



P.O. Box 18 • 6402 Old Corydon Rd.  
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APR - 2 2014

PUBLIC SERVICE  
COMMISSION

March 31, 2014

Mr. Jeff Derouen  
Executive Director  
Public Service Commission of Kentucky  
211 Sower Boulevard  
Frankfort, KY 40602

Subject: Administrative Case No. 2011-00432

Dear Mr. Derouen:

The accompanying letter / report is provided to serve as the final progress report as required for Kenergy's Cut-out Replacement Program CPCN order dated January 24, 2012.

Sincerely,

A handwritten signature in black ink that reads "Kenneth R. Stock".

Kenneth R. Stock  
Vice President, Operations



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#### Define

Between 1989 and 1998 a predecessor company to Kenergy (Green River Electric) installed approximately 7,537 A.B Chance porcelain insulated fused cut-outs and / or combination cut-out and lightning arrestors. From the time of installation to January 2011, 20.95% of the devices had failed prematurely. It was identified by the industry that the premature failure of this vintage device could be attributed to a possible flaw in the manufacturing process which allowed for the porcelain insulator to develop hairline cracks or to separate from the conductive element and fault to ground causing as a minimum an outage and in a growing number of cases, a pole fire with the associated outage.

#### Measure / Analyze / Identify

In early 2011, Kenergy in conjunction with Alcan Aluminum as advisor, engaged in a "Kaizen" study to determine if it would be more cost effective to proactively replace all the cut-outs as opposed to replacing them only when each individual cut-out failed. "Kaizen" is a Japanese phrase for "improvement" or "change for the better". It was determined in the "Kaizen" study that non-porcelain cut-outs have longer and more reliable life than the porcelain cut-outs.

The results of the "Kaizen" study were attached to the original CPCN request. The results concluded that by employing in-house labor to replace an average 61 cut-outs per week, the 5,962 remaining cut-outs could be replaced over a 1.8 year period. The total cost under this proactive approach, including in-house labor, was estimated at \$1,872,068. This was compared to the "run to failure" or reactive approach of replacing the cut-outs at an estimated cost of



\$6,020,863. Thus, it was determined that there was a large cost advantage over time by proactively replacing the cut-outs as designed in the “Kaizen” study.

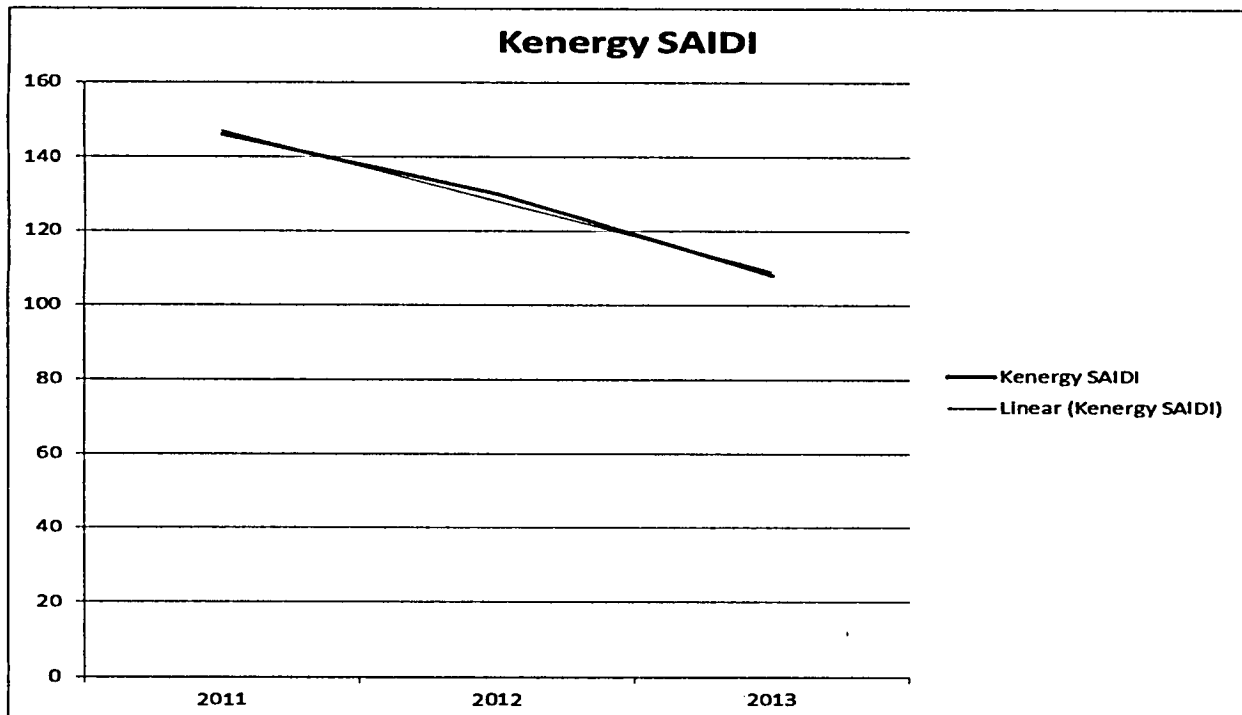
### Improve

From 2011 – 2013, Kenergy has replaced all 5,962 of the remaining 1989 – 1998 vintage porcelain cut-out units on the system. The table below shows the year, quantity and cost of replacements.

Year	Quantity	Cost (\$)
2011	1,831	\$477,247
2012	2,454	\$801,715
2013	1,677	\$497,945
Total	5,962	\$1,776,907

As the table indicates, Kenergy replaced all 5,962 cut-outs at a cost of \$1,776,907 or 94.9% of the original estimated \$1,872,068.

The following graph shows the improvement of these replacements to system reliability expressed by a very positive downward trending SAIDI (System Average Interruption Duration Index).





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Kenergy is extremely pleased with the outcome of the cut-out replacement program. It is hoped that Kenergy's results of this program would allow for other electric distribution utilities to take a look at their systems and if applicable model a cut-out replacement program to improve their cost and reliability.

Sincerely,

*Kenneth R Stock*

Kenneth R. Stock  
Vice President, Operations