

Data Evaluation, Completion and Manipulation

Prepared for the

**U.S. Department of Energy
Office of Electricity Delivery and Energy Reliability**

**Under Award No. DE-FC-06NT42847
Task 5 Deliverable –
Letter Report on Data Evaluation,
Completion and Manipulation**

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June 2008

Acknowledgement: This material is based upon work supported by the United States Department of Energy under Award Number DE-FC-06NT42847.

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Introduction

Adequate modeling of the Maui Electric Company (MECO) grid is an essential first step of the work needed to investigate grid operation with a high content of as-available energy. In Task 6, GE Global Research (GE) has confirmed the feasibility of developing system models that can be used for future state analysis. The GE team would like to begin developing the transient performance and production cost models based on the data received.

Task 7: Data Evaluation, Completion and Manipulation

The objective of task 7 is to outline the additional data required for the model development. Subsequent data request documents were submitted to MECO and additional data were received. In order to identify the assumptions and preview the evaluation of the data received, weekly meetings between Hawaiian Electric Company (HECO), MECO, GE and the Hawaii Natural Energy Institute (HNEI) have been arranged. As of April 24th, two meetings have been held to discuss the data received by GE. These meetings served to highlight any concerns and redirect the modeling effort early in the development of the MAPS (production cost) and PSLF (transient dynamic system) models, as well as establish reasonable expectations regarding the level of modeling fidelity. In this task, GE has defined and obtained additional data beyond the data initially requested, prior to the March 31st meeting. The GE team has analyzed the data, documented the data received, and submitted another data request which was later fulfilled by HECO and MECO. The data to be used in the model development, as previously presented in the Letter Report for Task 6, is again outlined in Appendix 1. Information to be delivered later will contain a more detailed list of the data to be used in the model development.

NOTE: MECO/HECO agreed with the GE recommendations and approve release of HECO cost-share funding for Task 8.

Appendix 1– List of Data Provided to GE

The following folders have been provided by HECO/MECO:

AGC Data – McNeff

This folder contains AGC block diagrams, unit-by-unit ramp rates, KWP curtailment amounts, reasons and timing

HC&S Production Data – Reynolds

This folder contains 2007 and 2008-present hourly HC&S production data and financials, and information about the dispatch, droop settings and units at HC&S.

High-Fidelity Wind Data – Reynolds

This folder contains 2-second KWP data for 2007 and 2008-present.

LoadFlow & Transmission Planning – Matsuura

This folder contains the PSSE load flow, transmission planning criteria and single line diagrams for the MECO system.

Planned Generation & Commitment Order – Matsuura

This folder contains the system data for the March 15th fault, unit parameters (unit limits), and unit commitment order.

PPAs – McNeff

This folder contains the avoided cost filings and power purchase agreements for KWP, HC&S and Makila.

Production Cost – McNeff

This folder contains the power supply reports, Maalaea emissions, unit-by-unit heatrate curves, Pmonth database, fuel use, MECO IRP, and a document describing the challenges of operating the MECO system.

Wind Power – Reynolds

This folder contains 2-sec KWP wind power data, aligned with frequency, load and production for six days in 2007.

Governor Responses and System Event Data – Yau

This folder contains the governor responses from a few units and the system data from the March 15th event. A list of contingencies was also received.