Seattle City Light

STREET LIGHT ENGINEERING
2015 CONTACT VOLTAGE SURVEY REPORT

INTRODUCTION

City Light completed its annual contact voltage testing on November 4, 2015. Utilizing a mobile detection system for the sixth year in a row, City Light tested all conductive assets in the right-of-way, regardless of ownership. If 30 volts or more was detected, the structure was immediately repaired or de-energized for public safety.

City Light is committed to maintaining a safe streetlight system. The department has jurisdictional responsibility for approximately 85,000 streetlights in its 131 square mile service territory providing lighting on residential and arterial streets. There are several types of streetlight poles and luminaires. Approximately 35,000 are conductive structures including poles, handholes, and access covers.

A number of factors can contribute to contact voltage including aging infrastructure, weather, improper installation, rodent activity, copper wire theft, and corrosion. Annual testing for contact voltage is being conducted because streetlights are a vital public service.

HISTORY

In the fall of 2010, a dog was electrocuted after stepping on an energized handhole cover. A combination of factors contributed to the touch potential voltage that caused the structure to be electrified. Shortly after the discovery, City Light was notified of six other incidents of dogs receiving non-lethal shocks from conductive structures in the public right-of-way. These incidences, along with further investigations into the streetlight system, identified potential issues with contact voltage. City Light responded by instituting an annual detection program along with a number of maintenance improvements and internal business process improvements.

ANNUAL CONTACT VOLTAGE TESTING METHODOLOGY

City Light hired Power Survey Company (PSC), a national expert on contact voltage detection programs, to perform testing of the Seattle City Light service area. PSC has developed an efficient and accurate technology program that uses a mobile detection system, sensitive enough to detect objects electrified at less than one volt.

SURVEY RESULTS

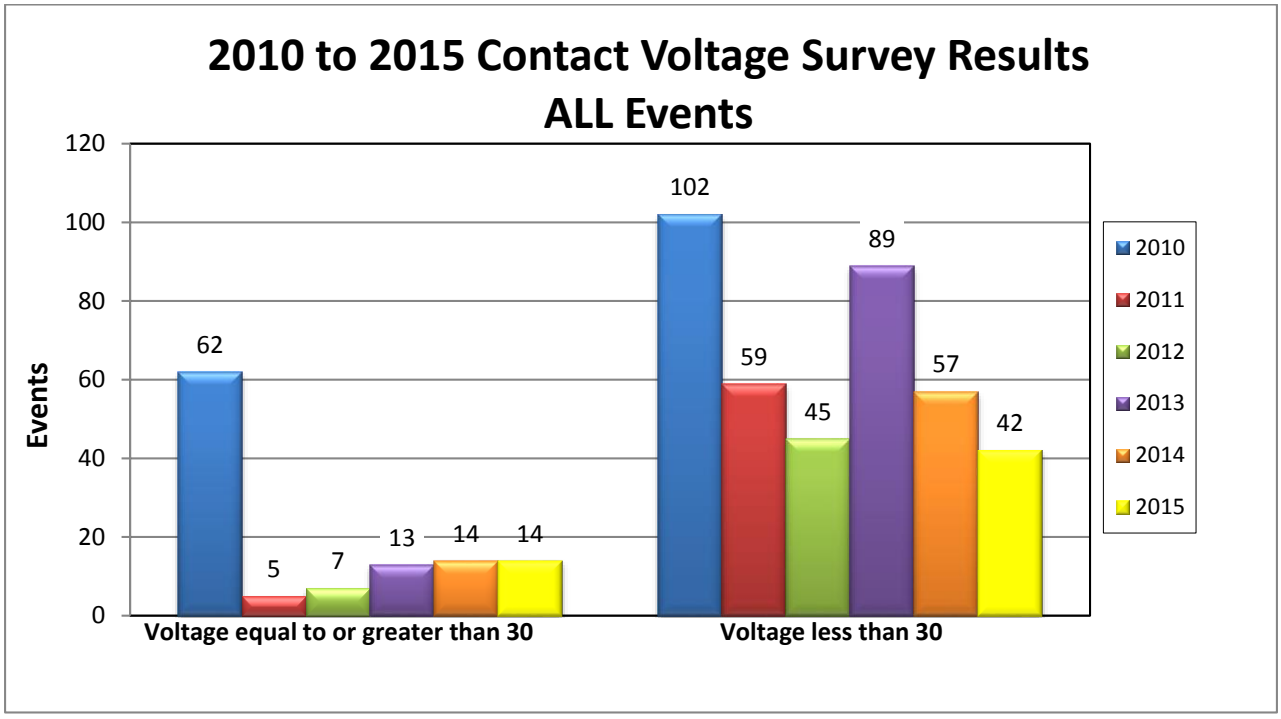
The survey was performed between September 8, 2015, and November 4, 2015 covering approximately 2300 miles. The testing equipment does not distinguish between City Light infrastructure and other touch potential assets in the right-of-way. City Light crews inspected each of the voltage events and determined the cause; pinched wires, faulty equipment, and aging infrastructure. For structures transmitting at least 30 volts, action

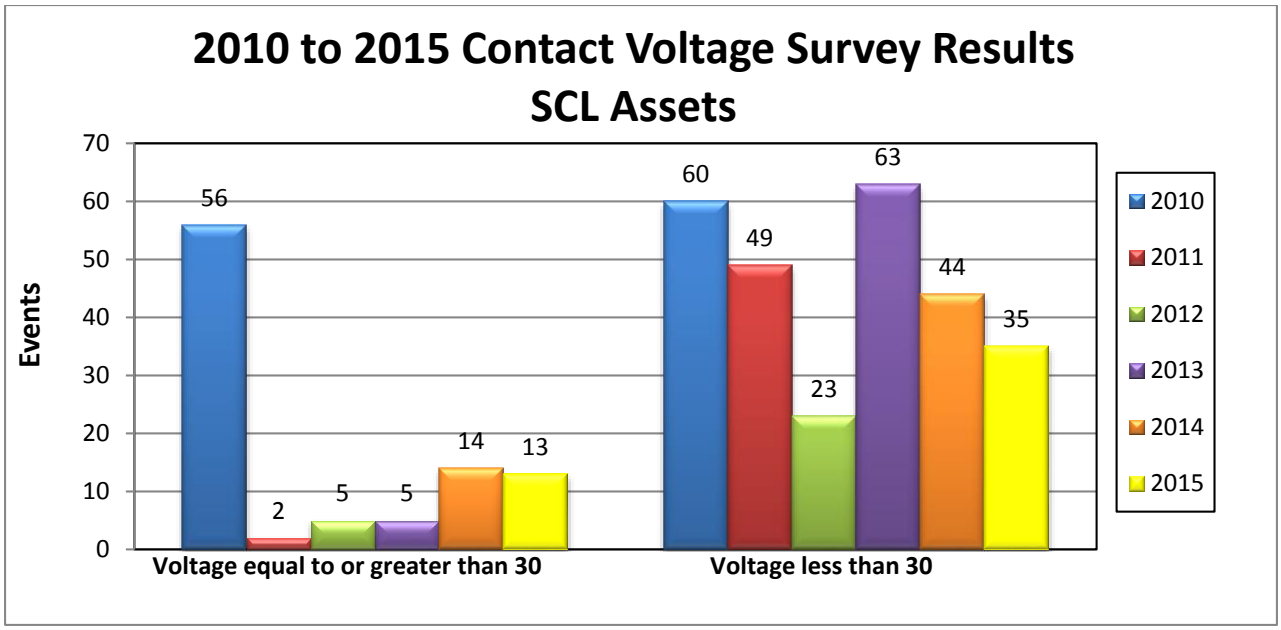
was taken immediately either to repair or take the structure out of service until the necessary repairs could be made. City Light assets with less than 30 volts but greater than 3 volts also have been either repaired or de-energized by City Light crews.

In comparing the results of City Light assets surveyed in 2015, there was a decrease of one in the number of contact voltage events at 30 volts or greater on SCL owned equipment from the previous year. Nine events were determined to be the result of bad wiring and connections, one instance of failed equipment, and one in a long term active construction site where the actual cause has not been fully determined. The remaining two events were determined to be the result of pinched wires in the door of the luminaire during LED conversion. Retraining on proper luminaire installation was conducted with the contractor crews.

The following table and charts compare survey results from years 2010 to 2015.

YEAR	Total of ALL Events	ALL Events detected <30V	ALL Events detected =>30V	SCL owned equipment	Non-SCL owned equipment
2015	56	42	14	13	1
2014	71	57	14	14	0
2013	102	89	13	5	8
2012	52	45	7	5	2
2011	64	59	5	2	3
2010	164	102	62	56	6





CITY LIGHT'S RESPONSE TO THE FINDINGS

Based on the success of the detection program and further recommendations:

- City Light has touch potential testing in place for both its crews and contractors performing streetlight work
- City Light will continue to test its streetlight system annually and report the findings to the public
- Finally, City Light has taken responsibility for testing and inspecting all streetlight equipment before it is energized

The public is reminded to notify the Streetlight Hotline at (206) 684-7056 or street.light@seattle.gov with any concerns about a streetlight or if an energized structure is suspected.

MORE INFORMATION

Scott Thomsen
Communication & Public Affairs
(206) 615-0978
Scott.Thomsen@seattle.gov
http://www.seattle.gov/light/streetlight/StreetlightsAndContactVoltage.htm

TRANSLATION SERVICES AVAILABLE AT (206) 684-3800

- Información en español
- Impormasyon sa Tagalog
- 中文資訊
- Thông tin bằng tiếng Việt
- 한국어 정보
- Macluumaad Af-Soomaali ah