HECO RT-6
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REBUTTAL TESTIMONY OF
SCOTT W. H. SEU

MANAGER
ENERGY PROJECTS DEPARTMENT
HAWAIIAN ELECTRIC COMPANY, INC.

Subject: Distributed Generation Resources

INTRODUCTION

Q. Please state your name and business address.

A. My name is Scott W. H. Seu. My business address is P.O. Box 2750, Honolulu, Hawaii 96840.

Q. What is your present position with Hawaiian Electric Company ("HECO")?

A. I am the Manager of HECO's Energy Projects Department.

Q. Have you previously submitted testimony in this proceeding?

A. Yes. I submitted written testimony and exhibits as HECO T-6.

Q. What is the scope of your rebuttal testimony?

A. I will provide updates on Hawaiian Electric's current efforts to develop or evaluate distributed generation ("DG") resources on Oahu. I will focus on Hawaiian Electric's expectations for adding DG capacity in the 2006-2010 timeframe.

HAWAIIAN ELECTRIC'S DG ACTIVITIES

Q. What DG is Hawaiian Electric currently developing or evaluating?

A. Hawaiian Electric is developing or evaluating the following DG resources on Oahu:

1) Hawaiian Electric-sited peaking DG,
2) utility DG on customer sites,
3) customer-owned standby DG, dispatchable by the utility for peaking purposes,
4) customer-sited combined heat and power ("CHP") systems, and
5) Hawaiian Electric-sited photovoltaic ("PV") systems, consistent with Hawaiian Electric's integrated resource plan.

Hawaiian Electric-Sited Peaking DG

Q. Please describe Hawaiian Electric's company-sited peaking DG efforts.

A. The objective of this effort is to install dispatchable, firm generating capacity for peaking purposes as quickly as possible to mitigate the reserve capacity shortfalls on Hawaiian Electric's system. As described in HECO T-6, the projects consist of small scale temporary DG located at Hawaiian Electric-owned sites other than power plants. The DG units are limited not only in size, but in operating use, as they are air permitted as non-covered sources with annual fuel use limitations (which limit annual operating hours of the DG units). The purpose of these peaking DG units is to mitigate the reserve capacity shortfall until other permanent generating capacity can be added.

Q. Please describe the status of Hawaiian Electric's efforts to add such peaking DG.

A. As I described in HECO T-6, in 2005 we installed nine leased 1.64 MW DG units at three Hawaiian Electric sites, for a total of 14.76 MW. Currently, we are working to install an additional nine units of the same size, which would bring the total amount of temporary DG capacity to 29.52 MW. Three units will be installed at CEIP Substation by the end of October 2006, three units will be installed at Hawaiian Electric's Kalaeloa Poleyard by late November 2006, and three units will be installed at the Ewa Nui Substation by late February 2007.

Q. Will there be additional Hawaiian Electric-sited peaking DG installed in the future?

A. As described in HECO T-6, we have found it a challenge to identify additional feasible Hawaiian Electric sites for placement of DG, considering space, zoning, and the need for additional infrastructure. Any additional Hawaiian Electric-sited DG projects would be of smaller capacity and higher cost than the 2005-2007 projects, and so would need to be compared from a planning and cost perspective against other options to bring dispatchable DG onto Hawaiian Electric's system, such as customer-sited DG. Ultimately, the ability to install additional Hawaiian Electric-sited DG that is cost-effective is limited.

Utility DG on Customer Sites

Q. Please describe the current status of Hawaiian Electric's efforts to evaluate or develop utility DG on customer sites.

A. Hawaiian Electric is continuing its discussions with the Department of Defense ("DOD") about possible installation of Hawaiian Electric-owned DG at Oahu military bases to serve near-term Hawaiian Electric system capacity needs. A survey of potential DG sites has been completed and we have now identified four potential temporary DG sites, one each at Schofield Barracks, Fort Shafter, Hickam Air Force Base, and Marine Corps Base Hawaii Kaneohe Bay. These sites are generally adjacent to existing substations on the bases, are industrial in nature, and have enough space to potentially develop up to 5 MW of temporary DG, similar in configuration to the Hawaiian Electric-sited DG described earlier.

Q. Are any of these sites being actively developed for temporary DG?

A. We are still in the evaluation phase, considering what contractual business arrangements between Hawaiian Electric and the DOD would be most feasible. At the most basic level, Hawaiian Electric could enter into a real estate lease for the sites, but even that requires fairly detailed review by the DOD and Hawaiian Electric. We also need to define in more detail the various DOD requirements that might be applicable, such as those governing environmental permitting and site security. If the projects are feasible, the exact timing of the installations would depend on the length of time necessary to work with the DOD to secure, permit, and develop the sites. It is likely that this would take at least until 2008 to complete.

Q. What about other non-utility sites for temporary Hawaiian Electric-owned DG?

A. The possibilities for developing temporary Hawaiian Electric-owned DG on non-utility sites are essentially limited to large vacant industrial-zoned areas. We have not conducted an extensive review of such parcels on Oahu, however, many of these sites are hemmed in by neighboring facilities, and vacant areas would generally require expensive "green field" development due to the lack of nearby or existing infrastructure.

Q. Is Hawaiian Electric evaluating the feasibility of installing larger, more permanent DG on Oahu?

A. Yes. As mentioned in HECO T-6, we were previously in discussion with the Navy about such a study, and are now conducting the evaluation to define how large of a facility could be developed, where, at what expense, and in what timeframe. We do not anticipate completing that study until the end of 2006.

Q. What is the order of magnitude of DG capacity that is being evaluated?

A. It is premature to state what the DG capacity would be. Notwithstanding this, our objective in conducting the study is to see if it is possible to install anywhere from 25 to 100 MW of DG.

Q. Do you anticipate that such DG could be developed by the 2009 timeframe?

A. No. As I stated in HECO T-6, since such generation would be permanent in nature and of relatively larger size, it would trigger more extensive contracting, permitting, and regulatory review requirements at both the State and Federal levels. I do not foresee us being able to develop such a facility until the 2010-2011 timeframe.

Customer-Owned Standby DG

Q. Please provide the latest status of Hawaiian Electric's efforts to develop a customer-owned standby DG option, as described in HECO T-6.

A. We are continuing to pursue development of a dispatchable standby generation ("DSG") option similar to that established by tariff at Portland General Electric Company ("PGE"). We are developing preliminary design concepts with the State Department of Transportation Airports Division ("DOT Airports") for a potential 6 - 7 MW DSG installation at the Honolulu Airport that could possibly be developed in the 2008-2009 timeframe. In addition, we are in ongoing discussions with a hospital on Oahu regarding a potential 1.6 MW DSG installation that could be in service as early as the second half of 2007.

Q. Is Hawaiian Electric still focusing solely on the PGE DSG model for now?

A. Yes.

Combined Heat and Power

Q. Have there been any changes to Hawaiian Electric's expectations for CHP development on Oahu over the next four years?

A. No. We continue to believe that there will be only a limited amount of new CHP developed on Oahu in the 2006-2010 timeframe, due primarily to the marginal or negative economics of CHP on Oahu. It still remains the case that the energy efficiency benefits of a CHP system may not translate to overall cost savings for a customer if the cost of CHP fuel – diesel, synthetic natural gas, or propane – is significantly higher than the cost of fuel used to generate grid electricity – low sulfur fuel oil in Hawaiian Electric's case.

Photovoltaic Systems

Q. What is Hawaiian Electric doing with regard to PV DG?

A. As stated in HECO T-6, we have performed preliminary engineering for development of approximately 300 kW of PV at Hawaiian Electric's Ward Avenue complex, consistent with Hawaiian Electric's IRP-3 preferred plan. We are currently focused on developing a first phase of the PV – 175 kW – for installation by November 2007. The remaining roughly 125 kW would be developed after 2007.

Q. Why is PV relevant to Hawaiian Electric's system capacity situation, given that it supplies energy on an intermittent basis?

A. PV systems do not meet firm capacity needs, but they do provide value to the utility in terms of producing energy and meeting renewable portfolio standards requirements.

Q. Would Hawaiian Electric develop PV systems at customer sites?

A. Initial development and ownership of PV systems is generally not cost-effective for the electric utility, since regulated electric utilities are not eligible for federal renewable energy investment tax credits. As a result, the utility is evaluating how it might acquire PV systems that have already been in service for a number of years.

SUMMARY

Q. Please summarize Hawaiian Electric's expectations for DG development over the 2006-2010 timeframe.

A. With regard to DG projects whose firm capacities can be estimated, we anticipate adding just under 15 MW of new Hawaiian Electric-sited temporary DG by the end of the first quarter 2007. There are opportunities to install a total of up to 20 MW of similar temporary DG at four Oahu military bases, most likely in the 2008 timeframe. We are in discussions with a customer about a 1.6 MW DSG project that could be on line by the second quarter 2007. We are still evaluating the feasibility of a 6-7 MW DSG project at the Honolulu Airport, which, if successful, could be on line in the 2008-2009 timeframe. Finally, we are still forecasting relatively small amounts of CHP.

Q. What about the other DG efforts described in your testimony?

A. Our efforts to evaluate larger permanent DG at DOD sites are still ongoing. Due to the expected requirements for permitting, contracting, and regulatory approvals, no additional capacity would be expected from these efforts until the 2010-2011 timeframe. Finally, although we are pursuing development of PV at Hawaiian Electric's Ward Avenue complex and are considering how we might support customer-sited PV systems, such installations will not contribute firm capacity.

Q. What would be your sum total of expected dispatchable DG in the 2006-2010 period?

A. Based on the activities and opportunities above, I estimate installation of approximately 44 MW of limited-duty dispatchable DG in the 2006-2010 timeframe.

Q. What is your understanding of how this amount of DG capacity might resolve Hawaiian Electric's need for system capacity?

A. To my understanding, this amount of DG will be helpful, but will not resolve, Hawaiian Electric's need for additional capacity. This is discussed by Mr. Sakuda in HECO RT-2.

Q. Does this conclude your testimony?

A. Yes, it does.

Witness HECO RT-6 does not have any exhibits.