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Kansas Corporation Commission  
/S/ David J. Heinemann

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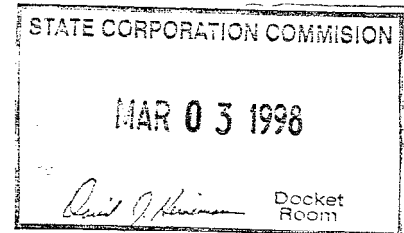
## Kansas Corporation Commission

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Bill Graves, Governor John Wine, Chair Susan M. Seltsam, Commissioner Cynthia L. Claus, Commissioner

March 3, 1998

To All parties of record  
From: Eric Heath, Assistant General Counsel  
Re: Docket No. 97-GIME-483-GIE



The Commission's February 27, 1998 Order in the above-referenced docket refers to Attachment "A" in the Order. This Attachment, which you will find enclosed, was inadvertently omitted from the Order.

Should you have any questions or concerns, do not hesitate to contact me.

A handwritten signature in cursive script, appearing to read "Eric Heath".

**Proposed Language for Amended Order in Docket No. 97-GIME-483-GIE**

*Proposed additions provided in bold. Proposed deletions have been over-struck.*

On March 31 of each year, the Company shall submit a report including the following information for each of the previous four (4) calendar years:

- A. Annual tree trimming expenditures;
- B. Annual hours of labor devoted to tree trimming; ~~and~~
- C. Annual performance statistics for tree trimming including but not limited to trees trimmed, trees removed - ; **and**
- D. **The following system reliability indices:**
  - 1. **System average interruption frequency index (SAIFI), normalized for catastrophic storm events;**
  - 2. **System average interruption duration index (SAIDI), normalized for catastrophic storm events;**
  - 3. **Customer average interruption duration index (CAIDI), normalized for catastrophic storm events;**
  - 4. **Unnormalized SAIFI;**
  - 5. **Unnormalized SAIDI; and**
  - 6. **Unnormalized CAIDI.**

**The Company shall provide an explanation of the methodology used to develop normalized indices. This explanation shall include a description of storm classifications for which outages are excluded in the normalized calculations.**

## ELECTRICAL SYSTEM RELIABILITY - SUSTAINED INTERRUPTION INDICES

### System average interruption frequency index (SAIFI)

SAIFI provides information about the average **frequency** of sustained interruptions per customer in a **defined** area. Sustained interruptions are those customer outages which exceed five minutes in duration.

$$SAIFI = \frac{\text{TotalNumberofCustomerInterruptions}}{\text{TotalNumberofCustomersServed}} \quad (1)$$

$$SAIFI = \frac{\sum N_i}{N_T} \quad (2)$$

where  $N_i$  = the number of interrupted customers during the reporting period, and  
 $N_T$  = the total number of customers served for the area being indexed.

### System average interruption duration index (SAIDI)

SAIDI provides information about the average time customers are interrupted in a defined area.

$$SAIDI = \frac{\sum \text{CustomerInterruptionDurations}}{\text{TotalNumberofCustomersServed}} \quad (3)$$

$$SAIDI = \frac{\sum r_i N_i}{N_T} \quad (4)$$

where  $r_i$  = the restoration time for each interruption event  
 $N_i$  = the number of interrupted customers during the reporting period, and  
 $N_T$  = the total number of customers served for the area being indexed.

## ELECTRICAL SYSTEM RELIABILITY - SUSTAINED INTERRUPTION INDICES

### Customer average interruption duration index (CAIDI)

CAIDI represents the average time required to restore service to the average customer per sustained interruption. In other words, it quantifies the average outage time experienced per sustained outage.

$$CAIDI = \frac{\sum \text{Customer Interruption Durations}}{\text{Total Number of Customer Interruptions}} \quad (5)$$

$$CAIDI = \frac{\sum r_i N_i}{\sum N_i} \quad (6)$$

where  $r_i$  = the restoration time for each interruption event, and  
 $N_i$  = the number of interrupted customers during the reporting period.

Note, that according to definition, the following relationship holds:

$$CAIDI = \frac{SAIDI}{SAIFI} \quad (7)$$

### Normalized Indices

Normalized indices should be calculated by excluding outages resulting from major events. Major events are characterized by extensive damage to the electric power system, by an unusually high percentage of simultaneous customer outages, or by unusually long service restoration times. Examples include unusual events that occur less than once in five years such as extreme weather or earthquakes.