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Kansas Corporation Commission
/S/ David J. Heinemann

Kansas Corporation Commission

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.

ATTCHMENT "A"

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 3 1 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)

SAJFI 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.

$$SAIFI = \frac{Total\,Number\,of\,Customer\,Interruptions}{Total\,Number\,of\,Customers\,Served} \quad (1)$$

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

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)

SAID1 provides information about the average time customers are interrupted in a defined area.

$$SAIDI = \frac{\sum Customer\,Interruption\,Durations}{Total\,Number\,of\,Customers\,Served} \quad (3)$$

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

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.

$$CAIDI = \frac{\sum CustomerInterruptionDurations}{TotalNumberofCustomerInterruptions} \quad (5)$$

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

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.