

LOL-HECO-IR-64

Ref: "In addition to studying the more probable single contingency outage scenarios, multiple contingencies (outages of more than one system element) must be included in system planning studies, recognizing that while they may have a low probability of occurrence they still can and do happen. (T-3, page 12, line 23 through page 13, line 1)

Question(s):

- a. Does HECO use probability analysis in transmission planning?
- b. How do you determine which outage scenarios are 'more probable'?

HECO Response:

- a. HECO does not use a probabilistic approach to the transmission system planning process. Please see Mr. Pollock's testimony (HECO T-3) for an explanation of the transmission system planning process, development and application of planning criteria and a review of the HECO planning criteria. To comply with the provisions of the HECO and NERC planning standards, a deterministic approach is used to analyze the various system outage scenarios as part of the planning process, and that is the approach used by HECO (please see HECO T-3, pages 18-19 for a summary of the development and application of transmission system planning criteria).
- b. It is important to note that the use of the word "probable" in this context refers to the likelihood of an event occurring in a qualitative sense, rather in a statistically defined mathematical manner. Thus, the discussion of which outage scenarios might be more or less probable does not require the calculation of a probability of occurrence. The outage (or contingency) scenarios that are more probable, or put another way, those that through industry-wide experience are known to more commonly occur are the "more probable" outage scenarios. As explained in Mr. Pollock's testimony (HECO T-3) beginning on page

14, NERC has categorized the normal and contingency conditions recommended for study as Category A-D. Various types of contingency events that are recommended for study have been assigned to these categories, based on industry wide experience with the various types of outages. The “more probable” contingency scenarios to be studied are those that involve a single contingency event, such as the loss of one generator, one transmission line or an individual substation component (transformer, breaker, etc.).