

CA-IR-34

Ref: Docket 7273, 7526 and 7602 – General Planning Questions.

Please respond to the general planning questions regarding the above referenced dockets and related documents.

- a. Does HECO incorporate distribution related projects such as the Kakaako Master Plan (Docket 7273) into system wide plans such as the EOTP?
 1. If yes, please explain how and provide documentation and/or analysis to support the response.
 2. If no, please explain why not.
- b. When HECO constructed the Kewalo and Kamoku substations, why were adequately sized 138/46 kV transformers not installed at that time to back up 46 kV circuits originating at Pukele Substation?
- c. For substations that have two or more 138 kV transmission lines, is it common for HECO to have 46 kV circuits that can back up loads between substations?
 1. If yes, how many substations does HECO have that have two or more 138 kV transmission lines that can be substantially backed up via 46 kV circuits from other substations?
 2. If no, please explain why not.

HECO Response:

- a. HECO did not incorporate the Kakaako Master Plan into the East Oahu Transmission Project. (See the response to subpart a.1.) Please note that in Docket No. 7273, filed on March 20, 1992, HECO sought Commission approval to purchase land for a Keawe Substation. The Commission approved the purchase in Decision and Order No. (D&O) 12134, dated January 19, 1993, and HECO acquired the land for a future Keawe Substation. HECO has not installed any substation equipment on the property.
 1. Not applicable.
 2. In determining options for the East Oahu Transmission problems, HECO will

incorporate distribution related projects. For instance, the Archer Substation and Kamoku Substation are being utilized for the proposed Kamoku 46kV Underground Alternative – Expanded project. The use of the Keawe Substation site, which was the subject location for Docket No. 7273 and the Kakaako Master Plan, was not considered for this project because there were other sites already in service such as the Kamoku and Archer Substations. The Kamoku and Archer Substations are substations being utilized by HECO today and there is adequate space available to install transformation facilities and feeders to implement the proposed Kamoku 46kV Underground Alternative.

- b. At the time the Kewalo and Kamoku Substations were being installed, HECO was planning to ultimately install a 138kV transmission line to the Pukele Substation. Docket Nos. 7526 and 7602 provide adequate support of the recommended plan. (Refer also to HECO T-3, pages 12-30.) The installation of the 138kV transmission line, which was the ideal solution (HECO T-2, pages 10-11), would provide a third line to the Pukele Substation and, therefore, would not require the equipment proposed for the Kamoku 46kV Underground Alternative-Expanded project (i.e., 138/46kV transformers and 46kV circuits).
- c. Yes. The sub-transmission and distribution systems are planned independent of the number of 138kV feeds to the substation. (HECO's transmission and distribution planning criteria were provided in HECO T-4, exhibits HECO-401 and HECO-404, respectively, in Docket No. 03-0371 [DG Docket], filed on July 14, 2004.) The transmission system utilizes multiple transmission paths linking the Northern and Southern Corridors to provide reliability to the West Oahu Service Area. (Refer to HECO T-4, pages 3-4.) The 46kV sub-transmission system and the 12kV and below distribution systems utilize automatic transfers

and back-up feeders to provide reliability to the service area each distribution substation is serving. Therefore, in order to follow the distribution criteria, which are used as a guideline to ensuring the reliability of the 46kV sub-transmission systems, 46 kV circuits require the ability to automatically transfer to other circuits at the 46kV substations. Transmission substations are identified in HECO-401. It is also preferred that the 46kV circuits serving as back-up circuits (as a result of automatic transfers from one 46kV circuit to the back-up) are served from a different transmission substation, where practical, without considering if there are two 138kV feeds to the transmission substations that are serving the 46kV substations. This provides added reliability to the 46kV sub-transmission system if a problem should occur which affects the entire transmission substation (i.e., loss of 138kV feeds to the transmission substation).

1. Approximately ½ of over one hundred and twenty (120) 46kV substations have separate 46kV feeds from two different transmission substations. Refer to the response to CA-IR-15, subpart d.
2. Not applicable.