for findings and conclusions based on the audit objectives. The City Auditor believes that the evidence obtained provides a reasonable basis for the findings and conclusions based on the audit objectives.

The City Auditor provided a draft of this report to the City Manager on October 5, 2013. Because the report doesn't include any recommendations, a written response was not required.