KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

EXHIBIT 10

TESTIMONY OF THOMAS A. LOVAS (EXHIBIT 10-T-1000)

(18 PAGES)

KAUAI ISLAND UTILITY COOPERATIVE
DOCKET NO. 2022-0208
EXHIBIT 10-T-1000

DIRECT TESTIMONY
OF
THOMAS A. LOVAS

I. INTRODUCTION & SUMMARY OF TESTIMONY

Q. PLEASE STATE YOUR FULL NAME, PRESENT OCCUPATION AND BUSINESS ADDRESS.

A. My name is Thomas A. Lovas. I am an economist and electric system consultant and the owner of Energy & Resource Economics. I have been hired by Kauai Island Utility Cooperative ("KIUC") to assist KIUC in a variety of system planning and development activities, including analysis of electric system sales and electric load forecasts. My resume is attached as Attachment TAL-1001.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss KIUC's approach to load forecasting and the development of the load forecast that underlies the 2023 calendar test year ("Test Year") sales estimate prepared by KIUC. The Test Year sales estimate is based upon the most recent KIUC Electric Load Forecast report dated March 2022 ("Load Forecast") that was prepared with my assistance. A copy of the Load Forecast is attached to my testimony as Attachment TAL-1003.

Q. WHAT IS THE STRUCTURE OF YOUR TESTIMONY REGARDING THE DEVELOPMENT OF THE MARCH 2022 LOAD FORECAST?

A. My testimony provides:

- An overview of the regulatory requirements faced by KIUC for the preparation of electric system load forecasts;
- The processes by which KIUC's load forecasts are prepared in compliance with a load forecast work plan;
- A summary of the March 2022 Load Forecast and sales estimates derived from the forecasting processes; and
- The results of a mid-year update of the Load Forecast that supports the continued use of the forecast results for the Test Year sales estimate.

Q. WHAT ARE YOUR QUALIFICATIONS TO PROVIDE THIS TESTIMONY?

A. I have over 44 years of experience in utility business planning, operations support and financial forecasting. I have a Master of Arts in Public Utility Economics from Washington State University, and have been involved in system planning and regulatory matters in California, Montana and Alaska. I had been employed by electric utilities in various capacities which has provided me with a background that is useful in assisting electric utilities and others in matters of system economics, providing expertise in financial modeling, load forecasting, construction planning, environmental assessments and power systems operations. These employers

have included investor-owned utilities and electric cooperatives. Subsequent to my employment at utilities, I have provided economic and strategic analysis, technology development, and organizational strategies for a variety of clients. These clients have primarily been electric utilities (cooperative and otherwise), associations of electric cooperatives, reliability councils, engineering firms, and companies or individuals otherwise involved in energy projects for which load forecasting has been an important planning component.

For the past 14 years, I have been assisting KIUC with long-term and short-term load and financial forecasts, long-range engineering plans, multi-year construction work plans, power cost studies, environmental reports and grant funding opportunities.

Q. ARE YOU SPONSORING ANY EXHIBITS IN THE APPLICATION?

A. While I am not directly sponsoring any of the Application exhibits with the exception of this testimony (Exhibit 10-T-1000), I am submitting various attachments in support of my testimony, which are incorporated herein. The attachments are as follows:

1. Attachment TAL-1001 is my resume.
2. Attachment TAL-1002 is the Kauai Island Utility Cooperative Load Forecast Work Plan ("Work Plan") dated April 2021.
3. Attachment TAL-1003 is the March 2022 Load Forecast from which the sales estimates are drawn for the Test Year.

4. Attachment TAL-1004 (Parts 1 and 2) provide documentation of the September 2022 update and comparison with the March 2022 Load Forecast.

II. OVERVIEW OF KIUC'S LOAD FORECAST REQUIREMENTS

Q. WHAT ARE THE REQUIREMENTS FACED BY KIUC FOR THE PREPARATION OF LOAD FORECASTS?

A. Although sales forecasting is fundamental for businesses, as a borrower of federal funds through the Rural Utilities Service ("RUS"), KIUC is required to prepare load forecasts (or "power requirements studies") under regulations promulgated by RUS at 7 CFR 1710, Subpart E, Section 1710.200, and by the terms of the RUS Amended and Restated Loan Contract. The Section 1710.200 regulations specify that cooperatives of a certain size prepare and implement a load forecast work plan and Section 5.16 of the loan contract specifies that KIUC "shall prepare and use power requirements studies of its electric loads and future energy and capacity requirements in conformance with Prudent Utility Practice and an RUS approved plan for preparation of such power requirements studies."[1] The KIUC Load Forecast Work Plan provides for the

[1] Amended and Restated Loan Contract Dated as of April 30, 2019 between Kauai Island Utility Cooperative and United States of America, Section 5.16, p. 16. A copy of this contract was provided to this Commission by letter filed on May 3, 2019 in Docket No. 2017-0346.

processes and procedures that will be employed in developing the Load Forecast for the cooperative.

KIUC first established such a work plan in November 2016 when the cooperative had achieved the level of plant at which such a plan was required by RUS. In or around July 2019, RUS had amended Section 1710, revising the load forecast and forecast work plan requirements while removing RUS approval. A revised KIUC Work Plan was subsequently prepared in 2021 that was designed to meet the updated requirements while following many of the load forecasting activities and processes previously established. See Attachment TAL-1002 for a copy of the 2021 Work Plan. The theoretical approach was maintained as KIUC believed the procedures used in the prior forecasting activities would continue to provide reliable results. The Work Plan also provides for examination of other potential models and statistical methods for possible improvement, to be incorporated and reported in the load forecast. The Load Forecast of March 2022 (Attachment TAL-1003) was prepared under the procedures of the Work Plan (Attachment TAL-1002).

III. LOAD FORECAST PREPARATION UNDER THE WORK PLAN

Q. HOW OFTEN ARE LOAD FORECASTS PREPARED UNDER THE WORK PLAN?

A. KIUC's Work Plan requires the preparation of a completely new forecast at least every four years. In the interim, annual assessments are to be undertaken after year-end sales history becomes available, comparing actual sales results with the forecast. If year-end sales results differ by more than 10% in the aggregate, or if any rate class differs by more than 10%, a complete update of the forecast is undertaken. If total sales and forecast sales differ by less than 10%, the assessment is reported, but the forecast is not required to be updated.

Q. DOES THE WORK PLAN SPECIFY THE METHODS AND PROCEDURES FOR THE FORECAST?

A. While the methods and procedures to be used for forecasting are delineated in the Work Plan, provisions are in place to provide the flexibility to accomplish improvements in forecasting. A specific intent of the Work Plan is to promote improvements in forecasting. The Work Plan calls for sales expectations to be prepared for each customer classification of KIUC, based upon either electric rate classifications or the RUS Form 7 reporting classifications. The individual class forecasts are then aggregated to estimate the total

sales expected for the forecast year, which provides the basis for estimated generation (energy) requirements. The particular forecast modeling technique can vary (e.g., econometric, end-use, and trend analysis), supplemented with expert opinion and judgement, for the development of the class forecasts, generation requirements and system annual peak load. Additionally, scenarios are prepared that vary expectations for external conditions that may affect sales in the future. The Work Plan notes that econometric modeling is expected to be the primary forecasting technique for the major consumer classes.

Q. WHAT RESOURCES ARE INVOLVED IN PREPARING THE LOAD FORECAST?

A. The resources involved in forecast preparation include KIUC staff, consultants, outside experts and a variety of data sources. Specific departments are responsible for oversight of the forecasting activity and providing information, and consulting services are acquired periodically for specialized expertise in economics, demographics, econometrics, and statistics, and their contribution to documentation of the forecast.

A variety of data resources are identified in the Work Plan to be accessed in preparing the load forecast. Sources internal to KIUC include sales and revenue history, consumer counts, consumer

installed distributed generation, average electric prices, and electric price projections, for example. Other sources are identified that may supply island population and tourism information, projections of economic activity, climate data, and other items of interest in developing the forecast models and any expectations for the future that will potentially impact customer class sales.

Q. IS DEMAND SIDE MANAGEMENT CONSIDERED IN THE WORK PLAN?

A. Yes, as are energy services activities that have had impacts on electric sales, or are expected to impact sales in the future. The Work Plan specifically recognizes that KIUC periodically provides reports on those activities. Such reports are to be included as an appendix to the load forecast.

Q. WHAT IS REQUIRED ON FORMAT AND CONTENT OF A WORK PLAN AND LOAD FORECAST?

A. RUS does not require a specific format for the narrative, documentation, data, and other information in the load forecast, provided that all required information is included and available. The work plan specifies that the forecast include projections of usage by consumer class, number of consumers by consumer class, annual system peak demand, and season of peak demand for the balance of the current year and 10 years into the future, and a narrative

provided with detailed information, including a description of KIUC's energy efficiency and demand side management efforts, as may be applicable, and an explanation of how those efforts are accounted for in the forecasts. A load forecast that is submitted to RUS in support of an application for financial assistance must include specific information regarding the development and results of the forecast and a demonstration that the forecast was completed in compliance with the work plan. The work plan provides that KIUC will, upon request, supply additional information to assist RUS in its review of the forecast; however, KIUC's load forecast report contains most, if not all, of the information normally required by RUS.

IV. THE KIUC ELECTRIC LOAD FORECAST, MARCH 2022

Q. PLEASE DESCRIBE THE DEVELOPMENT OF THE MARCH 2022 ELECTRIC LOAD FORECAST.

A. Once KIUC adopted the Work Plan (Attachment TAL-1002), KIUC expressed interest in preparing an all-new load forecast under the procedures outlined in that Work Plan. By the end of June of 2021, econometric and statistical support was arranged with an associate that had previously been assisting me with load forecasting, Halcyon Consulting, Inc. ("Halcyon"). Throughout the summer and fall of 2021, historical information was obtained from KIUC's staff and the best information available on economic conditions expected for the

next several years was compiled. Over the next several months, work progressed on developing the consumer class models, refining the data inputs, evaluating modeling results and developing a load forecast report accomplished under the framework of the Work Plan.

Prior to completion of the long-range estimates, preliminary class sales information was drawn upon for 2022 sales expectations and budgeting by KIUC staff. Thereafter, additional review and consideration of forecast conditions were undertaken to achieve a comprehensive 10-year forecast. The documentation of the forecasting process, the factors contributing to the sales expectations, and the sources of data to prepare the forecast are provided in the Load Forecast (Attachment TAL-1003).

Q. WHAT WERE THE RESULTS OF THE FORECASTING PROCESS?

A. The results of the forecasting process are summarized in the Load Forecast (Attachment TAL-1003) on Table 1, page ES-1 and Figure 1, page ES-2. With reference to 2021 actual sales of 435,156 MWh of energy, sales for 2022 and 2023 (the period of interest with respect to Test Year sales estimates) were estimated to increase in the Base Case to 448,128 MWh and 449,515 MWh, respectively. For the High (optimistic) Case, sales were estimated to increase to 458,663 MWh and 461,925 MWh, respectively. Over

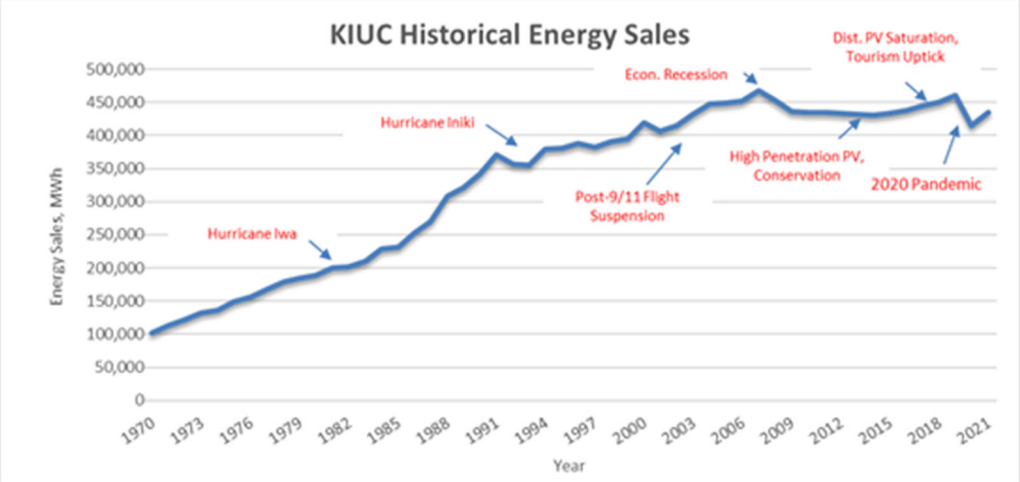
the full 10-year forecast period through 2031, sales were estimated to reach 488,675 MWh in the Base Case and 504,861 MWh in the High Case.

Q. WHAT CONSIDERATIONS ARE OF SIGNIFICANCE WITH RESPECT TO ESTIMATING SALES?

A. The primary considerations of significance when forecasting the expected volume of sales in the future for any electric utility are the level of sales recently experienced for each consumer class, the demographics of the service area, and the history and expectations for the economic activity of that service area. The KIUC Load Forecast was prepared using a series of models developed specifically for the consumer classes using econometric regression analysis whereby the dependent variable – sales – is modeled as a function of one or more independent variables such as population and the level of tourism activity. Additional independent variables – such as residential on-site generation – are explanatory to the level of sales and are considered in the forecast models. These considerations and others are discussed in more detail in Section 3 of Attachment TAL-1003.

Q. PLEASE DESCRIBE HOW ECONOMIC ACTIVITY MAY AFFECT KIUC'S ENERGY SALES.

A. The best description of how economic activity may affect KIUC's energy sales is provided on Figure 5, page 3-3 of the Load Forecast (Attachment TAL-1003), reproduced below:



Historical energy sales have shown the effects of major events impacting economic activity, including hurricanes, tourism restraints from flight suspensions, widespread economic recessions, the advent of on-site generation sources and, most recently, the COVID-19 pandemic. The COVID-19 pandemic and Hurricane Iniki have been the most significant events with respect to KIUC's energy sales, largely inducing a loss of tourism and associated economic activity. Other events, such as the terrorism response of 2001 with restrictions in air traffic and the economic collapse beginning in 2007, also resulted in severe reductions in tourism. While energy sales

recovery thereafter was impacted by renewables penetration, the subsequent saturation in on-site generation and an uptick in tourism provided strong sales growth up to the onset of the COVID-19 pandemic, at which time a dramatic reduction occurred in sales, largely attributable to the loss of the economic activity associated with tourism.

Q. WHAT WERE THE IMPLICATIONS OF AN EVENT SUCH AS THE COVID-19 PANDEMIC?

A. The econometric models relate the events of the past, represented by the independent variables, to the consumer class sales. Changes over time to the independent variables then influence the expected sales in the future. The assumptions about the future of those independent variables are thus key to developing a reasonable sales forecast. With an event in history like the COVID-19 pandemic and such a dramatic loss of tourism starting in early 2020, any assumption regarding the tourism recovery rate will be quite significant to the outcome of the forecast. It then becomes important to evaluate the impact of alternative assumptions. Other variables remain important, of course, so scenarios were prepared that examine the effect of alternative trends on the consumer classes modeled.

Q. ARE ALL KIUC CONSUMER CLASS FORECASTS PREPARED USING ECONOMETRICS?

A. No. There are two consumer class forecasts that were prepared on the basis of trend analysis. The Street Lighting consumer class is based on recent historical street light sales and expectations for the change in the number of street lights over time. Being a relatively minor component of total sales (less than 0.5% of sales), Street Light sales are expected to remain modest over time. Comparably, the Irrigation customer class sales are a minor component of sales, but annual irrigation sales have been relatively erratic from year-to-year. Consequently, a midpoint estimate of MWh was selected from the range of values over the previous five years and used in each year of the forecast.

Q. ARE ELECTRIC VEHICLE (EV) ENERGY REQUIREMENTS REPRESENTED IN THE FORECAST?

A. Yes. A bit of history is that EV charging load was first included in KIUC's sales estimates in the load forecast of 2018. At that time, EVs were estimated to contribute about 1,639 MWh to electric sales by 2021, with growth that would have reached 4,800 MWh by 2028. The sales were not assigned to any class, but tabulated as a part of the composite load. It was determined at that time that EV load would be subsumed in residential sales. By late 2020, it was

apparent that EVs were likely to be increasingly important, so KIUC staff prepared estimates of the likely impact of EV sales to KIUC. The staff estimate of EV load for 2021 was 1,692 MWh, growing over time from both rental and privately-owned vehicles to as much as 26,528 MWh by 2031. With historical EV load included in residential sales, an adjustment factor was prepared to identify the incremental amount of electric load estimated by KIUC staff that is not otherwise embedded in the residential load forecast, and reported separately for each year of the forecast but included in the total sales.

V. MID-YEAR UPDATE OF THE MARCH 2022 LOAD FORECAST

Q. WHAT WAS THE BASIS FOR THE MID-YEAR UPDATE OF THE MARCH 2022 LOAD FORECAST?

A. Subsequent to the adoption of the March 2022 Load Forecast, KIUC staff monitored sales relative to the forecast and the assumption regarding tourism. Evidence was mounting of a robust rebound in tourism, with daily tourist numbers rebounding faster than earlier forecasts. For instance, the tourism census for the second quarter of the year exceeded the best second quarter on record for Kauai. Since the March 2022 Load Forecast was based on historical sales and other data dating to mid- and late-2021, an update was proposed in order to evaluate the need to adjust budget sales expectations for the balance of 2022 and the sales forecast for 2023. Documentation

of the September 2022 update of the March 2022 Load Forecast and a comparison of the updated sales with that of the forecast is presented in my testimony as Attachment TAL-1004 (Parts 1 and 2).

Q. WHICH FORECAST DATA AND ASSUMPTIONS WERE CHANGED FOR THE UPDATE?

A. Newly available data was available for historical sales by class (the model dependent variable) and yearly independent variables of population and income. Monthly independent variable updates included customer accounts by class, monthly average tourist census, installed on-site generation, large customer status (used to adjust for changes in status), and climate data. Of the variables, real personal income was a bit higher than previously expected as a result of the tourism rebound. Tourism activity was higher as noted, trends in residential on-site generation were adjusted to reflect increased installations during the pandemic and a period of low interest rates (perhaps moderated in the future by inflation, offset by residential energy credits), and NOAA forecasts of climate conditions that affect KIUC sales.

Q. HOW DOES THE UPDATE COMPARE WITH THE RESULTS OF THE MARCH 2022 LOAD FORECAST?

A. The update results indicate that the change in assumptions for the update have relatively modest impact on the sales estimates

prepared in the early months of 2022. Attachment TAL-1004 (Part 1) provides a comparison of the September 2022 update results with the March 2022 Load Forecast. For example, the difference in aggregate annual sales for the Base Case scenario is 0.7% for year-end 2022, and approximately 1.0% for 2023. There is some variation among the classes, as would be expected from changes in expected economic activity and other factors, but overall, the results are quite comparable. For the High Case scenario, the differences are even less for both 2022 and 2023. Changes between the 2022 and 2023 results are more pronounced for the Low Case and Very Low Case scenarios, as would be expected with improved economic conditions and the changes noted in the historical data. While the update does not constitute a year-end evaluation of the forecast such as scheduled by the Work Plan, there is no case of a difference in class loads or aggregate sales greater than 10%, which would trigger the requirement in the Work Plan to conduct a more comprehensive update.

VI. CONCLUSIONS REGARDING THE LOAD FORECAST AND UPDATE

Q. WHAT DO YOU CONCLUDE WITH REGARD TO THE MARCH 2022 LOAD FORECAST AS A RESULT OF THE SEPTEMBER 2022 UPDATE?

A. It is my opinion that the March 2022 Load Forecast provides a realistic and reasonable estimate of what can be expected for sales through the remainder of 2022 and throughout the 2023 Test Year. The only caveat is that a forecast is only as good as the assumptions for the future of the independent variables. Unexpected conditions can and do occur, as we have seen with the immediate and significant impacts that the COVID-19 pandemic had on economic activity and KIUC system energy requirements. In the absence of another major event such as the implementation of new shut-downs in response to the pandemic, a hurricane, or other externally driven circumstances such as those discussed above in my testimony, the March 2022 Load Forecast provides an appropriate basis for near-term business planning and Test Year sales estimation.

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT TAL-1001

(3 PAGES)

THOMAS A. LOVAS

5840 Azalea Drive
Anchorage, Alaska
99516-4362

(907) 345-5116 (home)
(907) 351-7846 (cell)
tlovas@acsalaska.net

OVERVIEW: ***Mr. Lovas has served the energy industry for over four decades, providing expertise in a wide range of activities in electricity and natural gas. His experience includes: electricity production by hydro, coal, nuclear, gas, solar, biomass, geothermal and wind; power transmission and distribution; power and fuel contracts; regulatory processes; energy research; and, administrative services.***

EMPLOYMENT HISTORY

Energy & Resource Economics, Anchorage, AK June 2004 - Present

Owner/Principal Consultant: Consulting services for the energy and resource industries, providing business planning, rate studies, financial and economic analysis for administrative and operating purposes. Clients have included private and public utilities, rural electric cooperatives, native regional corporations, the National Rural Electric Cooperative Assoc., Alaska Energy Authority, and national or local engineering firms.

The Four Dam Pool Power Agency, Anchorage, AK Nov. 2002 – June 2004

Chief Executive Officer: Administrative officer of newly-formed public power agency for the ownership of four Alaskan hydroelectric facilities providing 74 MW of non-interconnected priority power to two electric cooperatives and three municipal utilities. Established agency headquarters, developed all financial reporting and analysis systems, prepared the fixed asset allocation and depreciation methodology for acquired plant (booked at $68 million) and coordinated facility operations while accomplishing all federal and state regulatory requirements. In addition:

- Successfully transferred to the Agency the ownership and construction management of a major ($90M) transmission interconnection project
- Developed new indenture of trust and official statement for public debt offering
- Demonstrated financial strength and stability to support expanded credit facilities

Chugach Electric Association, Inc., Anchorage, AK Dec. 1985 – Nov. 2002

Manager, System Development and Corporate Planning: Prepared strategies for General Manager and Board of Directors to achieve dependable, low-cost electricity with financial integrity. Business planning for $180 million in revenue from sales of 2.27 billion kWh to 73,000 retail meters, three distribution cooperatives and two municipalities.

- Strategies for fuel and power purchase and sale, negotiation and administration
- Capital improvement criteria and evaluation, financial analysis and forecasting
- Generation and transmission resource alternatives, FERC licensing
- Natural gas, coal and alternative fuels contracts and analysis
- Advanced technology evaluations for efficiency and reliability
- Inter-utility coordination, transmission and reliability arrangements
- Board advisories, association, legislative and regulatory agency testimony

- **Chair:** Reliability Criteria Committee, Alaska Systems Coordinating Council
- **Chair:** Policy, Planning and Communications Task Force, Cooperative Research Network (CRN) of NRECA & Member, Cooperative Research Committee
- **Vice-Chair:** Solid-Oxide Fuel Cell Commercialization Association

Director, Energy Supply: Executive responsibility for all operations and maintenance of natural gas and hydroelectric generation facilities (512 MW) and jointly owned hydroelectric facilities (47 MW). Administered $57 million budget for facilities, personnel, fuel (natural gas) supply and purchased power. Labor contract negotiation, workforce reliability management, power station upgrades and maintenance service to others; initiated non-traditional energy programs (fuel cells, battery storage, wind power).

- **EPRI Research and Development Award** for 1 MW fuel cell commercialization
- **Chair:** Power Supply Task Force, CRN/NRECA

Manager, Planning and Rates: Prepared and supervised wholesale and retail rate applications and regulatory proceedings while developing planning/forecasting models.

- **Member and Chair:** Alaska Intertie Operating Committee
- **Budget Subcommittee Chair:** Hydroelectric Project Management Committee
- **Member:** Integrated Resource Planning Subcommittee, G&T Managers Assoc.

The Montana Power Company, Butte, MT May 1980 – Dec. 1985
Supervisor, Planning Economics: Advised senior management and provided regulatory liaison for resource and power rate matters, regional power planning, power contracts and rates, planning objectives, reliability and cost-effectiveness criteria.

Pacific Gas and Electric Company, San Francisco, CA Sept. 1978 – May 1980
Analyst for Vice-President, Rates and Valuation: Electricity and natural gas services

Washington State University, Pullman, WA Feb.1970 – Sept. 1978
Operations Manager, Reactor Supervisor, Tech.: NRC Senior Operator License #3077

EDUCATION

Master of Arts, Economics (Public Utility) – June 1977
Bachelor of Arts, Economics (with Distinction) – June 1973
Washington State University, Pullman, Washington

NRECA Management Internship Program – May 1992
University of Nebraska – Lincoln/National Rural Electric Cooperative Association

AFFILIATIONS

Alaska Power Association
Intl. Assoc. for Energy Economics
Resource Development Council for Alaska
Rotary Club of Anchorage - Downtown
Junior Achievement of Alaska

Energy & Resource Economics

Thomas A. Lovas *tlovas@acsalaska.net*

Consulting Practice:

- Feasibility Studies, Load and Financial Forecasts
- Strategic, Integrated and Least Cost Planning
- Reliability and Resiliency Analysis
- Purchase, Sale and Interconnection Agreements
- Renewables, Emerging Technology - Wind/PV/Storage/Microgrids
- Hydro, Nuclear, Coal, Gas & Geothermal Generation
- Repowering/Cogeneration/Small Power/Fuel Supply
- Transmission and Distribution Planning
- Engineering & Economic Analysis, Methods and Applications
- Regulatory Process and Procedures

Representative Clients:

- **Railbelt Reliability Council, Inc.:** Tariff, Electric Reliability Organization, Petition for Certification, Surcharge Structure and Implementation
- **Kauai Island Utility Cooperative:** Long Range Engineering Plans, Multi-Year Construction Plans, Project Economics, Sales and Financial Forecasts, Energy Scenario Planning
- **Chugach Electric Association, Inc.:** Acquisition of Anchorage Municipal Light & Power - Cost Savings Evaluation, System Development
- **National Rural Electric Cooperative Association, Inc.:** Generation, Transmission and Distribution Research, Smart Grid Demonstration Project
- **City of Unalaska:** Geothermal Purchase Power Agreement Implementation
- **Kotzebue Electric Association, Inc.**: Storage, Rate and Financial Planning
- **Naknek Electric Association, Inc.**: Diesel and Geothermal, RUS Financing
- **Alaska Power Association:** Membership Dues Economics
- **City of Yakutat**: Ownership Options - Comparative Analysis
- **Alaska Energy Authority**: Renewables Grants, Benefit/Cost Evaluations
- **Unalakleet Electric Association:** Tariff Preparation and RCA Approval
- **Modoc County, CA**: Renewables Opportunities for Community Power
- **Cordova Electric Cooperative, Inc.**: McMillan Jacobs, Crater Lake Feasibility
- **ARCTEC**: Wholesale Power Contract Options & Characteristics, Strategic Planning Facilitation
- **Kake Tribal Corporation**: Revenue Requirement and Regulatory Filings
- **City & Borough of Juneau**: Harbor Power Supply Options
- **CCI, Inc.:** Military Facility Electric System Acquisition
- **Dryden & LaRue:** Alaska Electric Light & Power Financing Certification
- **Electric Power Systems, Inc**.: Interconnected System Wheeling & Ancillary Services Costs, Grid Interconnection Feasibility Analysis
- **MWH Global**: Susitna Hydroelectric & Transmission Economic Analysis
- **City of Nome:** SAIC, Inc., Load Forecast and Generation Alternatives
- **North Slope Borough**: Utility Master Plan/Emergency Plan/Electric Rates
- **HDL, LLC**: Bulk Fuel, Water and Wastewater Systems Business Plans
- **CUC, Northern Mariana Islands**: Energy Master Plan, Renewable Integration

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT TAL-1002

(23 PAGES)

Load Forecast Work Plan

Prepared by:
Kauai Island Utility Cooperative
HI001
Lihue, Hawaii

Assisted by:
Energy & Resource Economics
Anchorage, Alaska

April 2021

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

BEA	U.S. Bureau of Economic Analysis
CFR	Code of Federal Regulations
DSM	Demand-side management
KIUC	Kauai Island Utility Cooperative
kW	kilowatt
kWh	kilowatt-hour
MW	Megawatt
MWh	Megawatt-hour
RUS	Rural Utility Service
USDA	United States Department of Agriculture

1.0 INTRODUCTION

Kauai Island Utility Cooperative (KIUC) is the generation, transmission, and distribution cooperative providing electricity to the citizens and businesses of the island and County of Kauai, Hawaii. The Load Forecast Work Plan is designed to provide KIUC with an overview of the process and procedures to be employed in achieving the best possible Load Forecast[1] for the cooperative. The procedures in this Work Plan are designed to comply with the load forecast requirements established by the Rural Utilities Service (RUS), 7 CFR 1710, Subpart E, Section 1710.200 (see Appendix A) and the RUS Amended and Restated Loan Contract of April 30, 2019.

KIUC first established a Load Forecast Work Plan in November 2016. By July 2019, the RUS had amended §1710, revising the load forecast and load forecast work plan requirements. The 2021 Work Plan is designed to meet the updated requirements while following many of the load forecasting activities and processes previously established. The theoretical approach will be maintained as KIUC believes the procedures used in the prior forecasting activities will continue to provide reliable results. Nonetheless, KIUC will examine other potential models and statistical methods for possible improvements in the forecasting activities, and all such improvements in KIUC's load forecasting process will be incorporated and reported in the Load Forecast Report.

The Load Forecast Work Plan is subject to revision from time-to-time as operating conditions of KIUC may warrant in order to providing a sound foundation for KIUC system operational and financial planning, as well as providing the documentation to support approval of RUS requests for financial assistance.

[1] The KIUC Load Forecast may also be termed a Power Requirements Study.

2.0 FORECAST PROCESS

2.1 Overview and Objectives of the Forecast Process

The Load Forecast is a key planning document for KIUC. The goal of the forecast Work Plan is to support preparation of reliable estimates of future power supply requirements and electric system sales in support of operational planning and requests for financial assistance.

KIUC recognizes that a load forecast is an important planning tool that contributes to:

- Power supply, transmission, and distribution system planning;
- Preparation of long-range engineering and construction work plans;
- Annual and multi-year revenue and operating budgets, and other operational planning;
- Integrated resource planning, reliability studies, equity management plans, and financial forecasts;
- Rate adjustment proceedings and other regulatory purposes;
- Requests for RUS or other financial assistance and loan applications; and,
- Strategic planning in consideration of future uses of electricity and member expectations.

KIUC will prepare projections of usage by consumer class, number of consumers by consumer class, annual system peak demand, and season of peak demand for the balance of the current year and ten (10) years into the future. The load forecasting personnel of KIUC will maintain responsibility for the forecast, with assistance from economic and system planning consultants. Economic and demographic data will be acquired from a variety of external sources. Historical load data, electric price forecasts, demand side management data, and insight into future load patterns will be provided by KIUC staff and consultants.

KIUC will prepare a completely updated Load Forecast at least every four (4) years. Updates will be prepared in the intervening years, as required, based upon a year-end evaluation comparing the forecast for the intervening year to the results of operation for that year and expectations for the balance of the forecast.

In addition to updated power requirements, the goal of each Load Forecast is to improve upon the forecasting system and the forecasting process for timely preparation of forecasts and updates. Forecasting models and estimation methods will be tested on their forecasting performance by comparing actual operating results to the expectations of prior forecasts. As appropriate, updated historical explanatory data will be used to refit models to reflect history or to re-specify the models using new and different explanatory variables.

Upon request, KIUC will provide RUS information that will be useful to RUS in reviewing KIUC's Load Forecast in electronic format. That information will include:

1. Data used in the Load Forecast
2. Econometric models,
3. Forecasting model results,
4. Graphic representations of the variables identified as influencing load, and
5. Other information requested by RUS.

A narrative will be provided with detailed information, including a description of KIUC's energy efficiency and demand side management efforts, as may be applicable, and an explanation of how those efforts are accounted for in the forecasts. The load forecast submitted in support of any request for RUS financial assistance will include a narrative that complies with §1710.205 and §1710.206.

2.2 Forecast Methods and Procedures

In previous years, KIUC has successfully established procedures for preparing a load forecast and will generally follow the same procedures for the periodic new load forecast, annual assessments and updates, as may be required. KIUC has established extensive files on loads (RUS Form 7s and monthly data by consumer class), economic, demographic, end-use, and non-utility generation data specific to the membership and service area. These files are routinely updated with the latest available information.

It is KIUC's intent to forecast load by consumer class, based upon RUS Form 7 or rate class characteristics from recent history, adjusted as may be required from classification changes that occur between forecast cycles. The load classes will generally be specified as:

1. Residential
2. Commercial (including sub-classes, if any)
3. Large Power (including sub-classes, if any)
4. Street Lighting
5. Irrigation
6. Others, as appropriate.

Class energy forecasts are aggregated and loss factors applied to create a KIUC generation and transmission requirements forecast. KIUC's demand forecast will be derived by applying

projected load factors to the energy forecast, or by specific evaluation of historical peak loads and expected changes over time. The demand forecast will consider current and forecast demand side management activities of KIUC and its members and non-utility generation.

KIUC has reviewed, and will continue to review, various modeling techniques to predict class usage among the KIUC membership. KIUC considers the following forecasting methodologies to be potentially useful:

1. Econometrics
2. Trending/Time Series (for small load classes, only, such as irrigation)
3. End-Use Information (as available for residential or other classes)
4. On-site renewable energy production and/or energy storage (residential and commercial)
5. Expert Opinion and Judgment

In principle, KIUC does not wish to limit itself to any one modeling technique and must maintain the flexibility to change methodologies, if such change would lead to an improved forecast. KIUC believes that econometrics will be the primary modeling technique employed for major classes.

The load forecast econometric models will be routinely updated with more current historical data for the primary development. The need for re-specifying the econometric models, or changing the explanatory variables, in any complete revision of the load forecast will be based on tests of reasonableness, the forecasting results of those models, structural changes in the island economics, statistical tests of significance of the updated models, and the availability of historical and projected databases. Each Load Forecast and annual assessment will include consideration of energy efficiency and load management programs.

3.0 KIUC DEMAND-SIDE MANAGEMENT AND ENERGY SERVICES

Periodically, KIUC prepares a Modification and Evaluation Report on demand-side management programs and an Energy Services Program Report on non-demand side management programs. The Modification and Evaluation Report describes prior and current demand-side management (DSM) activities and impacts, modifications to existing DSM programs, and plans for the upcoming year or years. The Energy Services Program Report provides a description of KIUC's activities and status of program offerings that are non-DSM programs.

Such reports will be considered when preparing the load forecast and annual updates, and included as an appendix to any formally issued Load Forecast Report if that information is relied upon for the forecast.

4.0 SCENARIO FORECASTS

KIUC will prepare a most probable, or base case, forecast that will include:

1. A narrative describing the borrower's system, service territory, and consumers;
2. A narrative description of the borrower's load forecast including future load projections, forecast assumptions, and the methods and procedures used to develop the forecast; and
3. Projections of usage by consumer class, number of consumers by class, annual system peak demand, and season of peak demand for a minimum of 10 years.

One or more additional scenarios will be provided. The scenarios may include:

1. Pessimistic assumptions;
2. Optimistic assumptions; or
3. Other, as identified with alternative economic, demographic, non-utility generation or meteorological conditions.

5.0 RESOURCES

5.1 Human Resources

The supervision of the preparation of the Load Forecast will be provided by the KIUC Financial & Corporate Services Department. Consulting services will be acquired periodically for economic and demographic analysis, statistical support for econometrics, reporting, and documentation. The consulting services will be provided through professional services contracts and task orders.

Historical system data and relevant operational information will be obtained from the following KIUC sources:

- Financial and Corporate Services,
- Engineering, and
- Key Accounts Services.

Additional support of computer and printing resources will be supplied by:

- Information Services

5.2 Data Resources

KIUC sales data reported on RUS Form 7 from at least a 10-year period prior to the first forecast load year will be the source of historical data with regard to the number of consumers, consumer energy by customer class, average revenue by customer class (per kilowatt-hour [kWh]), and annual class energy requirements. System peak demand data will be from KIUC production reports and RUS Form 7. Additional sources of internal data include annual data regarding self- and on-site generation sources that impact system load requirements.

Customer class electric price forecasts will be obtained from KIUC financial forecasting models, rate change estimates, and equity management plans. The electricity price forecasts will be used in the econometric models for forecasting purposes, as required. Professional and staff judgment will also be applied for preparing forecasts of occasional consumer class energy and consumer number forecasts that could not be effectively modeled econometrically (e.g., irrigation).

The following list identifies several of the sources of the various data used in forecasting the energy and consumers of the major consumer classes. These data will be used as input to the econometric models that were developed with historical (internal and external) data and will be the drivers of the load forecast econometric equations to produce the econometric forecasts. Data resources that will or may contribute to the load forecast preparation include:

1. RUS Form 7 Power Requirements Database
2. KIUC Financial Forecast and Equity Management Plan
3. KIUC Customer Sited Generation Metrics
4. State of Hawaii Department of Business, Economic Development and Tourism
5. University of Hawaii UHERO (Economic Research Organization)
6. Bureau of Labor Statistics, U.S. Department of Labor
7. Bureau of Economic Analysis (BEA), U.S. Department of Commerce
8. Bureau of Census, U.S. Department of Commerce
9. County of Kauai Planning Department
10. National Oceanic and Atmospheric Administration
11. Others, as available and contributory

KIUC will continue to seek out sources of relevant information that may provide useful information for the load forecast, and will identify those additional sources in the load forecast report.

6.0 LOAD FORECAST SCHEDULE

Table 6-1 Load Forecast Schedule

Date	Item
Year 1	**New Forecast**
December - February	Review and update the Load Forecast Work Plan, as may be required. Recruit and enlist consultant(s), review schedule, participate in State and County Planning Meetings as available and scheduled.
April	Update Form 7 data, review electricity price forecasts, and collect demographic and economic data.
May-June	Evaluate models and prepare draft class forecasts; conduct senior staff review. Select scenarios for reporting.
July	Finalize Load Forecast Report with Narrative and Summaries
Years 2, 3, 4	**Assess and Update Forecast**
March-April	Collect Form 7 and other sales data, compare forecast to actual sales, issue an assessment, and review with senior KIUC staff.
May	Notify RUS GFR of Load Forecast update status
June	Finalize Update Documentation
Year 4	**Initiate New Forecast**
December	Review and update Work Plan and Schedule, as may be required.

7.0 FLOW CHARTS – LOAD FORECAST AND ANNUAL ASSESSMENT/UPDATE

Figure 7-1 Load Forecast Process

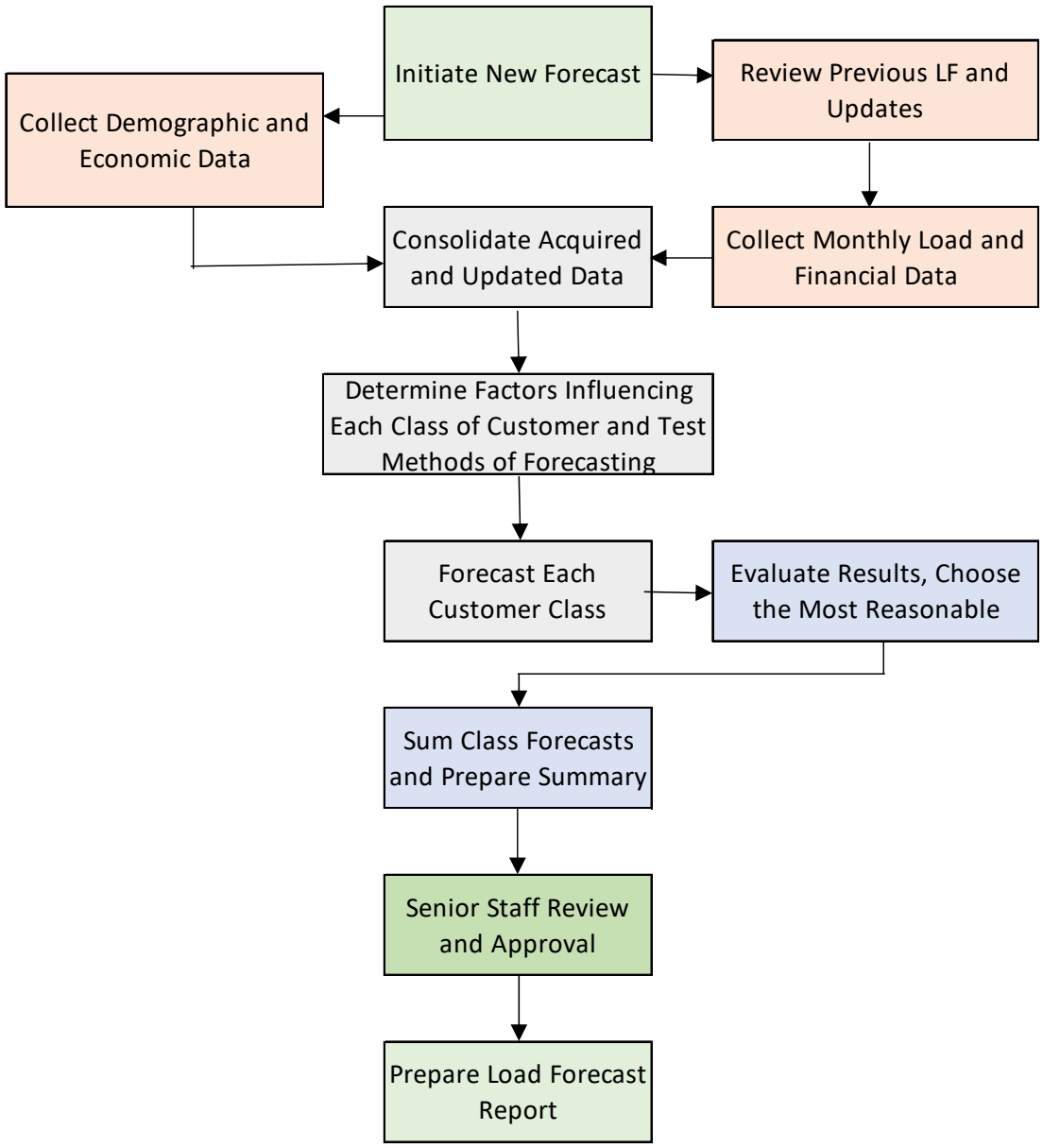
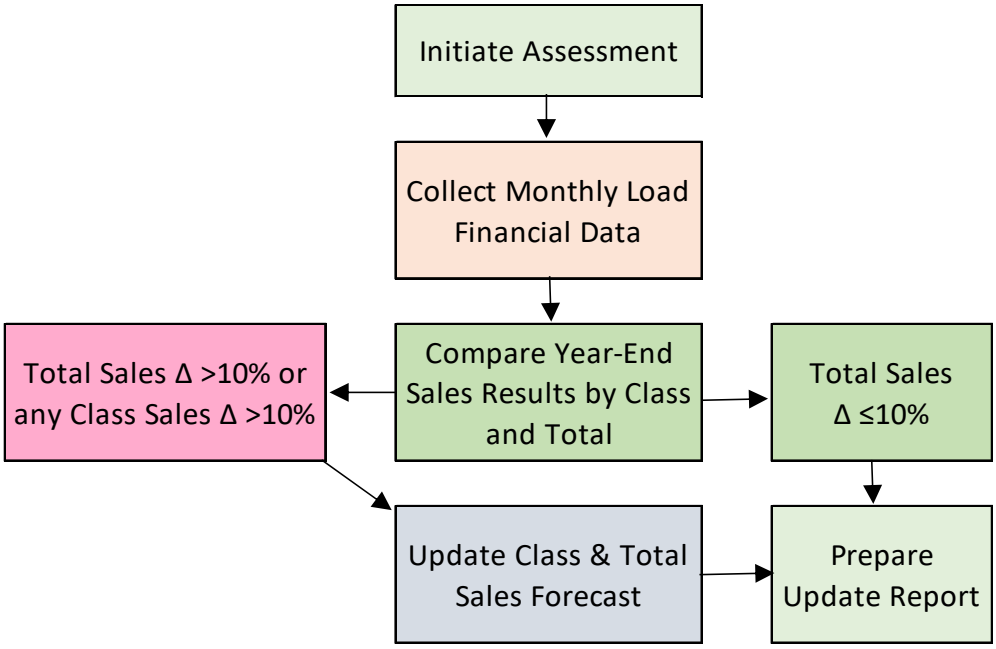


Figure 7-2 Annual Forecast Assessment and Update



Appendix A
7 CFR 1710, Subpart E, Section 1710.200

7 CFR 1710, Subpart E, Section 1710.200

Contents

SOURCE: 65 FR 14786, Mar. 20, 2000, unless otherwise noted.

§1710.200 Purpose.

This subpart contains RUS policies for the preparation, review, approval and use of load forecasts and load forecast work plans. A load forecast is a thorough study of a borrower's electric loads and the factors that affect those loads in order to estimate, as accurately as practicable, the borrower's future requirements for energy and capacity. The load forecast of a power supply borrower includes and integrates the load forecasts of its member systems. An approved load forecast, if required by this subpart, is one of the primary documents that a borrower is required to submit to support a loan application.

§1710.201 General.

(a) The policies, procedures and requirements in this subpart are intended to implement provisions of the loan documents between RUS and the electric borrowers and are also necessary to support approval by RUS of requests for financial assistance.

(b) Notwithstanding any other provisions of this subpart, RUS may require any power supply or distribution borrower to prepare a new or updated load forecast for RUS approval or to maintain an approved load forecast on an ongoing basis, if such documentation is necessary for RUS to determine loan feasibility, or to ensure compliance under the loan documents.

§1710.202 Requirement to prepare a load forecast—power supply borrowers.

(a) A power supply borrower with a total utility plant of $500 million or more must provide a load forecast in support of any request for RUS financial assistance. The borrower must also maintain a load forecast work plan on file. The borrower's load forecast must be prepared pursuant to the load forecast work plan.

(b) A power supply borrower that is a member of another power supply borrower that has a total utility plant of $500 million or more must provide an approved load forecast in support of any request for RUS financial assistance. The member power supply borrower may comply with this requirement by participation in and inclusion of its load forecasting information in the load forecast of

its power supply borrower. The load forecasts must be prepared pursuant to the load forecast work plan.

(c) A power supply borrower that has total utility plant of less than $500 million and that is not a member of another power supply borrower with a total utility plant of $500 million or more must provide a load forecast that meets the requirements of this subpart in support of an application for any RUS loan or loan guarantee which exceeds $50 million.

§1710.203 Requirement to prepare a load forecast—distribution borrowers.

(a) A distribution borrower that is a member of a power supply borrower, with a total utility plant of $500 million or more must provide a load forecast in support of any request for RUS financial assistance. The distribution borrower may comply with this requirement by participation in and inclusion of its load forecasting information in the approved load forecast of its power supply borrower. The distribution borrower's load forecast must be prepared pursuant to the load forecast work plan of its power supply borrower.

(b) A distribution borrower that is a member of a power supply borrower which is itself a member of another power supply borrower that has a total utility plant of $500 million or more must provide a load forecast in support of any request for RUS financial assistance. The distribution borrower may comply with this requirement by participation in and inclusion of its load forecasting information in the load forecast of its power supply borrower. The distribution borrower's load forecast must be prepared pursuant to the load forecast work plan of the power supply borrower with total utility plant in excess of $500 million.

(c) A distribution borrower that is a member of a power supply borrower with a total utility plant of less than $500 million must provide a load forecast that meets the requirements of this subpart in support of an application for any RUS loan or loan guarantee that exceeds $3 million or 5 percent of total utility plant, whichever is greater. The distribution borrower may comply with this requirement by participation in and inclusion of its load forecasting information in the load forecast of its power supply borrower.

(d) A distribution borrower with a total utility plant of less than $500 million and that is unaffiliated with a power supply borrower must provide a load forecast that meets the requirements of this subpart in support of an application for any RUS loan or loan guarantee which exceeds $3 million or 5 percent of total utility plant, whichever is greater.

(e) A distribution borrower with a total utility plant of $500 million or more must provide a load forecast in support of any request for RUS financing assistance. The borrower must also maintain a load forecast work plan. The distribution borrower may comply with this requirement by participation in and inclusion of its load forecasting information in the load forecast of its power supply borrower.

§1710.204 [Reserved]

§1710.205 Minimum requirements for all load forecasts.

(a) *Contents of load forecast.* All load forecasts submitted by borrowers for approval must include:

(1) A narrative describing the borrower's system, service territory, and consumers;

(2) A narrative description of the borrower's load forecast including future load projections, forecast assumptions, and the methods and procedures used to develop the forecast;

(3) Projections of usage by consumer class, number of consumers by class, annual system peak demand, and season of peak demand for the number of years agreed upon by RUS and the borrower;

(4) A summary of the year-by-year results of the load forecast in a format that allows efficient transfer of the information to other borrower planning or loan support documents;

(5) The load impacts of a borrower's demand side management and energy efficiency and conservation program activities, if applicable;

(6) Graphic representations of the variables specifically identified by management as influencing a borrower's loads; and

(7) A database that tracks all relevant variables that might influence a borrower's loads.

(b) *Formats.* RUS does not require a specific format for the narrative, documentation, data, and other information in the load forecast, provided that all required information is included and available. All data must be in a tabular form that can be transferred electronically to RUS computer software applications. RUS will evaluate borrower load forecasts for readability, understanding, filing, and electronic access. If a borrower's load forecast is submitted in a format that is not readily usable by RUS or is incomplete, RUS will require the borrower to submit the load forecast in a format acceptable to RUS.

(c) *Document retention.* The borrower must retain its latest load forecasts and supporting documentation. Any load forecast work plan must be retained as part of the load forecast.

(d) *Consultation with RUS.* The borrower must designate and make appropriate staff and consultants available for consultation with RUS to facilitate RUS review of the load forecast when requested by RUS.

(e) *Correlation and consistency with other RUS loan support documents.* If a borrower relies on an approved load forecast or an update of an approved load forecast as loan support, the borrower must demonstrate that the approved load forecast and the other primary support documentation for the loan were reconciled. For example, both the load forecast and the financial forecast require input assumptions for wholesale power costs, distribution costs, other systems costs, average revenue per kWh, and inflation. Also, a borrower's engineering planning documents, such as the construction work plan, incorporate consumer and usage per consumer projections from the load forecast to develop system design criteria. The assumptions and data common to all the documents must be consistent.

(f) *Coordination.* A load forecast of a power supply borrower must consider the load forecasts of all its member systems.

§1710.206 Requirements for load forecasts prepared pursuant to a load forecast work plan.

(a) *Contents of load forecasts prepared under a load forecast work plan.* In addition to the minimum requirements for load forecasts under §1710.205, load forecasts developed and submitted by borrowers required to have a load forecast work plan shall include the following:

(1) Scope of the load forecast. The narrative shall address the overall approach, time periods, and expected internal and external uses of the forecast. Examples of internal uses include providing information for developing or monitoring demand side management programs, supply resource planning, load flow studies, wholesale power marketing, retail marketing, cost of service studies, rate

policy and development, financial planning, and evaluating the potential effects on electric revenues caused by competition from alternative energy sources or other electric suppliers. Examples of external uses include meeting state and Federal regulatory requirements, obtaining financial ratings, and participation in reliability council, power pool, regional transmission group, power supplier or member system forecasting and planning activities.

(2) Resources used to develop the load forecast. The discussion shall identify and discuss the borrower personnel, consultants, data processing, methods and other resources used in the preparation of the load forecast. The borrower shall identify the borrower's member and, as applicable, member personnel that will serve as project leaders or liaisons with the authority to make decisions and commit resources within the scope of the current and future work plans.

(3) A comprehensive description of the database used in the study. The narrative shall describe the procedures used to collect, develop, verify, validate, update, and maintain the data. A data dictionary thoroughly defining the database shall be included. The borrower shall make all or parts of the database available or otherwise accessible to RUS in electronic format, if requested.

(4) A narrative for each new load forecast or update of a load forecast discussing the methods and procedures used in the analysis and modeling of the borrower's electric system loads as provided for in the load forecast work plan.

(5) A narrative discussing the borrower's past, existing, and forecast of future electric system loads. The narrative must identify and explain substantive assumptions and other pertinent information used to support the estimates presented in the load forecast.

(6) A narrative discussing load forecast uncertainty or alternative futures that may determine the borrower's actual loads. Examples of economic scenarios, weather conditions, and other uncertainties that borrowers may decide to address in their analysis include:

(i) Most-probable assumptions, with normal weather;

(ii) Pessimistic assumptions, with normal weather;

(iii) Optimistic assumptions, with normal weather;

(iv) Most-probable assumptions, with severe weather;

(v) Most-probable assumptions, with mild weather;

(vi) Impacts of wholesale or retail competition; or

(vii) new environmental requirements.

(7) A summary of the forecast's results on an annual basis. Include alternative futures, as applicable. This summary shall be designed to accommodate the transfer of load forecast information to a borrower's other planning or loan support documents. Computer-generated forms or electronic submissions of data are acceptable. Graphs, tables, spreadsheets or other exhibits shall be included throughout the forecast as appropriate.

(8) A narrative discussing the coordination activities conducted between a power supply borrower and its members, as applicable, and between the borrower and RUS.

(b) *Compliance with a load forecast work plan.* A borrower required to maintain a load forecast work plan must also be able to demonstrate that both it and its RUS borrower members are in compliance with its load forecast work plan.

[65 FR 14786, Mar. 20, 2000, as amended at 84 FR 32611, July 9, 2019]

§1710.207 RUS criteria for load forecasts by distribution borrowers.

Load forecasts submitted by distribution borrowers that are unaffiliated with a power supply borrower, or by distribution borrowers that are members of a power supply borrower that has a total utility plant less than $500 million and that is not itself a member of another power supply borrower with a total utility plant of $500 million or more must satisfy the following minimum criteria:

(a) The borrower considered all known relevant factors that influence the consumption of electricity and the known number of consumers served at the time the study was developed;

(b) The borrower considered and identified all loads on its system of RE Act beneficiaries and non-RE Act beneficiaries;

(c) The borrower developed an adequate supporting data base and considered a range of relevant assumptions; and

(d) The borrower provided RUS with adequate documentation and assistance to allow for a thorough and independent review.

§1710.208 RUS criteria for load forecasts by power supply borrowers and by distribution borrowers.

All load forecasts submitted by power supply borrowers and by distribution borrowers must satisfy the following criteria:

(a) The borrower objectively analyzed all known relevant factors that influence the consumption of electricity and the known number of customers served at the time the study was developed;

(b) The borrower considered and identified all loads on its system of RE Act beneficiaries and non-RE Act beneficiaries;

(c) The borrower developed an adequate supporting database and analyzed a reasonable range of relevant assumptions and alternative futures;

(d) The borrower adopted methods and procedures in general use by the electric utility industry to develop its load forecast;

(e) The borrower used valid and verifiable analytical techniques and models;

(f) The borrower provided RUS with adequate documentation and assistance to allow for a thorough and independent review; and

§1710.209 Requirements for load forecast work plans.

(a) In addition to the load forecast required under §§1710.202 and 1710.203, any power supply borrower with a total utility plant of $500 million or more and any distribution borrower with a total utility plant of $500 million or more must maintain a load forecast work plan. RUS borrowers that are members of a power supply borrower with a total utility plant of $500 million or more must cooperate in the preparation of and submittal of the load forecast work plan of their power supply borrower.

(b) A load forecast work plan establishes the process for the preparation and maintenance of a comprehensive database for the development of the borrower's load forecast, and load forecast updates. The load forecast work plan is intended to develop and maintain a process that will result in

load forecasts that will meet the borrowers' own needs and the requirements of this subpart. A work plan represents a commitment by a power supply borrower and its members, or by a large unaffiliated distribution borrower, that all parties concerned will prepare their load forecasts in a timely manner pursuant to the load forecast work plan and they will modify the load forecast work plan as needed to address changing circumstances or enhance the usefulness of the load forecast work plan.

(c) A load forecast work plan for a power supply borrower and its members must cover all member systems, including those that are not borrowers. However, only members that are borrowers, including the power supply borrower, are required to follow the load forecast work plan in preparing their respective load forecasts. Each borrower is individually responsible for forecasting all its RE Act beneficiary and non-RE Act beneficiary loads.

(d) A load forecast work plan must outline the coordination and preparation requirements for both the power supply borrower and its members.

(e) A load forecast work plan must describe the borrower's process and methods to be used in producing the load forecast.

(f) Load forecast work plans for borrowers with residential demand of 50 percent or more of total kWh must provide for a residential consumer survey at least every 5 years to obtain data on appliance and equipment saturation and electricity demand. Any such borrower that is experiencing or anticipates changes in usage patterns shall consider surveys on a more frequent schedule. Power supply borrowers shall coordinate such surveys with their members. Residential consumer surveys may be based on the aggregation of member-based samples or on a system-wide sample, provided that the latter provides for relevant regional breakdowns as appropriate.

(g) Load forecast work plans must provide for RUS review of the load forecasts as the load forecast is being developed.

(h) A power supply borrower's work plan must have the concurrence of the majority of the members that are borrowers.

§1710.210 Waiver of requirements or approval criteria.

For good cause shown by the borrower, the Administrator may waive any of the requirements applicable to borrowers in this subpart if the Administrator determines that waiving the requirement will not significantly affect accomplishment of RUS' objectives and if the requirement imposes a substantial burden on the borrower. The borrower's general manager must request the waiver in writing.

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT TAL-1003

(114 PAGES)

Kaua`i Island Utility Cooperative

Electric Load Forecast

March 2022

Prepared by:
Kaua`i Island Utility Cooperative
HI0001
Lihu`e, Hawai`i

Assisted by:
Energy & Resource Economics
Anchorage, Alaska
&
Halcyon Consulting
Anchorage, Alaska

Kaua`i Island Utility Cooperative
Your Touchstone Energy® Cooperative

This page intentionally blank.

TABLE OF CONTENTS

LIST OF APPENDICES

APPENDIX TABLES & FIGURES

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

^{o}C	degrees Celsius
^{o}F	degrees Fahrenheit
AAGR	average annual growth rate
ARIMA	autoregressive integrated moving average
BEA	U.S. Bureau of Economic Analysis
CDD	cooling degree day
CFL	compact fluorescent light
DBEDT	Hawai`i Department of Business, Economic Development & Tourism
ENSO	El Nino-Southern Oscillation
EV	electric vehicle
HPUC	Hawai`i Public Utilities Commission
KIUC	Kaua`i Island Utility Cooperative
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
LED	light-emitting diode
LF	load forecast
LRFF	Long Range Financial Forecast
MW	megawatt
MWh	megawatt-hour
NRUCFC	National Rural Utilities Cooperative Finance Corporation
NWS	National Weather Service
PMRF	Pacific Missile Range Facility Barking Sands
PV	photovoltaic
RUS	Rural Utilities Service
SST	surface sea temperature
TIER	times interest earned ratio
UHERO	University of Hawai`i Economic Research Organization
USDA	U.S. Department of Agriculture

This page intentionally blank.

EXECUTIVE SUMMARY

Kaua`i Island Utility Cooperative (KIUC) has prepared this *2022 Electric Load Forecast* (LF) to present the expected energy and capacity requirements for the electric system for the 10-year period from 2022 through 2031, in accordance with the *Load Forecast Work Plan* (KIUC, 2021). The LF provides the system growth estimates that serve as the basis for KIUC budgeting and planning. The LF is a fundamental and primary planning activity of the cooperative for use in long-range and operations planning.

This LF provides estimates of the energy and capacity required to meet the net electrical energy needs of KIUC's residential, commercial, industrial, and agricultural consumers. Additionally, the LF provides estimates of the number of consumers in each consumer classification under the rate structures currently in effect at KIUC.

Under base case assumptions (i.e., those conditions considered most likely to prevail over the planning horizon), the net electrical energy requirement of the system to be met by the cooperative is expected to increase from the 2021 level of 435,156 megawatt-hours (MWh) to 449,515 MWh in 2023 and up to 488,675 MWh by 2031.

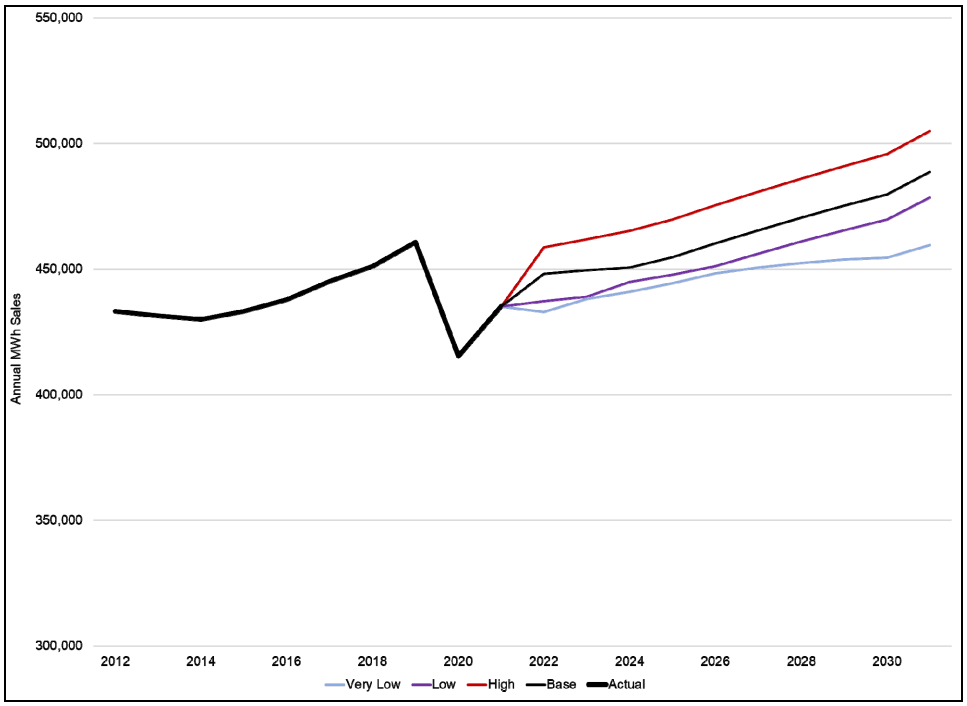
The system coincident demand, or the total amount of electrical capacity required at the same time by the KIUC consumers, is no longer a major planning factor for the utility as a result of growth in local storage capabilities and readily available options for energy during peak load periods. The 2021 coincident peak of 75.2 megawatts (MW), however, is expected to increase mildly over the next 10 years as the system load factor declines over that period at an annual average rate of -0.45 percent, reaching 84.8 MW by 2031.

The forecast results are summarized in Table 1 and displayed on Figure 1.

Table 1 Summary of KIUC Electric Load Forecast – 2021-2031

Year	Very Low		Low		Base		High	
	MWh	MW	MWh	MW	MWh	MW	MWh	MW
2021	435,156	75.2	435,156	75.2	435,156	75.2	435,156	75.2
2022	432,924	74.8	437,204	75.6	448,128	77.4	458,663	79.3
2023	438,110	75.8	439,090	75.9	449,515	77.7	461,925	79.9
2024	440,937	76.3	444,959	77.0	450,653	78.0	465,309	80.5
2025	444,352	76.9	447,752	77.5	454,716	78.7	469,640	81.3
2026	448,262	77.6	451,144	78.1	460,202	79.7	475,355	82.3
2027	450,577	78.1	456,136	79.0	465,446	80.6	480,814	83.3
2028	452,424	78.4	460,898	79.9	470,457	81.6	486,034	84.3
2029	453,779	78.7	465,438	80.7	475,241	82.4	491,022	85.2
2030	454,622	78.9	469,757	81.5	479,799	83.3	495,783	86.0
2031	459,477	79.8	478,399	83.1	488,675	84.8	504,861	87.6

Figure 1 KIUC Energy Requirements - Historical and Forecast by Scenario



For 2022, the base case forecast expects loads to increase by approximately 3 percent as the island's economy continues to recover from the COVID-19 pandemic. Further into the decade, the base case scenario predicts a return to growth rates that are closer to the long-term average of about 1 percent per year. These results are based on trends experienced in the most recent years of tourism data, likely impacts of increased air conditioning load associated with a warm period, as well as an identifiable rebound effect from moderated electric prices. The forecast reflects continuing investment in conservation programs and self-generation by County agencies and certain large power accounts, residences, and commercial facilities.

The residential class is expected to drive sales growth over the next decade with annual sales increases averaging between 1.5 and 2.0 percent. The small commercial class will continue grow in the near term supporting the growing population and responding to the continuation of Kaua`i as a tourist destination. However, declining sales to large commercial users may result from a combination of fewer users and increasing user efficiency. A limited growth in industrial activity is expected, and while no specific growth in government activity at the Pacific Missile Range Facility Barking Sands (PMRF) is forecast, changes in the mission of the PMRF could have significant effects on the economic activity of the island. Relatively minor in proportion of energy requirement, but of likely growing significance, is the movement toward electric vehicles (EVs) as advocated by the state of Hawai`i, and supported through regulations relating to installation of charging stations for resident-owned and rental vehicles. By the end of the decade, the EV charging is conservatively estimated to account for approximate 5 percent of the total load net of consumer self-generation.

The load forecast for the KIUC system is updated periodically, as conditions warrant. Each year, evaluation is made of the recent operating results and changes in short-term economic expectations.

From that evaluation, a reexamination is made of the forecast to assure continuing validity of the underlying assumptions, and the forecast continues to serve as an effective guide for system development. Changes in economic and demographic expectations for the island of Kaua`i, as identified by the KIUC staff or reported by local and statewide authorities, will also trigger an evaluation of the continuing applicability of the results of the forecast.

This page intentionally blank.

1.0 INTRODUCTION

1.1 The KIUC System

Kaua`i Island Utility Cooperative (KIUC) is the exclusive provider of utility electric service to the residences and businesses on the island of Kaua`i, the fourth largest island of the state of Hawai`i. KIUC's system is vertically integrated, providing all of the facilities, equipment, and personnel to provide power generation, transmission, and retail distribution. There are no interconnections to other electrical systems or other islands.

KIUC provides electricity to nearly 30,000 residential consumers, over 4,900 commercial consumers, and 119 large power consumers. In addition, KIUC supplies two irrigation consumers and the island's public street and highway lighting. The utility operates a power system comprised of solar generation, hydroelectric resources, thermal power generation, and battery energy storage, providing for the electric energy requirements of the island that reached as high as 461,000 megawatt-hours (MWh) in 2019. The impact of the pandemic and loss of the tourist industry beginning in early 2020 has resulted in sales of just over 415,000 MWh. Some economic recovery to the island in 2021 resulted in energy requirements reaching 435,156 MWh.

The KIUC system all-time coincident peak load was 79.6 megawatts (MW), also in 2019, with the more recent 2021 peak in November at 75.2 MW.

1.2 Rates, Tariffs, and Financing

KIUC rates and tariffs are regulated by the Hawai`i Public Utilities Commission (HPUC). The HPUC has also established certain operational criteria that apply to the planning and operating of the electrical system. These include specific requirements for the level of capability required of the system, provisions for public review of transmission construction plans for circuits of 45 kilovolts (kV) and above, and construction in excess of $2.5 million (HPUC General Order No. 7).

KIUC is financed through the Rural Utilities Service (RUS) of the U.S. Department of Agriculture (USDA), the National Rural Utilities Cooperative Finance Corporation (NRUCFC), and CoBank, ACB (CoBank) with a combination of Federal Financing Bank guaranteed loans, NRUCFC loans, CoBank loans, and lines of credit from NRUCFC and CoBank. Among requirements such as debt service coverage (DSC) ratio and electric service rates sufficient to pay all fixed and variable expenses when due, loan applications to RUS by KIUC must include a load forecast prepared in accordance with the framework of the adopted *Load Forecast Work Plan* (KIUC, 2021).

1.3 Renewable Energy Goals

The State of Hawai`i has established renewable energy goals for electric utilities intended to achieve 100 percent renewable generation by 2045. KIUC has undertaken an aggressive campaign to accomplish the

goal, having reached 69.5 percent renewable energy production in 2021[1], nearly reaching the 70 percent renewable level by 2030 that was established in the *2016-2030 Strategic Plan* (KIUC, 2017).

The strategic plan, reviewed in 2019 and retained pending an update now underway, included the following vision and mission:

Vision: Improve the quality of life for KIUC's members and on Kaua`i

Mission: Be an energy solutions leader by:

- Safely providing reliable power that is fairly and competitively priced
- Encourage conservation and efficient use of energy resources
- Increasing sustainable power supply and environmental stewardship

[1] A renewable level that will stay the same or possibly decline as load growth increases and no new projects come online.

2.0 OVERVIEW OF THE KIUC SYSTEM

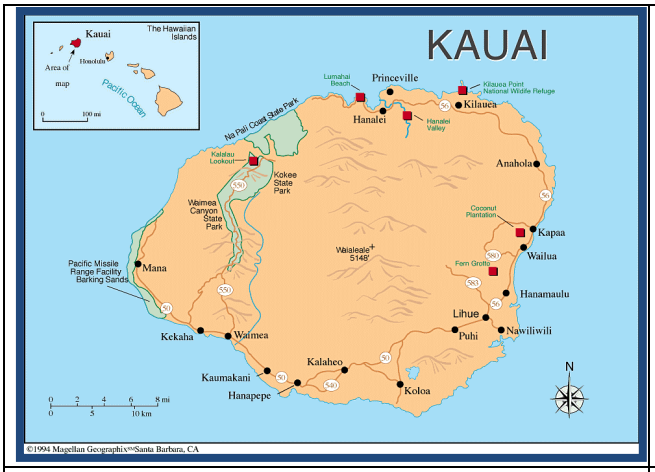
2.1 Kaua`i Island Utility Cooperative

KIUC is the exclusive retail electric service provider for Hawai`i's fourth largest island (Figure 2). Kaua`i has a landmass of approximately 533 square miles and a resident population in 2020 of approximately 72,587. Kaua`i's economy is principally driven by the tourism industry. In 2019, the island welcomed to its shores over 1.3 million annual visitors. The onset of the global COVID-19 pandemic in March 2020 drove total 2020 visitors down to just 0.33 million, but the island saw a partial rebound in 2021 with 0.81 million visitors. A full recovery is expected by state economic and tourism experts over the next several years.

KIUC is governed by a nine-member Board of Directors elected from and by the membership. The management team is headed by the President/Chief Executive Officer, and includes a management team with functional responsibility for member service, power supply, transmission and distribution, engineering, and accounting and finance. There are approximately 139 staff members. KIUC is fully regulated by the HPUC as to rates, construction standards, tariff rules and regulations, and reporting requirements.

KIUC's electrical system is fully integrated, including power generation, transmission, and retail distribution. No interconnection exists with any of the other Hawaiian Islands. KIUC has 170 MW of firm generation capacity. The transmission and distribution system includes fourteen transmission substations/switchyards and approximately 1,500 miles of transmission and distribution line.

Figure 2 Site Map and Photograph



Island of Kaua`i

Kaua`i Coastline

KIUC is Hawai`i's first and only consumer-owned electric provider. In 2002, the cooperative was organized under Hawaiian Statutes as Consumer Cooperative Association. Traditional sources of financing for electric cooperatives include the USDA RUS, which administers loan programs authorized by the U.S. Congress in the Rural Electrification Act of 1936; as well as the National NRUCFC, and CoBank, both of which are private institutions owned by their member-borrowers.

2.2 Service Territory: The Island of Kaua`i

Kaua`i is one of eight main islands that comprise the Hawaiian chain. Geologically, Kaua`i is the oldest of the Hawaiian chain, and it was the first to be inhabited by settlers from the Marquesas, Tahiti, Samoa, and other South Pacific islands beginning around A.D. 500. Kaua`i, located 70 miles northwest of O`ahu, is the fourth largest of the Hawaiian chain with a land mass of 533 square miles, approximately 25 miles long by 33 miles wide.

Nearly circular in shape, only 3 percent of Kaua`i's land area has been developed for commercial and residential use. The majority of the island's estimated 73,000 residents live and work in the coastal areas, leaving the interior of the island pristine and undeveloped principally for land conservation (approximately 55 percent) and agricultural production (approximately 42 percent).

The Kaua`i economy is driven principally by the tourism industry. There is essentially no manufacturing industry on Kaua`i, and the closing of the sugar plantations, most notably the Lihu`e Plantation operated by Amfac, Inc. until 2001 and the closure of the Gay & Robinson sugar refinery in 2010, has withdrawn the sugar industry as an economic force. Seed corn has replaced much of the acreage formerly devoted to sugar. The agricultural industry today is characterized by production of papaya, beef, and coffee. Pineapple is no longer grown on the island, but Kaua`i produces more than 60 percent of Hawai`i`s taro. A developing aquaculture industry and tropical flower cultivation has diversified the Kaua`i agricultural economy away from its earlier reliance on sugar production.

Table 2 shows Kaua`i population, and the average daily count of visitors on the island, for the years 2003 through 2021. The population has exhibited slow but consistent growth in recent years, while the visitor trade was showing continued overall growth until COVID-19 devastated the tourism industry beginning in 2020. The number of average daily visitors more than doubled from 2020 to 2021, but the daily number of visitors for that year was still 40 percent below 2019 levels.

Table 2 Kaua`i Population and Visitors – 2003 to 2021

Year	Population	*(%)*	Average Daily Visitors	*(%)*
2003	60,805	-	17,828	-
2004	62,095	*2.1*	18,921	*6.1*
2005	62,863	*1.2*	19,675	*4.0*
2006	63,465	*1.0*	20,903	*6.2*
2007	64,490	*1.6*	22,207	*6.2*
2008	65,603	*1.7*	19,909	*-10.3*
2009	66,518	*1.4*	18,690	*-6.1*
2010	67,209	*1.0*	19,716	*5.5*
2011	67,803	*0.9*	20,742	*5.2*
2012	68,558	*1.1*	22,380	*7.9*
2013	69,628	*1.6*	23,334	*4.3*
2014	70,540	*1.3*	23,617	*1.2*
2015	71,478	*1.3*	24,533	*3.9*
2016	72,029	*0.8*	24,911	*1.5*
2017	72,173	*0.2*	26,275	*5.5*
2018	72,168	*0.0*	28,534	*8.6*
2019	72,293	*0.2*	27,809	*-2.5*
2020	72,418	*0.2*	8,119	*-70.8*
2021 [1]	72,587	*0.2*	17,199	*111.8*
AAGR		*1.0*		*2.8*

Notes:

1 Population and average daily visitors for 2021 are estimated.

2 The average daily visitor average annual growth rate (AARG) excludes 2020 and 2021 to more accurately represent the pre-COVID-19, long-term growth trend.

2.3 Consumers

KIUC provides electric power for seven principal classes of electric service under the tariff schedules currently in effect:

1. Residential (Schedule D),
2. Small Commercial (Schedule G),
3. Large Commercial (Schedule J),
4. Industrial – Primary (Schedule L),
5. Industrial – Secondary (Schedule P),
6. Street Lighting, and
7. Irrigation.

The total number of consumers at year-end 2021 was 38,695, of which approximately 77 percent are residential consumers. Street lighting services and irrigation consumers, relatively small in comparison to the other consumer groups, nevertheless constitute distinct service obligations of the cooperative.

2.3.1 Historical Consumer Numbers by Class of Service

The total number of KIUC consumers has increased consistently over the last 14 years, primarily driven in the more recent years by the growth in the residential sector.[2] The commercial classification grew quite dramatically through 2004 and 2005, but the growth has since slowed, although some have transferred between classes as load characteristics shifted over time. Table 3 presents the number of KIUC consumers by class of service at year-end for the period 2003 through 2021, drawn from historical records compiled by KIUC. Figure 3 presents the distribution of members by class for 2021.

[2] A one-time shift in residential counts occurred in 2015 from a change in recording systems.

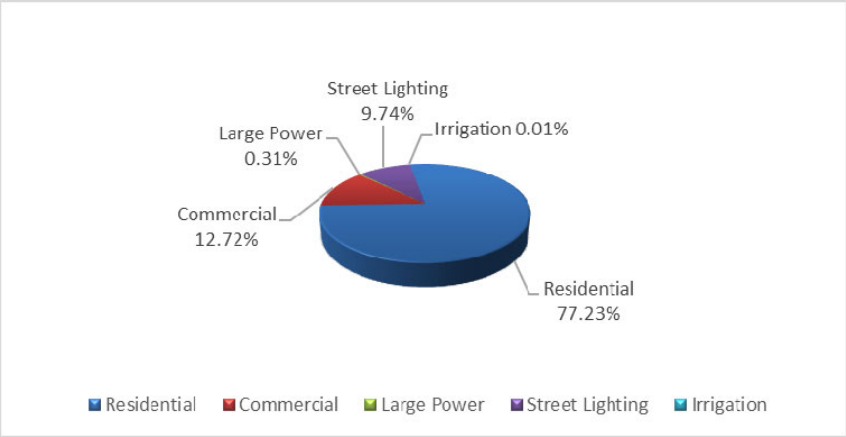
Table 3 KIUC Consumers by Class of Service (Year-end), 2003-2021

Year	Residential		Commercial G		Commercial J		Industrial L		Industrial P		Street Lights		Irrigation		Total	
	No.	*(%)*	No.	*(%)*	No.	*(%)*	No.	*(%)*	No.	*(%)*	No.	*(%)*	No.	*(%)*	No.	*(%)*
2003	24,762	-	4,014	-	351	-	16	-	104	-	3,110	-	4	-	32,361	-
2004	25,350	*2.4*	4,130	*2.9*	362	*3.1*	17	*6.3*	106	*1.9*	3,264	*5.0*	3	*-25.0*	33,232	*2.7*
2005	25,694	*1.4*	4,215	*2.1*	361	*-0.3*	17	*0.0*	108	*1.9*	3,374	*3.4*	3	*0.0*	33,772	*1.6*
2006	26,495	*3.1*	4,257	*1.0*	355	*-1.7*	17	*0.0*	107	*-0.9*	3,437	*1.9*	3	*0.0*	34,671	*2.7*
2007	26,959	*1.8*	4,312	*1.3*	362	*2.0*	16	*-5.9*	108	*0.9*	3,447	*0.3*	3	*0.0*	35,207	*1.5*
2008	27,435	*1.8*	4,291	*-0.5*	358	*-1.1*	16	*0.0*	111	*2.8*	3,499	*1.5*	3	*0.0*	35,713	*1.4*
2009	27,755	*1.2*	4,216	*-1.7*	348	*-2.8*	16	*0.0*	118	*6.3*	3,548	*1.4*	3	*0.0*	36,004	*0.8*
2010	27,834	*0.3*	4,205	*-0.3*	335	*-3.7*	15	*-6.3*	109	*-7.6*	3,561	*0.4*	3	*0.0*	36,062	*0.2*
2011	28,041	*0.7*	4,198	*-0.2*	321	*-4.2*	15	*0.0*	117	*7.3*	3,574	*0.4*	3	*0.0*	36,269	*0.6*
2012	28,215	*0.6*	4,209	*0.3*	332	*3.4*	14	*-6.7*	113	*-3.4*	3,587	*0.4*	3	*0.0*	36,473	*0.6*
2013	28,371	*0.6*	4,301	*2.2*	310	*-6.6*	13	*-7.1*	108	*-4.4*	3,608	*0.6*	3	*0.0*	36,714	*0.7*
2014	28,606	*0.8*	4,295	*-0.1*	299	*-3.5*	13	*0.0*	110	*1.9*	3,616	*0.2*	3	*0.0*	36,942	*0.6*
2015	28,430	*-0.6*	4,325	*0.7*	309	*3.3*	14	*7.7*	105	*-4.5*	3,646	*0.8*	3	*0.0*	36,832	*-0.3*
2016	28,678	*0.9*	4,335	*0.2*	307	*-0.6*	15	*7.1*	106	*1.0*	3,686	*1.1*	3	*0.0*	37,130	*0.8*
2017	28,863	*0.6*	4,434	*2.3*	299	*-2.6*	14	*-6.7*	107	*0.9*	3,719	*0.9*	3	*0.0*	37,439	*0.8*
2018	29,040	*0.6*	4,509	*1.7*	290	*-3.0*	14	*0.0*	105	*-1.9*	3,744	*0.7*	3	*0.0*	37,705	*0.7*
2019	29,333	*1.0*	4,550	*0.9*	291	*0.3*	14	*0.0*	103	*-1.9*	3,765	*0.6*	3	*0.0*	38,059	*0.9*
2020	29,686	*1.2*	4,582	*0.7*	292	*0.3*	14	*0.0*	102	*-1.0*	3,766	*0.0*	3	*0.0*	38,445	*1.0*
2021	29,883	*0.7*	4,629	*1.0*	293	*0.3*	15	*7.1*	104	*2.0*	3,769	*0.1*	2	*-33.3*	38,695	*0.7*
AAGR	(5 yr.)	*0.8*		*1.3*		*-0.9*		*0.0*		*-0.4*		*0.4*		*-7.8*		*0.8*

1. A one-time shift in residential counts occurred in 2015 from a change in recording systems.

Source: KIUC historical records, No. 3 in Historical Data source list.

Figure 3 KIUC Consumer Distribution by Class of Service – 2021



2.3.2 Historical Consumer Energy and Change by Class of Service

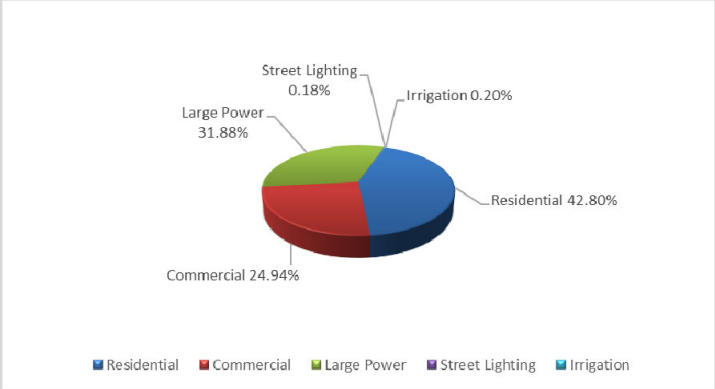
In 2020, KIUC distributed only 415,291 MWh of energy, a nearly 10 percent decline from 2019. By year-end 2021, sales recovered but only to levels seen 4 years earlier. Table 4 presents historical energy sales to each of the seven consumer classifications for 2021 and the previous 18 years. The compound average annual growth rate indicates the trend over the most recent 5-year period, strongly reflecting the impact of the COVID-19 pandemic.

Figure 4 presents the relative share of energy sales by class of service in calendar year 2021.

Table 4 KIUC Energy Sales by Class of Service, MWh – 2003 to 2021

Year	Residential		Commercial G		Commercial J		Industrial L		Industrial P		Street Lights		Irrigation		Total	
	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*
2003	148,600	-	59,886	-	56,055	-	56,826	-	104,546	-	2,328	-	3,073	-	431,314	-
2004	156,399	*5.2*	60,871	*1.6*	58,096	*3.6*	58,316	*2.6*	108,153	*3.5*	2,421	*4.0*	2,667	*-13.2*	446,923	*3.6*
2005	156,002	*-0.3*	61,180	*0.5*	59,269	*2.0*	58,338	*0.0*	109,015	*0.8*	2,494	*3.0*	2,313	*-13.3*	448,611	*0.4*
2006	160,272	*2.7*	62,621	*2.4*	59,632	*0.6*	56,459	*-3.2*	109,606	*0.5*	2,601	*4.3*	889	*-61.6*	452,080	*0.8*
2007	165,177	*3.1*	64,311	*2.7*	60,601	*1.6*	55,894	*-1.0*	116,805	*6.6*	2,643	*1.6*	1,464	*64.7*	466,895	*3.3*
2008	160,479	*-2.8*	61,763	*-4.0*	57,561	*-5.0*	52,083	*-6.8*	118,083	*1.1*	2,637	*-0.2*	1,184	*-19.1*	453,790	*-2.8*
2009	161,946	*0.9*	58,776	*-4.8*	54,388	*-5.5*	42,638	*-18.1*	114,413	*-3.1*	2,702	*2.5*	1,410	*19.1*	436,273	*-3.9*
2010	159,426	*-1.6*	59,481	*1.2*	53,236	*-2.1*	44,991	*5.5*	114,522	*0.1*	2,730	*1.0*	148	*-89.5*	434,534	*-0.4*
2011	159,071	*-0.2*	59,790	*0.5*	51,859	*-2.6*	44,379	*-1.4*	116,824	*2.0*	2,716	*-0.5*	105	*-29.1*	434,744	*0.0*
2012	157,278	*-1.1*	59,664	*-0.2*	51,607	*-0.5*	46,286	*4.3*	115,389	*-1.2*	2,760	*1.6*	175	*66.7*	433,159	*-0.4*
2013	157,867	*0.4*	59,078	*-1.0*	51,397	*-0.4*	47,901	*3.5*	112,214	*-2.8*	2,758	*-0.1*	264	*50.9*	431,479	*-0.4*
2014	159,151	*0.8*	60,426	*2.3*	50,187	*-2.4*	47,427	*-1.0*	109,838	*-2.1*	2,769	*0.4*	125	*-52.7*	429,923	*-0.4*
2015	161,826	*1.7*	61,801	*2.3*	50,792	*1.2*	50,644	*6.8*	105,123	*-4.3*	2,780	*0.4*	320	*156.0*	433,286	*0.8*
2016	163,959	*1.3*	61,188	*-1.0*	52,045	*2.5*	51,963	*2.6*	106,064	*0.9*	2,564	*-7.8*	98	*-69.4*	437,880	*1.1*
2017	169,346	*3.3*	62,824	*2.7*	50,283	*-3.4*	51,927	*-0.1*	108,943	*2.7*	879	*-65.7*	896	*814.3*	445,098	*1.6*
2018	174,726	*3.2*	65,473	*4.2*	49,854	*-0.9*	51,410	*-1.0*	107,098	*-1.7*	853	*-3.0*	1,700	*89.7*	451,114	*1.4*
2019	181,264	*3.7*	67,418	*3.0*	51,257	*2.8*	51,265	*-0.3*	108,216	*1.0*	790	*-7.4*	500	*-70.6*	460,710	*2.1*
2020	177,182	*-2.3*	57,698	*-14.4*	46,669	*-9.0*	39,586	*-22.8*	91,894	*-15.1*	771	*-2.4*	1,491	*198.2*	415,291	*-9.9*
2021	186,244	*5.1*	60,189	*4.3*	48,348	*3.6*	40,153	*1.4*	98,582	*7.3*	768	*-0.4*	872	*-41.5*	435,156	*4.8*
AAGR	**(5 yr.)**	***2.6***		***-0.3***		***-1.5***		***-5.0***		***-1.5***		***-21.4***	855	***54.8***		***-0.1***

Figure 4 KIUC Energy Sales Share – 2021



2.3.3 Historical System Peak Demand

The peak load on the KIUC system has occurred at various times of the year, with October through December being the most common time of system peak. Occasionally the peak occurs in August if the island experiences a warm summer. The KIUC system experienced an all-time peak load of 79.7 MW in August 2019, with the most recent system peak of 75.2 MW occurring in November 2021.

The annual load factor of the KIUC system has been relatively stable with very modest year-over-year changes, often less than two percent. Table 5 presents the history of the KIUC system peak demand, annual energy, and load factor for the years 2003-2021.

Table 5 KIUC Peak Demand, Month, Annual Energy, and Load Factor – 2003 to 2021

Year	Peak MW	Month	MWh	Load Factor
2003	73.46	Oct.	431,314	*67.0*
2004	76.98	Dec.	446,923	*66.3*
2005	76.18	Aug.	448,611	*67.2*
2006	76.78	Oct. & Dec.	452,080	*67.2*
2007	77.75	Dec.	466,895	*68.6*
2008	74.27	Aug.	453,790	*69.7*
2009	75.41	Oct.	436,273	*66.0*
2010	76.54	Dec.	434,534	*64.8*
2011	72.05	Jan.	434,744	*68.9*
2012	73.06	Dec.	433,159	*67.7*
2013	72.08	Oct.	431,479	*68.3*
2014	72.89	Jan.	429,923	*67.3*
2015	74.92	Nov.	433,286	*66.0*
2016	76.54	Jul.	437,880	*65.3*
2017	75.24	Nov.	445,098	*67.5*
2018	77.35	Sep.	451,114	*66.6*
2019	79.69	Aug.	460,710	*66.0*
2020	74.88	Jan.	415,291	*63.3*
2021	75.17	Nov.	435,156	*66.1*
Five-Year Average				**65.9**

3.0 THE KIUC LOAD FORECAST METHODOLOGY

3.1 General Forecast Assumptions

The KIUC electric load forecast has been prepared using a series of models developed specifically for the consumer classes of KIUC, described more fully for each consumer sector in Section 3.2. Upon testing of several factors, the energy sales of KIUC are best forecast as a function of the following independent variables:

1. Kaua`i's resident population
2. Number of average daily visitors to Kaua`i
3. On-site electrical generation and solar water heating
4. Kaua`i personal income
5. Weather and climate phenomenon (i.e., cooling degree days [CDDs] and El Nino/La Nina strength)
6. Price of electricity

Historical energy sales, peak requirements, consumer numbers, and the incidence of on-site electrical generation and solar hot water heating (constituting the Q resources) was collected from historical data provided by KIUC and identified in Appendix A – Historical Data Sources, for the historical period 2003-August 2021.

The independent variables of population, income, visitor population, CDDs, and COVID-19 health restrictions were obtained directly or derived from a variety of sources and the Hawai`i Department of Business, Economic Development & Tourism (DBEDT), and the County of Kaua`i, as listed in Appendix B – Economic Forecast Data. Communications with representatives of the County of Kaua`i and the University of Hawai`i Economic Research Organization (UHERO) have supported the use of the economic indicators provided by DBEDT, with updated information as available.

Average annual growth rates (AAGRs) were estimated based upon recent information and updated forecasts of each variable, as obtained from the sources listed in Appendix B – Economic Forecast Data and UHERO. For sensitivity analysis, alternative growth rates for the independent variables have been derived for projections both higher and lower than the most likely, or base case, expectations. These AAGRs were applied to produce a year-by-year estimate of each independent variable, as shown in Appendix B – Economic Forecast Data.

The starting year selected for historical reference in developing the forecast was 2003, corresponding to the first full year of cooperative service provision, and the period of time when conservation efforts and strategic development began. Also, structural changes in the economy support more recent data as the most appropriate for use in the forecast, such as trends in some of the key KIUC end use sectors changing consumption patterns linked to the incidence of solar water heating installations, photovoltaic (PV) installations, and other types of self-generation.

The historical electric price by consumer classification was based on the average revenue per kilowatt-hour (kWh) sold from revenue and energy sales data provided by KIUC, as listed in Appendix A – Historical Data Sources. Electric rates were held constant in 2021 nominal dollars throughout the forecast period.

3.1.1 Economy of the Island

Captain James Cook and his crew first landed in Hawai`i at Waimea Bay on Kaua`i's west coast on January 20, 1778. These first visitors spent 5 days on Kaua`i and introduced the world to the language, culture, and trading opportunities of Hawai`i. Missionaries and their descendants became successful planters, and Hawai`i's first sugar plantation was founded in Koloa on Kaua`i in 1835. The sugar industry brought an influx of immigrants from Asia and Europe, impacting the economic development and broadening the cultural diversity of the island.

The tourism industry of Kaua`i is focused on five major coastal resort development areas, progressing from the North Shore of Princeville and Hanalei Bay, around the eastern coast through Lihu`e, south to the Po`ipu Beach area, and on to the West Side destinations of Waimea and Hanapepe**.**

The island economy has been challenged by world events that have impacted worldwide tourism. Kaua`i tourism was significantly impacted by the suspension of air traffic immediately following the terrorist attacks in New York City on September 11, 2001, and the Kaua`i economy was affected by a general worldwide recessionary period of 2008-2012.[3] In general, however, Kaua`i has a relatively high percentage of timeshare accommodation units that have historically provided a more stable base of tourists due to the visitors' ownership of the units. More recently, Kaua`i experienced the impact of the worldwide COVID-19 pandemic.

Kaua`i's scenic diversity is the basis for an active feature film production industry. Kaua`i has been the filming site for more than 60 major motion pictures and television films, including *South Pacific; Blue Hawai`i; Jurassic Parks I, II,* and *III; Six Days/Seven Nights;* and *Dragonfly*.

Kaua`i also has a significant U.S. Navy presence at the Pacific Missile Range Facility Barking Sands (PMRF) installation on the West Side. PMRF is the principal missile test tracking station for the South Pacific and serves as a development site for laser defense systems. Approximately 1,000 U.S. Navy and contractor personnel work at PMRF, and the base's future employment is secure for the foreseeable future due to new programs in development.

The employment base of Kaua`i is driven by hospitality jobs serving the tourist industry and construction employment for new and remodeled facilities, homes, and condominium units. The majority of the workforce on Kaua`i work at hotels and resort complexes (including the Grand Hyatt at Po`ipu Beach, Marriott resorts at Lihu`e and Po`ipu Beach, Princeville Resort on the North Shore); other major employers include Wilcox Hospital in Lihu`e and PMRF.

It remains to be seen what ultimately will drive economic growth in Kaua`i, but certainly tourism will

[3] Beginning in December 2007 and continuing through June 2009, the period is often referred to as the "Great Recession." Recovery took several more years.

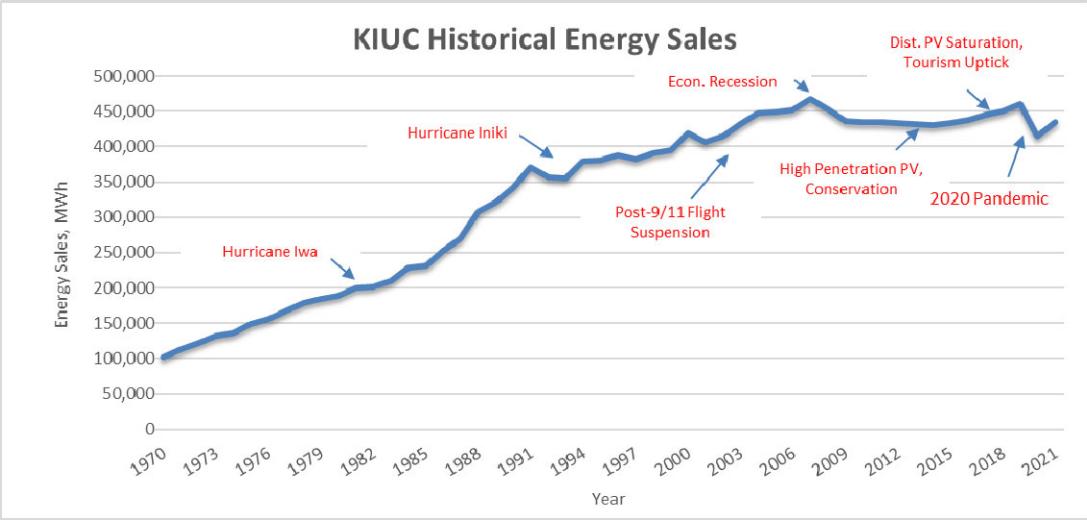
remain dominant, and tourism trends have clearly contributed to the near-term energy load impacts. Hawaii Tourism Authority data show that total visitors to Kaua'i Island increased for nine consecutive years from 2009 through 2018, increasing from 6.82 million visitor days in 2009 to 10.39 million visitor days in 2018. In 2019 the number of annual visitor days dropped 2.5 percent to 10.11 million visitor days. In 2020, the global pandemic resulted in a 71 percent decline in annual visitor days to 2.94 million (Hawaii Tourism Authority, 2022). The loss of tourism associated with COVID-19 resulted in significant sales declines in multiple classes, including the residential, small commercial, and industrial L classes. Fewer tourists resulted in fewer home rentals, less commercial activity, and many resorts moving to "warm" status.

3.1.2 Historical Loads and Impacts of Major Events

The KIUC system historical loads have shown the effects of major events, most particularly the impacts on economic activity as a result of hurricanes; tourism restraints from flight suspensions; widespread economic recessions; the recent global pandemic; and the advent of major contributions to energy supply from conservation, efficiency measures, on-site cogeneration, PV energy sources, and on-site energy storage.

COVID-19 and Hurricane Iniki are the most significant historical events with respect to KIUC energy sales (see Figure 5). Following the recovery from Iniki, tourism and economic activity rebounded and steady growth resumed. A similar recovery process is expected as the pandemic fades. Historically, the influence of tourism as a major driving factor in the energy load of the KIUC system is seen not just in the effects of natural disasters such as pandemics and hurricanes, but in human-caused events as well (the previously mentioned 2001 terrorist attack resulting in air traffic suspensions and the economic slowdown of 2008-2015). The widespread economic collapse that began in 2007 resulted in a severe reduction in tourism through 2015, and construction lagged as major projects were deferred or delayed, leading to declines in electric utilization (as shown on Figure 5). Although the infusion of federal funds for highway construction offset a portion of the loss in private construction, construction rebounded later, and tourism resumed apace.

Figure 5 Impacts of Major Events on KIUC Sales



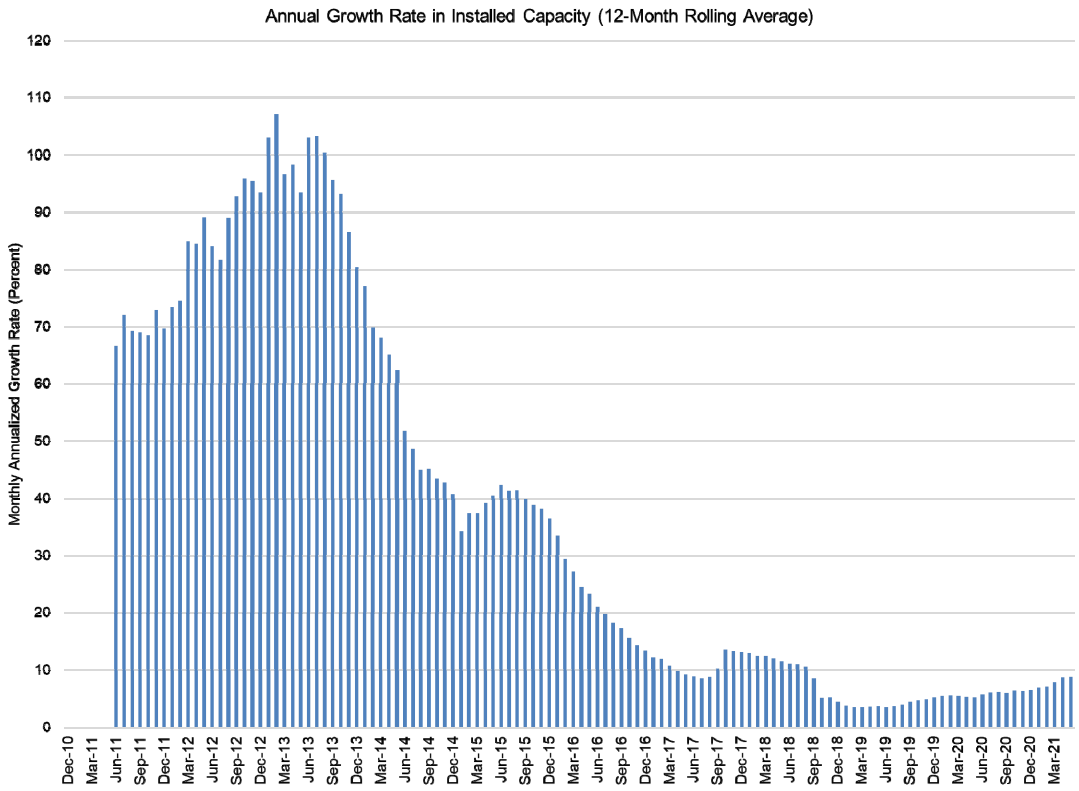
By the time tourism and economic activity rebounded following the 2008-2009 shock, KIUC's strategic objective of reduction in the use of fossil fuels and the drive to moderate electric prices created strong incentives for conservation efforts and alternative generation resources. Co-generation facilities were developed at resorts and, with the increasing cost-effectiveness of renewable PV energy alternatives for residential and commercial consumers, increases in energy requirements were offset, resulting in relatively stable system loads for a period of time. As those alternatives flourished, fuel costs declined due to international conditions, and some of the incentive to move to alternative generation diminished. Increasingly, utility owned and acquired renewable generation options became available that further stabilized electricity costs.

3.1.3 Estimates of Self- and Co-Generation

In response to directives for energy efficiency associated with rising electric prices and the advent of cost-effective alternative energy sources, the KIUC system has seen a significant increase in self-generation for both water heating and direct provision of on-site PV electric production on residential and commercial premises. Large power users requiring both heat and electricity have in some cases determined that on-site combined heat and power installations could provide an effective alternative to system requirements for a portion of the energy requirements, although consumer on-site fossil generation has not successfully prevailed, and some systems have been withdrawn from operation.

Beginning in 2008, net energy metering programs became available to accommodate on-site installations, and other arrangements were provided by which interconnections of on-site generation could be accommodated, and in some instances promoted, by the cooperative. The Schedule Q non-utility energy purchase program providing for interconnection and payments to users of solar energy production in excess of on-site requirements has been highly subscribed in recent years, but shows signs of approaching saturation, as demonstrated by Figure 6 with a dramatic drop in annual growth rates following the high penetration years of 2009-2013 and comparatively consistent ≈9 percent year-over-year growth rate over the last 3 years. Additionally, KIUC has been investigating alternative tariff forms for residential PV installations to moderate the influence of Q installations in the future, but indications to-date are that time-of-use rates are unlikely to have significant effect on end-use patterns.

Figure 6 Residential Schedule Q Installed Capacity



Improvements in lighting equipment have also spurred investments in alternative, lower wattage installations and provided the basis for energy efficiency contracts between end-users and equipment suppliers in recent years, and a growing interest is occurring in on-site residential energy storage facilities.

For forecasting purposes, the incidence of known solar water heating installations, PV installations, and other self-generation installations have been recognized in the energy requirements history, along with the impacts of known facility efficiency and conservation programs by select consumers (e.g., County of Kaua`i facility efficiency programs) and fully implemented programs such the street light replacements with light-emitting diode (LED) lamps. The continuing provisions for interconnection of on-site PV and, increasingly, residential and commercial energy storage systems, have been incorporated in the forecasts of consumer class energy estimates through the Q estimates, as well as considered in the estimate of system peak load requirements.

3.1.4 Weather Conditions and Air Conditioning

No specific weather adjustments have been made to the historical load data of KIUC. Hurricanes and other events, however, have previously had dramatic impacts on energy sales as the result of singular, catastrophic impacts on the island and the resulting loss of tourist and other economic activity during the period immediately following the event, as had the Great Recession of 2008-2009. The impacts of Hurricane Iwa in 1982 and even more dramatically Hurricane Iniki in 1992 are reflected by inflections of

the graphical representation of historical energy sales, as were shown on Figure 5. Those events resulted in dramatic changes in the growth rate of energy requirements of the KIUC system.

Other than extreme events such as the hurricanes, weather conditions generally vary only slightly throughout any one year for the island of Kaua`i. There is a possibility, however, that weather conditions may have an increasing influence on electric loads, particularly in the context of the expanding role of solar PV, solar thermal implementation, and an ever-increasing interest in residential air conditioning.

The historical cooling degree day (CDD) data now available is that of the Lihu`e Airport, which may not be representative of the island as a whole. Nevertheless, findings using that data provide some insight into the effect of weather. Between 2012 and 2017, Lihue has averaged 4,163 CDDs per year with a range from 3,753 (2013) to 4,506 (2015). From 2018 to 2020, Lihue averaged 4,472 CDDs per year ranging from 4,192 in 2018 to 4,698 in 2019. The 2019 total is the highest in the past 20 years, and 2020 was the second highest. On average, an increase of one CDD as measured in Lihu`e causes sales to increase by slightly more than 10.6 MWh across the system, based on modeling results.

The analysis notes that the current estimated effect of a one CDD on the system is 18 percent higher than the same estimated from the March 2018 electrical forecast. This increase is consistent with the theoretical effects of both a greater warming climate and increasing use of air conditioning units. The potential issues arising from electric rate stabilization and high penetration of on-site solar is the potential incidence of growth in air conditioning load. Modeling results suggest a rebound effect of residential electric load following Q installations, which further suggests the possibility of new air conditioning load. As of now, no specific adjustment has been entered for air conditioning, which has not historically been a factor, but may be as weather patterns change and consumers respond with incremental air conditioning investments. Further end-use research is warranted, and as such information becomes available may be considered in the load forecasts.

A new variable added to the energy forecast model in 2021 is the El Nino-Southern Oscillation (ENSO) variable, which measures the strength of the ENSO as measured by the National Weather Service's (NWS's) climate prediction center. The ENSO index measures the deviation of southern Pacific surface sea temperatures (SSTs) from the long-run average. Sea surface temperature deviations above 0.5 degree Celsius (^{o}C) indicate El Nino conditions while deviations below 0.5 ^{o}C indicate La Nina conditions. In general, El Nino conditions are associated with warmer and drier conditions for the Hawaiian Islands accentuated with weaker trade winds and a higher chance of tropical storms.[4] The effect of El Nino differs across classes. A 1 ^{o}C El Nino event reduces monthly residential (Schedule D) sales by 196 MWh, an effect that is statistically significant at the 1 percent level. Conversely, Industrial – Primary (Schedule L) sales increase by 60 MWh; an effect that is statistically significant at the 10 percent level. The model does not detect a statistically significant effect for the remaining classes.

3.1.5 Potential Electric Vehicle Charging Load

Electric vehicles (EVs) are quite likely to be an increasingly significant contributor to energy load on Kaua`i throughout the forecast period. Over the past 5 years, the number of registered electric

[4] https://www.weather.gov/media/peac/one_pagers/El20Nino20Impacts20on20Hawaii.pdf

passenger vehicles in the county has increased from 166 to 540; this change represents a compound annual growth rate of 26.6 percent. The number of charging stations is growing commensurately with the number of vehicles, with the number of available stations increasing from fewer than 20 to more than 50. Many of these have been supported by KIUC, and the state promotes EVs since research shows that in Hawai`i the amount of fossil fuel required per vehicle to travel one mile in a battery-operated EV is one-third less than the amount of fossil fuel required by a similar sized gasoline-fueled vehicle over the same distance, not to mention the savings if charged from solar power. Based on projections of future growth and market penetration, KIUC estimates that total annual MWh sold to power EVs will increase from just over 800 MWh currently to more than 26,500 MWh by 2031.

In this load forecast, the effect of the increasing number of EV vehicles is accounted for outside the individual class models and is added to the total annual forecast. It is not allocated to the individual classes. EV vehicles can be charged at commercial vendor stations, at homes, and at commercial buildings by tenants and owners. Most charging related demand is likely inside the Residential and Commercial classes. Monthly EV registration data are now available by island from DBEDT and future forecasts may consider including EV registrations as an independent variable in class-level forecasts.

3.2 Consumer Class Forecasts

The energy sales forecast was prepared for KIUC using an econometric modeling approach for five of the seven major user classes. Two classes with modest loads were forecast using historical trends and current expectations. The summation of the class forecasts and the EV load projection yielded the total KIUC energy forecast. A general discussion of econometric models is included in Section 3.2.1 below, followed by a discussion of the energy forecast by class.

3.2.1 General Discussion of Econometric Models

The forecast was prepared for the KIUC system by developing econometric models for the current major end-user classes. Econometric models are commonly used in the utility industry and have generally provided satisfactory results for long-range system planning purposes.

Alternatives to an econometric model include more simplistic time trend analyses as well as detailed end use models, which are extremely data intensive and expensive to build.

Econometric models use regression analysis whereby a dependent variable – such as energy sales – is modeled as a function of one (simple regression) or more (multiple regression) independent variables, also called explanatory variables. The objective is to predict the average value of a dependent variable, given fixed values of the independent variable(s).[5] For example, energy sales may be modeled as a dependent variable and population may be considered the independent variable. Graphically, the relationship between the dependent and independent variable is often found to follow the pattern shown on Figure 7 where energy sales is assumed to be the dependent variable and population is the independent variable. When expressing this relationship mathematically, the regression functional form

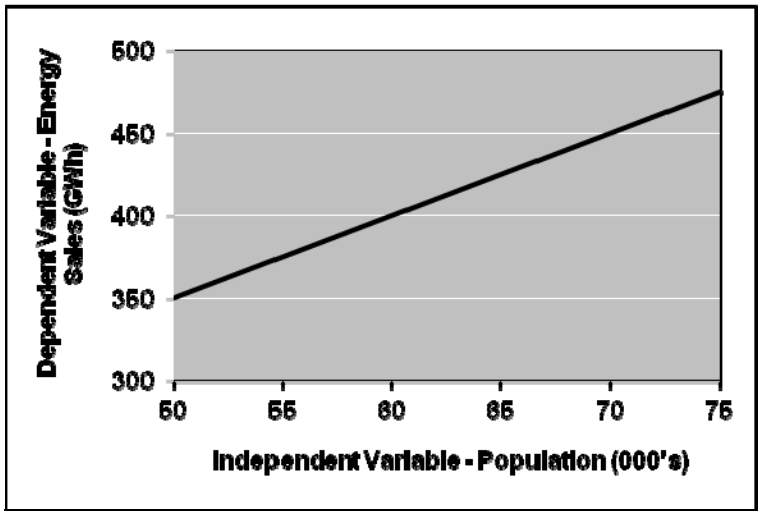
[5] Regression analysis deals with the dependence of one variable on another but does not necessarily imply causation, which arises from economic theory, observation, or other source.

can be written as follows:

$$Y = \beta_0 + \beta_1 X_i + u_i$$

Where Y is the dependent variable, X_i is the independent variable, β_0 is the intercept coefficient, β_1 is the slope coefficient, and u_i is the residual term. Thus, in the example, β_1 measures the change in the mean value of Y (energy sales in this example) per unit change in X_i (population) and determines the slope seen on Figure 7. A common technique to estimate coefficients is ordinary least squares regression analysis, so named because a regression line is selected that minimizes the sum of the squared residuals. This method is considered to be the best linear unbiased coefficients estimator.

Figure 7 Example Relationship of Energy Sales and Population



Econometric models often contain more than one independent variable because a multivariable model can often provide greater explanatory power than a single variable model. For example, some utilities have also determined that temperature and the price of retail energy sales are key explanatory variables in predicting energy sales. A multivariable econometric model reflecting this scenario would take the functional form:

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + u_i$$

One of the most important measures of how well the independent variables explain the variation in the dependent variable is called the coefficient of determination, r^2 (for simple regression, R^2 for multiple regression). The coefficient of determination indicates the percentage of total variation in the dependent variable explained by the regression model. The value of r^2 will range from a high of 1 (100 percent of the variation is explained by the regression model) to a low of 0 (no variation in the dependent variable is explained by the model). Thus, if a regression analysis that modeled energy sales as a function of population produced an r^2 of .75, it would mean that 75 percent of the demand for energy is explained by the regression model. Another closely related term is the adjusted r^2, which accounts for the reduced degrees of freedom that occurs when additional explanatory variables are

added.

Other key diagnostics include a confirmation that the signs of the coefficients are consistent with expectations and economic theory (e.g., one would expect a positive relationship between consumption expenditures and disposable income), tests for significance (usually through a *t*-distribution or *F*-distribution test[6]), and the standard error of the equation and of individual variables.

Once the functional form of an equation is selected, it is then possible to project the future value of the dependent variable, given a forecast for the independent variables, based on the assumption that the coefficient estimate will remain a good indicator of the relationship between the dependent and independent variables. In the present example, it is possible to forecast energy sales in the KIUC commercial class given a forecast of future population, income, or island visitors.

The KIUC total energy sales forecast is comprised of the sum of the forecasts for the following end-user classes: residential, commercial (small and large), industrial or large power users (primary and secondary), street lighting, and irrigation, plus an estimate of EV load.

Historical sales data for forecast development was drawn from KIUC records for 2003 through August 2021. This section first discusses the autoregressive integrated moving average (ARIMA) models, which forecast both the estimated number of accounts and the load, and then discusses the variables in the model and the model's ability to predict the historical results.

3.2.2 ARIMA Forecast Methods

This analysis uses a statistical regression forecasting method for time-series data called ARIMA to predict future electric energy requirements. The basic premise of this technique is that the analysis can provide a realistic and accurate projection of future energy requirements by building a statistical model that accurately predicts and replicates actual historical energy requirements. In these models, the predicted variable (i.e., energy requirement) is called the dependent variable, while the factors the model uses to predict the dependent variable are called independent variables.

The ARIMA (*p,d,q*) models allow the analysis to account for autocorrelated (p), stationality (d), and moving average (q) processes in the KIUC data. In layman's terms:

- The ***autocorrelated*** process is the effect that a consumer's electricity consumption decisions may have on another consumer's decisions to consume electricity in subsequent time periods. For example, suppose a consumer installs energy-efficient compact fluorescent lights (CFLs) in the home and discusses with her neighbor how the new bulbs help her save energy. If the neighbor then installs CFLs in his home, then this drop in energy requirement will be captured by the model as part of the autocorrelative process.

- ***Stationality*** occurs when some underlying process is driving changes in energy requirement

[6] The t-stat is a measure of an independent variable's relative strength of prediction; the greater the t-stat the greater the relative influence of the independent variable on the dependent variable. The F value and Prob(F) statistics test the overall significance of the regression model by testing the null hypothesis that *all* of the regression coefficients are equal to zero.

from year to year. For example, in recent years, many localities have promoted energy efficiency programs across the country. In addition, average temperatures are rising across the country. Both of these exogenous phenomena can change the underlying factors driving energy requirements in KIUC's service area.

- ***The moving average*** process may be described as the momentum built up in the system where an action in one year affects the next year. For example, high oil prices and technological changes may propel large-scale consumers to make investments in energy efficiency that take months or years to fully complete.

3.2.3 Data Used

The analysis includes one ARIMA model for each customer class, with the amount of energy required by (sold to) each customer class as the dependent variable (i.e., the data point we are trying to predict). The five major customer classes the forecast models are Residential D, Commercial G, Commercial J, Industrial L, and Industrial P. KIUC also has Irrigation and Street Light classes, but the forecast does not use the ARIMA model to estimate future sales as irrigation needs vary with unforecastable weather patterns and street lighting has undergone a major shift to LED lights, which means that past sales would be a poor predictor of future sales.

Independent variables are those that the forecast uses to predict future sales by customer class (i.e., the dependent variable). The independent variables the analysis uses to estimate energy requirements are listed below.

- ***Population*****:** Kaua`i's population has generally seen steady growth in recent years, and DBEDT predicts slow and steady growth for the continued future. Based on DBEDT data, one could expect the island's population to rise from around 72,418 in 2020 to near 90,000 by 2040. (DBEDT projected a 0.8 percent annual growth for Kaua`i County in 2017 [DBEDT, 2018]; however, the pandemic may have affected this.)

  Population is a primary driver of residential sales and plays a role in the number of commercial entities on the island. Additionally, as people tend to live in residences containing multiple individuals who only need one residential sales account, the number of residents is linked to the number of residential accounts. Historically, Kaua`i's growth rate has been approximately 0.3 percentage points greater than the state as a whole.

- ***Visitors*****:** Tourism is the largest driver of the Kaua`i's economy and thus a primary driver of demand by commercial accounts and industrial users such as the island's large hotels and resorts. The analysis uses average visitor days per month as reported and forecast by DBEDT, which expects the average number of visitor days to increase from pre-pandemic levels of about 27,000 to over 40,000 by 2040 (DBEDT, 2018b).

- ***Number of Customers*****:** With the exception of the residential class model, which uses the number of residents, each of the models contains one variable that tracks the number of active customer accounts. Historical customer accounts come from KIUC while future projections come from individual ARIMA models that the forecast developed to project accounts for recent trends and changes in the drivers of the number of accounts. For example, the number of residents and

visitors help drive the number of commercial establishments on the island. As these number rise, so too will the demand for commercial establishments to help maintain access to goods and services.

- ***"Month":*** KIUC's energy sales are modestly seasonal as most customer classes tend to require more energy in the summer and slightly less electricity in the winter months. Each of the customer class models contains a variable for each month, which helps the model track the changing energy requirements associated with seasonal climate differences. Data for the months of January through December are expressed as the sales in each month relative to August, which is traditionally the highest sales month (i.e., August is the "index" based upon which other months are measured).
- ***MonthCount*:** This variable acts as a linear trend variable. Its role is to account for any underlying trends in the data not captured in the other independent variables in the models. Many of the customer classes analyzed in this analysis have a long-term trend toward lower electrical consumption per account per month. The MonthCount variable helps to capture these underlying trends that are not accounted for elsewhere.
- ***"Q"*:** The Q variables account for Schedule Q power production from residential and commercial solar installations. The forecast uses historical Q provided by KIUC and then uses custom forecasts for Q going forward based on current trends, with the base and high case scenarios at the same amount, but a lower Q in the low case scenario. The analysis also "lags" the Q variable by one year in the analysis as there is often a rebound effect associated with consumer solar installations. For example, this analysis finds that class sales tend to fall in the first year after solar is installed, but that consumption, accounting for other factors, increases the following year as the consumer realizes that they can simply use more electricity for the same budget. The consumer may be choosing to take at least some of the payoff from their installation of solar in the form of increased consumption as opposed to cash savings.
- ***Cost of Power*:** The model includes the real cost of power per MWh for each class in each year in the model. Estimated future nominal prices were converted into real prices using an inflation rate of 2.25 percent and held constant in real terms.
- ***Personal Income*:** The model uses personal income per capita for the county, which comes from the U.S. Bureau of Economic Analysis, with future estimates based upon UHERO projections.
- ***Cooling Degree Days:*** The model uses historic CDDs as measured in Lihue by the NWS. Future estimates of CDDs are based on long-term historical averages.
- ***ENSO:*** The model uses historic El Nino-Southern Oscillation index data and short-term forecasts of ENSO intensity from the NWS. In the long-term, the model assumes historic averages as NWS does not predict out that far.
- ***COVID Public Health Tier:*** During the COVID-19 pandemic, Kaua`i County created a tiered system of public health measures with Tier 1 representing the most restrictive tier and Tier 6 representing a period where no public health measures are in place. The country created the tiering system midway through the pandemic, but the model recreated the approximate tiers that would have been in place using public health emergency orders and county mandates.

- ***"Special Event Variables"*:** The analysis uses special event variables to account for historical events that affected specific customers in the Industrial L class. The customers in this class include many of the island's resorts, which irregularly stop hosting visitors for large-scale renovations. This class has less than 20 customers, such that a sales decline to one customer affects sales for the entire class. The special event variables are 1/0 variables where "1" indicates a month where that customer dropped offline for renovations or other special event.

Table 6 shows the variables used in each class model. A "V" denotes that the model uses that variable either as an explanatory variable or to help predict customer numbers in the future. Not every model uses every variable. If there is no apparent connection, theoretical or mathematical, between a variable and a specific class model, then the model does not include the variable. As noted in KIUC's 2018 Electric Load Forecast, the models built for KIUC's forecast predict past sales based on historical dependent variable data within a relatively small error range. Across the five customer classes and predicting sales from 2004 through mid-2021, the models accurately predicted annual sales to within +/-1 percent of actuals 80 percent of the time, and long-term absolute errors were close to 0 percent.

Table 6 Variable Use by Customer Class

Variable Name or Type	Customer Class				
	Residential D	Commercial G	Commercial J	Industrial L	Industrial P
Population	V	V	V	V	V
Visitor Days		V	V	V	V
Customers	V	V	V	V	V
"Month"	V	V	V	V	V
MonthCount	V	V	V	V	V
Q	V	V	V		
Cost of Power	V	V	V	V	V
Personal Income	V	V	V		
Cooling Degree Days	V	V	V	V	V
ENSO	V	V	V	V	V
COVID-19 Tiers	V	V	V		V
Price	V	V	V	V	V
Special Event Variables				V	

Note: A "V" denotes a variable used as an explanatory variable or to help predict customer numbers in the future.

3.2.4 Sensitivity Testing

The forecast provides for sensitivity testing to the baseline projections by also running "very low", "low" and "high" case scenarios. It is important to note that the lower scenarios and high scenario should not be interpreted as the "very low or low sales scenario" and the "high sales scenario" since sometime running low and high variations of the different independent variables can result in countervailing effects. For example, below average income growth not only directly affects residential consumer class sales but also leaves consumers with less money to invest in solar installations, which at least initially

also depress sales. While total residential power consumption (i.e., sales+solar Q) might be lower, sales to the class by KIUC might actually be higher. Class sales are complex, and the lowering of one factor can result in higher or lower sales via another factor. Table 7 shows the variables used in sensitivity analyses.

Table 7 Variables Used in Sensitivity Analyses

Variable	Adjustment
Population	Population growth rates range from -0.2 percent to +0.47 percent, depending on the scenario.
Visitor Days	Visitor days per month are based on DBEDT projections with a return to pre-COVID-19 conditions occurring between 2023 and 2025, depending on the scenario.
Customers	Customer growth rates vary with population and visitor days or, for Industrial classes, with acceleration or deceleration of historical trends.
Q	Baseline Q growth takes two forms: a) continued growth at the 2018-2022 average or b) a decaying of that growth rate to 20 percent of the 2018-2022 average by 2031.
Personal Income	Personal income rate is adjusted +/-20 percent from UHERO projected growth rates.

3.3 Consumer Class Model Results

As noted above, the model draws from UHERO and DBEDT projections of population, tourism activity, and personal income to estimate the future conditions required by the models to estimate future sales. However, one element the model requires that cannot come from an outside source is the number of consumer accounts per class. Account numbers are a statistically significant predictor of sales, all other things being equal. The forecast built custom predictive models for each of the consumer classes that accounted for long-term trends and included relevant explanatory variables. These models vary in complexity. For example, the number of Commercial G accounts is based on the number of residents and visitors as well as underlying trends. When visitors and residents increase, more support services such as restaurants, retail shops, dentists, and doctors are needed. More simply and typically, though, the number of residential accounts is the number of residents divided by the average household size.

The following subsections discuss the model results by class with attention to the differences between the low conditions, base condition, and high condition scenarios.

3.3.1 Residential Class Results

The Residential Class (Schedule D) model predicts a continuation of the upward trend in residential sales that occurred as the state and the nation recovered from the 2008-2009 Great Recession with annual sales growing from roughly 186,000 MWh under current conditions to 206,000 under base condition scenario conditions. Common across the base conditions, low conditions, and high conditions scenarios is a continuation of sales growth driven by a growing population and growing real income per capita (Table 8). Under the very low scenario, population falls and the economy fails to recover from the COVID-19 pandemic.

Table 8 Residential History and Projections, 2019-2031

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	181,264	181,264	181,264	181,264
2020	177,182	177,182	177,182	177,182
2021	186,244	186,244	186,244	186,244
Forecast				
2022	178,888	179,505	185,022	189,820
2023	182,509	179,805	184,912	191,044
2024	183,268	183,699	184,517	193,281
2025	184,544	184,849	188,100	197,175
2026	185,161	185,859	191,228	200,603
2027	185,485	188,632	194,285	203,958
2028	185,497	191,336	197,270	207,239
2029	185,175	193,969	200,180	210,442
2030	184,496	196,528	203,012	213,565
2031	183,435	199,010	205,764	216,606

3.3.2 Commercial G Class Results

Unlike the Residential Class, Commercial G sales did not fully recover in 2021 from the pandemic-related decline experienced in 2020. The model predicts that annual sales will continue recovering, slowly, over the next decade, reaching 62,920 MWh by 2031, an amount that would be well below 2019 sales (Table 9). Under the optimistic scenario, sales nearly recover, reaching 66,974 MWh, by 2031. The analysis acknowledges a high-level of uncertainty regarding the forecast for this particular class as the pandemic has shifted the personal consumption habits of the consumers upon which this class relies.

Table 9 Commercial G History and Projections, 2019-2031

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	67,418	67,418	67,418	67,418
2020	57,698	57,698	57,698	57,698
2021	60,189	60,189	60,189	60,189
Forecast				
2022	58,970	59,826	61,756	64,192
2023	58,952	60,033	62,070	64,496
2024	58,904	60,267	62,108	64,604
2025	58,830	60,599	62,214	64,931
2026	58,600	60,749	62,274	65,206
2027	58,242	60,938	62,362	65,511
2028	57,911	61,155	62,473	65,842
2029	57,598	61,395	62,604	66,197
2030	57,299	61,656	62,753	66,575
2031	57,014	61,936	62,920	66,974

3.3.3 Commercial J Class Results

Commercial J Class sales have declined over the last 15 years. Between 2003 and 2006, average annual sales totaled 58,262 MWh. The 4-year average declined to 51,105 MWh for the 2013-2016 period. During the 3 full years before the pandemic, class sales averaged just over 51,000 MWh. Thus, sales to this class face not only a recovery from the effects of COVID-19, but a long-term secular trend of declining sales. The forecast estimates that usage will continue to decline falling from 48,348 MWh in 2021 to 42,530 MWh in 2031 under base scenario conditions (Table 10). The forecast acknowledge that this decline may not be linear and that a rebound back toward 2019 levels is possible but with a high likelihood of the resumption of the downward trend in out-years.[7]

Table 10 Commercial J History and Projections, 2019-2031

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	51,257	51,257	51,257	51,257
2020	46,669	46,669	46,669	46,669
2021	48,348	48,348	48,348	48,348
Forecast				
2022	45,568	46,015	47,154	49,455
2023	44,756	45,139	46,229	48,622
2024	45,157	45,302	46,196	48,659
2025	44,872	44,924	45,712	48,119
2026	44,435	44,362	45,194	47,541
2027	43,833	43,795	44,666	46,951
2028	43,228	43,221	44,134	46,353
2029	42,619	42,644	43,599	45,751
2030	42,007	42,065	43,064	45,148
2031	41,393	41,486	42,530	44,544

[7] The year beyond a current fiscal year.

3.3.4 Industrial L Class Results

Large hotels and resorts make up much of the Industrial L Class's customer base. Sales to this class have ranged widely over the last 20 years, even excluding the COVID-19-influenced period. With just 15 customers in the class, the permanent or temporary loss of an account significantly influences class sales beyond the normal effects of recessions and business cycles. In addition, through these variations, the models detect a long-term trend of lower sales likely related to efficiency and self-generation investments. Sales to this class dropped more 20 percent with the onset of the pandemic and saw little recovery between 2020 and 2021. The models expect a modest recovery in sales, but none of the scenarios predict a return to 2019 sales levels. The base case scenario expects total sales to recover in 2022, 2023, and 2024 before slowly declining to 42,890 MWh by 2031 (Table 11). The addition of a customer or a slowing of the trend attributed to efficiency gains and self-generation could lead to higher sales above the 2019 peak, but these factors are not currently included in the scenarios.

Table 11 Industrial L History and Projections, 2019-2031

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	51,265	51,265	51,265	51,265
2020	39,586	39,586	39,586	39,586
2021	40,153	40,153	40,153	40,153
Forecast				
2022	41,611	43,334	45,371	46,020
2023	42,776	44,508	46,452	47,615
2024	43,441	45,370	47,223	48,053
2025	44,189	45,639	46,636	47,465
2026	44,410	45,033	46,024	46,834
2027	43,802	44,408	45,402	46,184
2028	43,187	43,774	44,775	45,525
2029	42,569	43,136	44,147	44,861
2030	41,951	42,496	43,519	44,196
2031	41,332	41,856	42,890	43,530

3.3.5 Industrial P Results

The Industrial P Class annual sales followed a seesaw motion downward from the historic peak of nearly 118,800 MWh in 2008 through the low of 104,200 MWh in 2015, but with recent increases to roughly 108,000 MWh between 2017 to 2019. The forecast expects that energy sales to this class generally remain flat over time as the class recovers from pandemic-induced declines. In the base case scenario, the model predicts that sales will recover to near the 108,000 MWh level by mid-decade (Table 12). It may be noted that the optimistic scenario results in the lowest sales forecast. This result occurs because population is negatively correlated with energy sales to this sector. In short, as population increases, industrial uses become less desirable and industrial activity can be pushed out of an area.

Table 12 Industrial P History and Projections, 2019-2031

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	108,216	108,216	108,216	108,216
2020	91,894	91,894	91,894	91,894
2021	98,582	98,582	98,582	98,582
Forecast				
2022	104,726	105,363	105,663	106,014
2023	105,200	105,689	105,934	106,231
2024	105,538	105,693	105,981	106,084
2025	106,624	106,449	106,762	106,657
2026	107,286	106,771	107,112	106,801
2027	107,908	107,055	107,422	106,903
2028	108,498	107,309	107,701	106,971
2029	109,063	107,539	107,955	107,014
2030	109,609	107,751	108,190	107,038
2031	110,141	107,950	108,410	107,046

3.3.6 Street Lights

Historically, sales to public street lights have represented less than 0.5 percent of annual sales. This percentage has become even smaller while Kaua`i County converts all of its traditional street lights to LED lighting. From 2016 to 2017, consumption by street lights fell from over 2,500 MWh to just over 900 MW and from 2019 to 2021 steadily decreased to 768 MWh. Going forward, the forecast expects street light sales to be stable at around 770 MWh. Without a significant investment in new street lights or new, more-efficient lighting, future street lighting consumption should be between 700 and 800 MWh.

3.3.7 Irrigation

Annual irrigation sales fell dramatically between 2004 and 2010 from over 2,500 MWh in 2004 to

between 98 and 320 MWh between 2011 and 2016, and then a range of 500 MWh to 1,491 MWh between 2017 and 2021. The forecast expects annual sales on average of 746 MWh barring a radical unforeseen event such as a long-term drought or a series of unusually wet years.

3.3.8 EV Adjustment

Electric vehicles are a growing sales component. These vehicles are charged at commercial stations and charging stations owned by owners. As such EVs are not a sales class unto themselves. In the future, the number of EVs registered on the island by month should be included as an explanatory variable in the Residential and Commercial classes. Since an explanatory EV-specific variable is not included in the current analysis, the effect of EVs historically has been picked up by the *MonthCount* variable in the time-series analysis for each class. With an expected rapid growth of EVs, the class forecasts are then unlikely to fully detect the effect of EVs on overall sales. Consequently, for the purpose of this load forecast, an EV adjustment is applied to each year, regardless of scenario, in order to account for prospective growth in the electric load as a result of EV adoption on the island. Table 13 lists projected EV sales.

Table 13 Projected EV Sales, 2021-2031

Year	EV Related Sales (MWh)			
	Total Related Sales	New YOY Sales	Adjustment Factor	Total YOY Sales Adjustment
Actuals				
2021	1,692	-	-	-
Forecast				
2022	2,523	831	30.23	1,645
2023	3,324	802	45.75	2,401
2024	4,096	772	61.55	3,112
2025	4,838	742	77.64	3,776
2026	8,011	3172	94.01	6,854
2027	11,059	3049	110.69	9,792
2028	13,982	2923	127.66	12,588
2029	16,779	2796	144.93	15,239
2030	19,447	2668	162.52	17,744
2031	26,528	7082	180.42	24,646

3.4 Estimate of System Peak Demand

Estimating the peak demand of the KIUC system is challenging from the standpoint of the changing characteristics of the system over the last several years, and the possible changes in consumer end uses (e.g., EVs and air conditioning) as electric prices moderate. In the 5 years prior to 2017, there had been a steady decrease in the system load factor – the ratio of the average electrical demand throughout the year to the maximum annual demand. That result was indicative of the expansion of on-site solar generation by consumers that reduces the energy requirements overall, but becomes unavailable during the peak loading period, which is generally after darkness befalls the island between 6 p.m. and 8 p.m.

In 2016, the peak moved from the wintertime period to the month of July, a phenomenon replicated in 2018 and 2019 when the peaks occurred in September and August, respectively, which suggests the possibility of greater contribution of air conditioning during the warmer summer months and during times of high tourism activity.

Over the past 6 years, the system peak ranged from 76.5 MW to 79.7 MW, the latter occurring in August 2019. The peak usage was in September 2018, suggesting air conditioning load. Then it then dropped in November 2021 to 75.2 MW. Over the most recent 6-year period, the system peak averaged 76.5 MW while the load factor changed by an annual average of 0.24 percent (see Table 14). The load factor over those same years has averaged just under 66 percent.

Table 14 KIUC System Peak and Load Factor, 2016-2021

Year	Energy Sales kWh	*(%)*	System Peak MW	Load Factor	*(%)*
2016	437,880,157	-	76.54	0.653	-
2017	445,097,973	*1.6*	75.24	0.675	*3.4*
2018	451,114,053	*1.4*	77.35	0.666	*-1.4*
2019	460,709,841	*2.1*	79.69	0.660	*-0.9*
2020	415,290,693	*-9.9*	74.88	0.633	*-4.1*
2021	435,155,634	*4.8*	75.17	0.661	*4.4*
AAGR		*-0.56%*			*0.24%*
Average				0.658	

The variation in load factor on the KIUC system reflects the condition of greatest consideration for the preparation of the demand forecast. The variability in load factor over the last 6 years is significant, but likely due to a number of factors. It is not at all certain that the average historical relationship of peak to energy sales will continue over time. Additionally, with the availability of expanded storage opportunities on the island - such as through development of the West Kaua`i Energy Project - the significance of a peak demand forecast is somewhat diminished.

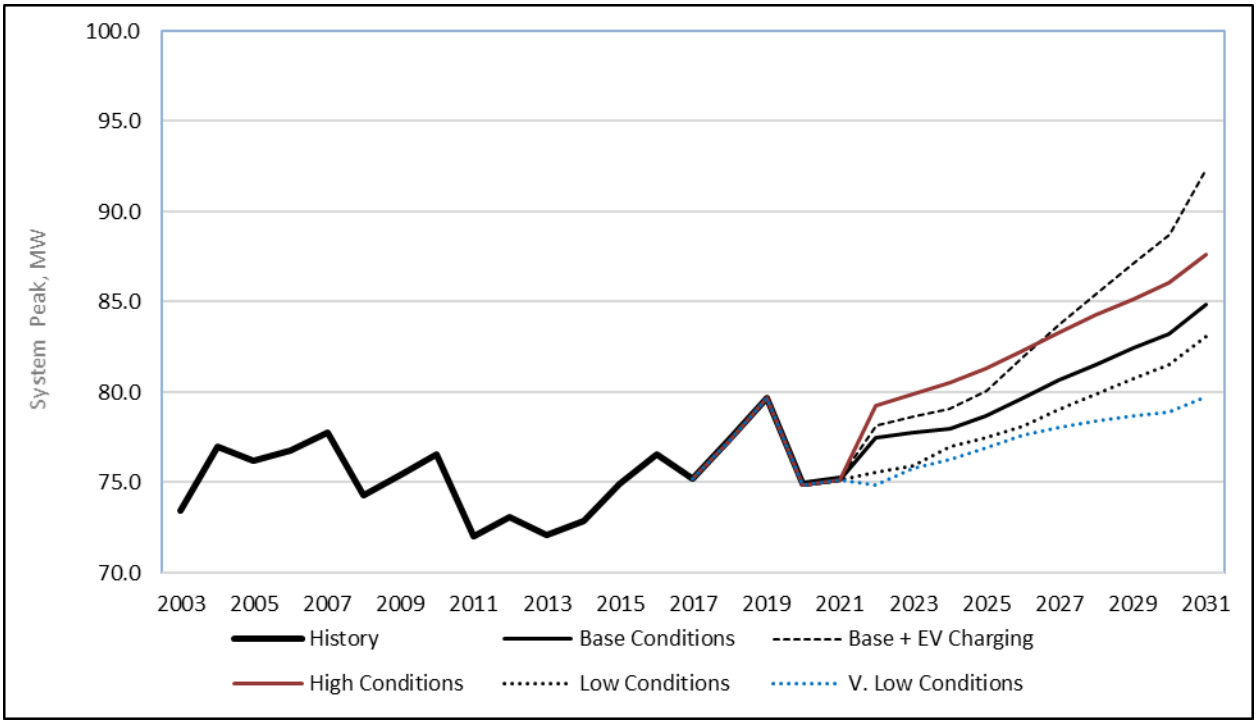
A demand forecast based on load factor assumes the average load factor of the most recent 6 years (65.8 percent) for estimating the 2022 peak, declining moderately for the remainder of the forecast period. From 2022 forward, the demand projection assumes a continuing annual average decline in load factor of 0.05 percent. The result is modest forecast increase in peak demand under all scenarios.

However, a forecast based on system load factor does not capture the potential incremental impact of EV charging demand, which may or may not be coincident with the non-EV system peak. In the absence of data on the time-related distribution of EV charging, the impact on coincident peak is unknown.

KIUC estimates an EV charging capacity of 3.5 MW in 2022, increasing to as much as 37.1 MW by the end of 2031. Assuming only 25 percent of the EV charging occurs during the evening coincident peak hours, the EV load could have a dramatic effect on system peak, as shown on Figure 8, a graphic representation of historic and projected system peak demand estimates. The peak demand estimates are detailed in Table 21 – Energy and Capacity Requirements at Generation.

As additional information becomes available regarding changes in residential and commercial on-site generation, the availability and installation of behind-the-meter storage, the impact of residential and commercial EV charging load, and the incidence of air conditioning equipment among the consumers of KIUC, the peak requirement may be revised. As noted earlier, however, the availability of additional capacity from new resources such as the West Kauai Energy Project would be available to mitigate the impact of decreasing load factor.

Figure 8 Peak Demand Forecast



This page intentionally blank.

4.0 THE KIUC LOAD FORECAST SUMMARY

4.1 Composite Base Case Energy Forecast

The derivation of the base case energy requirements was explained for the major consumer classes in Section 3. The composite forecast for the KIUC system is presented in Table 15. As a whole, the KIUC system energy sales are expected to increase at a rate of 0.87 percent on an average annual basis. This growth will be led by the residential consumer class (1.07 percent AAGR), supported by Industrial P (0.26 percent AAGR) which will offset declines in Commercial J and Industrial L sales. The EV load is project to grow at about 31.08 percent on an annual average basis but constitutes a relatively small share of sales.

Table 15 KIUC Base Case Energy Sales Summary

Total	Residential		Commercial G		Commercial J		Industrial L		Industrial P		Street Lights		Irrigation		EV Growth Adjustment		Total MWh	
	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*
2022	185,022	-	61,756	-	47,154	-	45,371	-	105,663	-	770	-	746	-	1,645	-	448,128	-
2023	184,912	*-0.1*	62,070	*0.5*	46,229	*-2.0*	46,452	*2.4*	105,934	*0.3*	770	*0.0*	746	*0.0*	2,401	*45.9*	449,515	*0.3*
2024	184,517	*-0.2*	62,108	*0.1*	46,196	*-0.1*	47,223	*1.7*	105,981	*0.0*	770	*0.0*	746	*0.0*	3,112	*29.6*	450,653	*0.3*
2025	188,100	*1.9*	62,214	*0.2*	45,712	*-1.0*	46,636	*-1.2*	106,762	*0.7*	770	*0.0*	746	*0.0*	3,776	*21.3*	454,716	*0.9*
2026	191,228	*1.7*	62,274	*0.1*	45,194	*-1.1*	46,024	*-1.3*	107,112	*0.3*	770	*0.0*	746	*0.0*	6,854	*81.5*	460,202	*1.2*
2027	194,285	*1.6*	62,362	*0.1*	44,666	*-1.2*	45,402	*-1.4*	107,422	*0.3*	770	*0.0*	746	*0.0*	9,792	*42.9*	465,446	*1.1*
2028	197,270	*1.5*	62,473	*0.2*	44,134	*-1.2*	44,775	*-1.4*	107,701	*0.3*	770	*0.0*	746	*0.0*	12,588	*28.6*	470,457	*1.1*
2029	200,180	*1.5*	62,604	*0.2*	43,599	*-1.2*	44,147	*-1.4*	107,955	*0.2*	770	*0.0*	746	*0.0*	15,239	*21.1*	475,241	*1.0*
2030	203,012	*1.4*	62,753	*0.2*	43,064	*-1.2*	43,519	*-1.4*	108,190	*0.2*	770	*0.0*	746	*0.0*	17,744	*16.4*	479,799	*1.0*
2031	205,764	*1.4*	62,920	*0.3*	42,530	*-1.2*	42,890	*-1.4*	108,410	*0.2*	770	*0.0*	746	*0.0*	24,646	*38.9*	488,675	*1.9*
AAGR	1.07		0.19		-1.03		-0.56		0.26		0.00		0.00		31.08		0.87	

This page intentionally blank.

4.2 Composite High Case Energy Forecast

Table 16 presents the high growth energy sales forecast for KIUC, based on the sensitivity testing described in Section 3. In the high growth scenario, the system energy sales would increase at a 0.96 percent AAGR. The residential sector (1.33 percent) and commercial G sector (0.43 percent) are projected to have the highest AAGRs of energy sales in the high case forecast. As under the base case scenario, EV load grows at a relatively high pace over the period but constitutes a small share of energy sales.

Table 16 KIUC High Case Energy Sales Summary

Total	Residential		Commercial G		Commercial J		Industrial L		Industrial P		Street Lights		Irrigation		EV Growth Adjustment		Total MWh	
	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*
2022	189,820	-	64,192	-	49,455	-	46,020	-	106,014	-	770	-	746	-	1,645	-	458,663	-
2023	191,044	*0.6*	64,496	*0.5*	48,622	*-1.7*	47,615	*3.5*	106,231	*0.2*	770	*0*	746	*0*	2,401	*45.9*	461,925	*0.7*
2024	193,281	*1.2*	64,604	*0.2*	48,659	*0.1*	48,053	*0.9*	106,084	*-0.1*	770	*0*	746	*0*	3,112	*29.6*	465,309	*0.7*
2025	197,175	*2*	64,931	*0.5*	48,119	*-1.1*	47,465	*-1.2*	106,657	*0.5*	770	*0*	746	*0*	3,776	*21.3*	469,640	*0.9*
2026	200,603	*1.7*	65,206	*0.4*	47,541	*-1.2*	46,834	*-1.3*	106,801	*0.1*	770	*0*	746	*0*	6,854	*81.5*	475,355	*1.2*
2027	203,958	*1.7*	65,511	*0.5*	46,951	*-1.2*	46,184	*-1.4*	106,903	*0.1*	770	*0*	746	*0*	9,792	*42.9*	480,814	*1.1*
2028	207,239	*1.6*	65,842	*0.5*	46,353	*-1.3*	45,525	*-1.4*	106,971	*0.1*	770	*0*	746	*0*	12,588	*28.6*	486,034	*1.1*
2029	210,442	*1.5*	66,197	*0.5*	45,751	*-1.3*	44,861	*-1.5*	107,014	*0*	770	*0*	746	*0*	15,239	*21.1*	491,022	*1.0*
2030	213,565	*1.5*	66,575	*0.6*	45,148	*-1.3*	44,196	*-1.5*	107,038	*0*	770	*0*	746	*0*	17,744	*16.4*	495,783	*1.0*
2031	216,606	*1.4*	66,974	*0.6*	44,544	*-1.3*	43,530	*-1.5*	107,046	*0*	770	*0*	746	*0*	24,646	*38.9*	504,861	*1.8*
AAGR	1.33		0.43		-1.04		-0.55		0.10		-0.01		0.00		31.08		0.96	

This page intentionally blank.

4.3 Composite Low Case Energy Forecast

Table 17 presents the low growth energy sales forecast for KIUC. The resulting forecast for energy sales indicates that in the low growth scenario, the system energy sales would increase at a rate of about 0.90 percent AAGR. As in other cases, the residential sector (1.04 percent AAGR) is the major contributor to the moderate growth with some support from the small commercial sector (0.35 percent AAGR) and Industrial P (0.24 percent). As under the base case scenario, EV load grows at a relatively high pace over the period, but constitutes a small share of energy sales.

Table 17 KIUC Low Case Energy Sales Summary

Year	Residential		Commercial G		Commercial J		Industrial L		Industrial P		Street Lights		Irrigation		EV Growth Adjustment		Total MWh	
	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*
2022	179,505	-	59,826	-	46,015	-	43,334	-	105,363	-	770	-	746	-	1,645	-	437,204	-
2023	179,805	*0.2*	60,033	*0.3*	45,139	*-1.9*	44,508	*2.7*	105,689	*0.3*	770	*0*	746	*0*	2,401	*45.9*	439,090	*0.4*
2024	183,699	*2.2*	60,267	*0.4*	45,302	*0.4*	45,370	*1.9*	105,693	*0*	770	*0*	746	*0*	3,112	*29.6*	444,959	*1.3*
2025	184,849	*0.6*	60,599	*0.6*	44,924	*-0.8*	45,639	*0.6*	106,449	*0.7*	770	*0*	746	*0*	3,776	*21.3*	447,752	*0.6*
2026	185,859	*0.5*	60,749	*0.2*	44,362	*-1.3*	45,033	*-1.3*	106,771	*0.3*	770	*0*	746	*0*	6,854	*81.5*	451,144	*0.8*
2027	188,632	*1.5*	60,938	*0.3*	43,795	*-1.3*	44,408	*-1.4*	107,055	*0.3*	770	*0*	746	*0*	9,792	*42.9*	456,136	*1.1*
2028	191,336	*1.4*	61,155	*0.4*	43,221	*-1.3*	43,774	*-1.4*	107,309	*0.2*	770	*0*	746	*0*	12,588	*28.6*	460,898	*1.0*
2029	193,969	*1.4*	61,395	*0.4*	42,644	*-1.3*	43,136	*-1.5*	107,539	*0.2*	770	*0*	746	*0*	15,239	*21.1*	465,438	*1.0*
2030	196,528	*1.3*	61,656	*0.4*	42,065	*-1.4*	42,496	*-1.5*	107,751	*0.2*	770	*0*	746	*0*	17,744	*16.4*	469,757	*0.9*
2031	199,010	*1.3*	61,936	*0.5*	41,486	*-1.4*	41,856	*-1.5*	107,950	*0.2*	770	*0*	746	*0*	24,646	*38.9*	478,399	*1.8*
AAGR	1.04		0.35		-1.03		-0.35		0.24		-0.01		0.00		31.08		0.90	

This page intentionally blank.

4.4 Composite Very Low Case Energy Forecast

Table 18 presents the very low growth energy sales forecast for KIUC. The resulting forecast for energy sales indicates for the very low growth scenario that system energy sales would increase at a rate of about 0.60 percent AAGR. Growth in the residential sector (0.28 percent) is much slower than in the other scenarios.

This is the only scenario in which the Commercial G sector (-0.37 percent) experiences negative growth although this is countered somewhat by growth in the Industrial P sector, which is highest among the four scenarios. As under the base case scenario, EV load grows at a relatively high pace over the period, but constitutes a small share of energy sales.

Table 18 KIUC Very Low Case Energy Sales Summary

Year	Residential		Commercial G		Commercial J		Industrial L		Industrial P		Street Lights		Irrigation		EV Growth Adjustment		Total MWh	
	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*	Sales	*(%)*
2022	178,888	-	58,970	-	45,568	-	41,611	-	104,726	-	770	-	746	-	1,645	-	432,924	-
2023	182,509	*2*	58,952	*0*	44,756	*-1.8*	42,776	*2.8*	105,200	*0.5*	770	*0*	746	*0*	2,401	*45.9*	438,109	*1.2*
2024	183,268	*0.4*	58,904	*-0.1*	45,157	*0.9*	43,441	*1.6*	105,538	*0.3*	770	*0*	746	*0*	3,112	*29.6*	440,936	*0.6*
2025	184,544	*0.7*	58,830	*-0.1*	44,872	*-0.6*	44,189	*1.7*	106,624	*1*	770	*0*	746	*0*	3,776	*21.3*	444,352	*0.8*
2026	185,161	*0.3*	58,600	*-0.4*	44,435	*-1*	44,410	*0.5*	107,286	*0.6*	770	*0*	746	*0*	6,854	*81.5*	448,262	*0.9*
2027	185,485	*0.2*	58,242	*-0.6*	43,833	*-1.4*	43,802	*-1.4*	107,908	*0.6*	770	*0*	746	*0*	9,792	*42.9*	450,576	*0.5*
2028	185,497	*0*	57,911	*-0.6*	43,228	*-1.4*	43,187	*-1.4*	108,498	*0.5*	770	*0*	746	*0*	12,588	*28.6*	452,424	*0.4*
2029	185,175	*-0.2*	57,598	*-0.5*	42,619	*-1.4*	42,569	*-1.4*	109,063	*0.5*	770	*0*	746	*0*	15,239	*21.1*	453,779	*0.3*
2030	184,496	*-0.4*	57,299	*-0.5*	42,007	*-1.4*	41,951	*-1.5*	109,609	*0.5*	770	*0*	746	*0*	17,744	*16.4*	454,622	*0.2*
2031	183,435	*-0.6*	57,014	*-0.5*	41,393	*-1.5*	41,332	*-1.5*	110,141	*0.5*	770	*0*	746	*0*	24,646	*38.9*	459,477	*1.1*
AAGR	0.25		-0.34		-0.96		-0.07		0.51		-0.01		0.00		31.08		0.60	

This page intentionally blank.

4.5 Composite Consumer Account Forecast

The methodology for estimating consumer numbers was discussed in Section 3. This section provides the detail on the estimated number of consumers by class for each of the four sensitivity cases – very low, low, base, and high. Table 19 provides the estimated number of consumers in each rate class for the four cases while Table 20 provides indication of the rate of change in consumers per year over the forecast horizon.

Table 19 KIUC Consumer Account Estimate

Year	Residential				Commercial G			Commercial J				Industrial L				Industrial P			
	Very Low	Low	Base	High	Very Low/ Low	Base	High	Very Low	Low	Base	High	Very Low	Low	Base	High	Very Low	Low	Base	High
2021	29,883	29,883	29,883	29,883	4,629	4,629	4,629	293	293	293	293	15	15	15	15	104	104	104	104
2022	29,797	29,879	30,047	30,193	4,566	4,569	4,607	292	294	295	295	13	14	15	15	101	102	103	104
2023	29,849	29,985	30,267	30,513	4,595	4,605	4,655	288	290	290	294	11	12	13	13	101	102	103	104
2024	29,901	30,092	30,489	30,836	4,620	4,633	4,693	285	287	286	287	11	12	13	14	102	103	104	105
2025	29,952	30,199	30,712	31,162	4,648	4,664	4,733	283	285	283	284	11	12	13	13	102	103	104	105
2026	30,004	30,306	30,937	31,492	4,677	4,695	4,774	280	282	281	280	11	12	13	13	102	103	104	105
2027	30,056	30,414	31,164	31,825	4,707	4,728	4,816	277	279	278	276	11	12	13	13	102	103	105	106
2028	30,108	30,522	31,392	32,162	4,739	4,761	4,859	274	276	275	273	10	12	13	13	103	104	105	106
2029	30,160	30,631	31,622	32,502	4,771	4,794	4,903	271	274	273	269	10	12	13	13	103	104	105	106
2030	30,213	30,740	31,854	32,846	4,804	4,829	4,947	268	271	270	265	10	11	13	13	103	104	105	106
2031	30,265	30,849	32,087	33,194	4,837	4,864	4,992	265	268	267	261	10	11	13	12	103	104	105	106

Table 20 KIUC Consumer Account Estimate, Annual Change (%)

Year	Residential				Commercial G			Commercial J				Industrial L				Industrial P			
	Very Low	Low	Base	High	Low/ Very Low	Base	High	Very Low	Low	Base	High	Very Low	Low	Base	High	Very Low	Low	Base	High
2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2022	*-0.3*	*0.0*	*0.5*	*1.0*	*-1.4*	*-1.3*	*-0.5*	*-0.3*	*0.3*	*0.7*	*0.7*	*-13.3*	*-6.7*	*0.0*	*0.0*	*-2.9*	*-1.9*	*-1.0*	*0.0*
2023	*0.2*	*0.4*	*0.7*	*1.1*	*0.6*	*0.8*	*1.0*	*-1.4*	*-1.4*	*-1.7*	*-0.3*	*-15.4*	*-14.3*	*-13.3*	*-13.3*	*0.0*	*0.0*	*0.0*	*0.0*
2024	*0.2*	*0.4*	*0.7*	*1.1*	*0.5*	*0.6*	*0.8*	*-1.0*	*-1.0*	*-1.4*	*-2.4*	*0.0*	*0.0*	*0.0*	*7.7*	*1.0*	*1.0*	*1.0*	*1.0*
2025	*0.2*	*0.4*	*0.7*	*1.1*	*0.6*	*0.7*	*0.9*	*-0.7*	*-0.7*	*-1.0*	*-1.0*	*0.0*	*0.0*	*0.0*	*-7.1*	*0.0*	*0.0*	*0.0*	*0.0*
2026	*0.2*	*0.4*	*0.7*	*1.1*	*0.6*	*0.7*	*0.9*	*-1.1*	*-1.1*	*-0.7*	*-1.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
2027	*0.2*	*0.4*	*0.7*	*1.1*	*0.6*	*0.7*	*0.9*	*-1.1*	*-1.1*	*-1.1*	*-1.4*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.0*	*1.0*
2028	*0.2*	*0.4*	*0.7*	*1.1*	*0.7*	*0.7*	*0.9*	*-1.1*	*-1.1*	*-1.1*	*-1.1*	*-9.1*	*0.0*	*0.0*	*0.0*	*1.0*	*1.0*	*0.0*	*0.0*
2029	*0.2*	*0.4*	*0.7*	*1.1*	*0.7*	*0.7*	*0.9*	*-1.1*	*-0.7*	*-0.7*	*-1.5*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
2030	*0.2*	*0.4*	*0.7*	*1.1*	*0.7*	*0.7*	*0.9*	*-1.1*	*-1.1*	*-1.1*	*-1.5*	*0.0*	*-8.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
2031	*0.2*	*0.4*	*0.7*	*1.1*	*0.7*	*0.7*	*0.9*	*-1.1*	*-1.1*	*-1.1*	*-1.5*	*0.0*	*0.0*	*0.0*	*-7.7*	*0.0*	*0.0*	*0.0*	*0.0*

This page intentionally blank.

5.0 KIUC GENERATION REQUIREMENTS

The energy sales forecast provides information on the estimated sales to end-use consumers. For generation planning purposes, the energy sales must be adjusted for the effect of system losses and the electrical requirements necessary to operate the KIUC system. The system losses and own use are the difference between the amount of energy generated and the amount of energy sold to end use consumers.

The addition of system losses and own use to the forecast energy is needed to determine the amount of energy that is required to be produced or acquired by the cooperative. A comparison of generation data and energy sales has indicated that over the last 5 years, system losses (including KIUC's own use) have ranged between 4.02 and 5.09 percent, with the 5-year period averaging about 4.76 percent.

In the year 2021, own use and system losses were 5.09 percent of the total energy produced or acquired by KIUC, up from 5.08 percent in 2020, an unusual year due to pandemic impacts. Own use has been relatively stable but T&D losses have been increasing somewhat. Under the circumstances faced by KIUC of the continuing development of both utility and nonutility generation resources distributed throughout the system, and minimal major transmission investment, it is reasonable to expect that system losses will continue to increase modestly over time as distributed generation increases. For planning purposes, a value of 5.0 percent based on the last five years is anticipated for the next four years, increasing to 6.0 percent and thereafter to account for additional distributed generation located away from the load center. As conditions change and further system improvements and enhancements are undertaken, the loss value can be modified as appropriate.

System capacity requirements are equivalent to the forecasted peak demand (before the consideration of planning reserve requirements). System peak is reported at the generation level as the coincident demand placed on the system. The forecast energy requirements at generation, based on the expected own use and system losses percentages, are shown in Table 21 along with the system peak capacity from the load factor estimation described in Section 3. These values constitute a minimum power requirement to be met by the KIUC generation, transmission, and distribution system, particularly until such time as the EV impact on peak demand is estimable.

Table 21 KIUC Energy and Capacity Requirements at Generation

Year	Very Low Case		Low Case		Base Case		High Case	
	MWh	MW	MWh	MW	MWh	MW	MWh	MW
2022	455,709	74.8	460,215	75.6	471,713	77.4	482,803	79.3
2023	461,168	75.8	462,200	75.9	473,174	77.7	486,237	79.9
2024	464,144	76.3	468,378	77.0	474,371	78.0	489,799	80.5
2025	467,739	76.9	471,318	77.5	478,649	78.7	494,358	81.3
2026	476,874	77.6	479,941	78.1	489,577	79.7	505,697	82.3
2027	479,337	78.1	485,251	79.0	495,155	80.6	511,505	83.3
2028	481,302	78.4	490,317	79.9	500,486	81.6	517,057	84.3
2029	482,743	78.7	495,147	80.7	505,575	82.4	522,364	85.2
2030	483,641	78.9	499,741	81.5	510,424	83.3	527,428	86.0
2031	488,805	79.8	508,935	83.1	519,867	84.8	537,086	87.6

Loss Assumption - 2022-2025 5%

Loss Assumption - 2026-2031 6%

6.0 DEMAND SIDE MANAGEMENT

Demand side management activities have been actively undertaken by KIUC since 1998. The load forecast for KIUC includes the impact of programs initiated since that time. These programs are expected to continue throughout the forecast period. The advent of on-site generation with stable peak load requirements has fostered a planning scenario for KIUC emphasizing fossil energy displacement and alternative generation sources, including storage options based on solar generation for provision of capacity to meet system peak requirements. That, and the relative stability of peak requirements as a result of a variety of conservation packages, has effectively accomplished much of what is expected of demand management programs. KIUC's efforts in effective overall conservation and energy management activities are summarized in the *2021 Annual Modification and Evaluation Report and Energy Services Program Report*, appended hereto (Appendix C).

This page intentionally blank.

7.0 REFERENCES

Hawai`i Department of Business, Economic Development & Tourism (DBEDT). 2018. Population and Economic Projections for the State of Hawaii to 2045. June. Website: https://files.hawaii.gov/dbedt/economic/data_reports/2045-long-range-forecast/2045-long-range-forecast.pdf

Hawai`i Department of Business, Economic Development & Tourism (DBEDT). 2021. DBEDT Forecasts 1Q 2021: Visitors Days. https://files.hawaii.gov/dbedt/economic/data_reports/qser/qser-2021q1.pdf

Hawai`i Department of Business, Economic Development & Tourism (DBEDT). 2016. State of Hawaii Data Book. Website: http://dbedt.hawaii.gov/economic/databook/2016-individual/_01/

Hawai`i Department of Business, Economic Development & Tourism (DBEDT). 2022. Monthly Energy Trends. Website: https://dbedt.hawaii.gov/economic/energy-trends-2/

Hawai`i Department of Business, Economic Development & Tourism (DBEDT). 2018. Quarterly Statistical & Economic Report, Executive Summary, 1st Quarter 2018. February 7. Website: http://files.hawaii.gov/dbedt/economic/data_reports/qser/qser-2018q1-es.pdf

Hawai`i Public Utilities Commission (HPUC). n.d. General Order No. 7. Standards for Electric Utility Service in the State of Hawai`i. Website: https://puc.hawaii.gov/wp-content/uploads/2013/04/General-Order-7.pdf

Hawai`i Tourism Authority. 2022. Historical Visitor Statistics. Website: https://hawaiitourismauthority.org/research/historical-visitor-statistics/

Kaua`i Island Utility Cooperative (KIUC). 2019 *2017 Strategic Plan Review* *https://www.kiuc.coop/sites/default/files/documents/2016-2030_KIUCStrategicPlan-Review-FINAL.pdf*

Kaua`i Island Utility Cooperative (KIUC). 2021. *Load Forecast Work Plan*.

U.S. Bureau of Economic Analysis (BEA) Regional Data: GDP and Personal Income Mapping. Website: https://apps.bea.gov/iTable/iTable.cfm?reqid=99&step=1#reqid=99&step=1&isuri=1.

U.S. Census Bureau. 2022. QuickFacts: Kauai County, Hawaii. Website: https://www.census.gov/quickfacts/kauaicountyhawaii.

University of Hawai`i Economic Research Organization (UHERO). 2021. State Forecast Update. Website: https://uhero.hawaii.edu/wp-content/uploads/2021/12/21Q4_Forecast.pdf

This page intentionally blank.

Appendix A

KIUC Historical Data Sources

This page intentionally blank.

1. KIUC RUS Form 7, Years 2003-2020 KIUC RUS Form 12, Years 2003-2020
2. KIUC Data: KIUC website, February 2022
3. KIUC Data: *KWH Sales Charts – Annual data through January 2022*[8]
4. KIUC Data: *Number of Customers by Class.xlsx*
5. KIUC Data: *2021 Financial Chart Data.xlsx*
6. KIUC Data: *Schedule Q Installation History-May 2021.xlsx*
7. KIUC Data: *Electric Revenues and kWh by Class.xlsx*

[8] Note: Data through August 2021 used for forecast purposes.

This page intentionally blank.

Appendix B

Economic Forecast Data

This page intentionally blank.

Population Data

Table B-1 Resident Population by County: 2000-2020

Table 1-- RESIDENT POPULATION, BY COUNTY: 2000 TO 2020

[Based on place of usual residence, regardless of physical location on the estimate or census date. Includes military personnel stationed or homeported in Hawaii and residents temporarily absent; excludes visitors present. Population Estimates for July 1, 2010 thorough July 1, 2020 were created without incorporation or consideration of the 2020 Census results]

Date	State total	City and County of Honolulu	Hawaii County	Kauai County	Maui County 1/
2000: April 1 2/	1,211,537	876,156	148,677	58,463	128,241
July 1	1,213,519	876,629	149,244	58,568	129,078
2001: July 1	1,225,948	882,755	151,690	59,075	132,428
2002: July 1	1,239,613	890,473	154,576	59,981	134,583
2003: July 1	1,251,154	894,311	158,442	60,805	137,596
2004: July 1	1,273,569	907,997	162,852	62,095	140,625
2005: July 1	1,292,729	918,181	168,237	62,863	143,448
2006: July 1	1,309,731	926,954	173,536	63,465	145,776
2007: July 1	1,315,675	925,335	177,733	64,490	148,117
2008: July 1	1,332,213	933,680	181,506	65,603	151,424
2009: July 1	1,346,717	943,177	183,629	66,518	153,393
2010: April 1 2/	1,360,304	953,203	185,076	67,095	154,930
July 1	1,364,004	956,320	185,361	67,208	155,115
2011: July 1	1,379,562	967,510	187,101	67,894	157,057
2012: July 1	1,395,199	978,295	189,199	68,680	159,025
2013: July 1	1,408,822	986,494	191,521	69,653	161,154
2014: July 1	1,415,335	988,002	193,812	70,316	163,205
2015: July 1	1,422,999	991,755	196,111	71,052	164,081
2016: July 1	1,428,885	993,044	198,583	71,574	165,684
2017: July 1	1,425,763	986,973	200,400	71,838	166,552
2018: July 1	1,423,102	981,076	202,263	72,292	167,471
2019: July 1	1,415,615	973,491	202,165	72,190	167,769
2020: July 1	1,407,006	963,826	203,340	71,851	167,989

1/ Including Kalawao County (Kalaupapa Settlement). Kalawao had 147 in 2000, 90 in 2010, and 87 in 2020.
2/ April 1 resident total population estimates base.
Source: U.S. Census Bureau, Population Division.

Historical Source: Table 1, resident population by county for Kaua`i, from DBEDT site, County Population Facts,https://files.hawaii.gov/dbedt/census/popestimate/2020_state_county_char_hi_file/County_Pop_Fact_Tables_1-6_vintage2020PE.pdf (DBEDT, 2021)

Table B-2 Percentage Change in Resident Population

Table 2-- GROWTH RATE OF RESIDENT POPULATION, BY COUNTY: 2000 TO 2020

[Population Estimates for July 1, 2010 thorough July 1, 2020 were created without incorporation or consideration of the 2020 Census results]

	State total	City and County of Honolulu	Hawaii County	Kauai County	Maui County 1/
Percentage growth from July of previous year					
2000	0.3	-0.3	1.5	0.5	2.3
2001	1.0	0.7	1.6	0.9	2.6
2002	1.1	0.9	1.9	1.5	1.6
2003	0.9	0.4	2.5	1.4	2.2
2004	1.8	1.5	2.8	2.1	2.2
2005	1.5	1.1	3.3	1.2	2.0
2006	1.3	1.0	3.1	1.0	1.6
2007	0.5	-0.2	2.4	1.6	1.6
2008	1.3	0.9	2.1	1.7	2.2
2009	1.1	1.0	1.2	1.4	1.3
2010	1.3	1.4	0.9	1.0	1.1
2011	1.1	1.2	0.9	1.0	1.3
2012	1.1	1.1	1.1	1.2	1.3
2013	1.0	0.8	1.2	1.4	1.3
2014	0.5	0.2	1.2	1.0	1.3
2015	0.5	0.4	1.2	1.0	0.5
2016	0.4	0.1	1.3	0.7	1.0
2017	-0.2	-0.6	0.9	0.4	0.5
2018	-0.2	-0.6	0.9	0.6	0.6
2019	-0.5	-0.8	0.0	-0.1	0.2
2020	-0.6	-1.0	0.6	-0.5	0.1
Annual average growth rate (July 1)					
1990 - 1995	1.5	1.0	2.9	2.0	3.0
1995 - 2000	0.3	-0.1	1.2	0.5	1.8
2000 - 2005	1.3	0.9	2.4	1.4	2.1
2005 - 2010	1.1	0.8	2.0	1.3	1.6
2010 - 2015	0.9	0.7	1.1	1.1	1.1
2015 - 2020	-0.2	-0.6	0.7	0.2	0.5
1990 - 2000	0.9	0.4	2.1	1.3	2.4
2000 - 2010	1.2	0.9	2.2	1.4	1.9
2010 - 2020	0.3	0.1	0.9	0.7	0.8

1/ Including Kalawao County (Kalaupapa Settlement).

Source: U.S. Census Bureau, Population Division; and calculations by the Hawaii State Department of Business, Economic Development & Tourism.

Historical Source: Table 2, growth rate of resident population by county for Kaua`i, from DBEDT site, County Population Facts, https://files.hawaii.gov/dbedt/census/popestimate/2020_state_county_char_hi_file/County_Pop_Fact_Tables_1-6_vintage2020PE.pdf (DBEDT, 2021)

Table B-3 Actual and Forecast Key Economic Indicators for Hawaii 2019-2024

ACTUAL AND FORECAST OF KEY ECONOMIC INDICATORS FOR HAWAII: 2019 TO 2024

Economic Indicators	2019	2020 1/	2021	2022	2023	2024
	Actual		Forecast			
Total population (thousands)	1,416	1,407	1,406	1,408	1,411	1,414
Visitor arrivals (thousands) 2/	10,387	2,716	5,510	8,282	9,210	9,837
Visitor days (thousands) 2/	90,361	28,702	52,372	72,840	80,772	86,645
Visitor expenditures (million dollars) 2/	17,844	5,111	9,757	14,501	16,349	18,163
Honolulu CPI-U (1982-84=100)	281.6	286.0	291.6	297.5	303.8	309.9
Personal income (million dollars)	80,727	86,773	84,270	85,777	88,405	91,330
Real personal income (millions of 2012$) 3/	61,855	66,224	63,399	63,510	64,263	65,172
Non-agricultural wage & salary jobs (thousands)	655.7	572.7	608.5	627.5	637.5	645.7
Civilian unemployment rate	2.7	12.0	8.2	6.9	6.2	5.7
Gross domestic product (million dollars)	95,744	89,850	94,118	99,352	103,521	107,315
Real gross domestic product (millions of 2012$)	82,471	75,967	77,994	80,589	82,442	83,926
Gross domestic product deflator (2012=100)	116.1	118.2	120.7	123.0	125.2	127.3
Annual Percentage Change						
Total population	-0.3	-0.6	-0.1	0.1	0.2	0.2
Visitor arrivals	5.2	-73.9	102.9	50.3	11.2	6.8
Visitor days	4.9	-68.2	82.5	39.1	10.9	7.3
Visitor expenditures	5.1	-71.4	90.9	48.6	12.7	11.1
Honolulu CPI-U	1.9	1.6	2.0	2.0	2.1	2.0
Personal income	3.6	7.5	-2.9	1.8	3.1	3.3
Real personal income	1.8	7.1	-4.3	0.2	1.2	1.4
Non-agricultural wage & salary jobs	0.5	-12.7	6.2	3.1	1.6	1.3
Civilian unemployment rate 4/	0.1	9.3	-3.8	-1.3	-0.7	-0.5
Gross domestic product	2.5	-6.2	4.8	5.6	4.2	3.7
Real gross domestic product	0.3	-7.9	2.7	3.3	2.3	1.8
Gross domestic product deflator (2012=100)	2.3	1.9	2.0	1.9	1.8	1.7

1/ Some of the indicators are preliminary or estimated such as visitor expenditures, personal income, and gross domestic product.
2/ Visitors who came to Hawaii by air or by cruise ship. Expenditures includes supplementary expenditures.
3/ Using personal income deflator developed by the U.S. Bureau of Economic Analysis and estimated by DBEDT.
4/ Absolute change from previous year.
Source: Hawaii State Department of Business, Economic Development & Tourism, February 25, 2021.

Historical Source: Page 9 of 180, QSER Executive Summary 2021 Quarter 1, https://files.hawaii.gov/dbedt/economic/data_reports/qser/qser-2021q1.pdf (DBEDT, 2021)

Tourism Data

Table B-4 2020 Visitor Days by Island and Month (Arrivals by Air)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
O'ahu	3,647,908	3,106,258	1,719,457	92,974	191,462	311,721	356,088	455,805	318,122	522,327	863,638	1,243,871	12,829,630
Maui	2,197,687	1,962,660	1,057,111	13,195	31,900	54,141	62,432	66,381	87,807	313,046	712,026	994,709	7,553,095
Moloka'i	35,919	28,029	14,135	212	1,922	2,796	3,688	1,434	2,592	7,359	8,247	11,615	117,947
Lāna'i	25,108	23,405	9,158	34	178	1,073	1,365	1,033	711	6,084	6,622	8,457	83,228
Kaua'i	920,439	837,629	442,047	5,960	17,333	30,915	39,219	46,169	44,253	159,765	322,018	74,607	2,940,354
Hawai'i Island	1,445,673	1,163,151	666,084	19,249	40,412	72,483	104,803	130,566	160,688	213,822	373,547	602,066	4,992,542

Notes: monthly data may not add up to total due to rounding

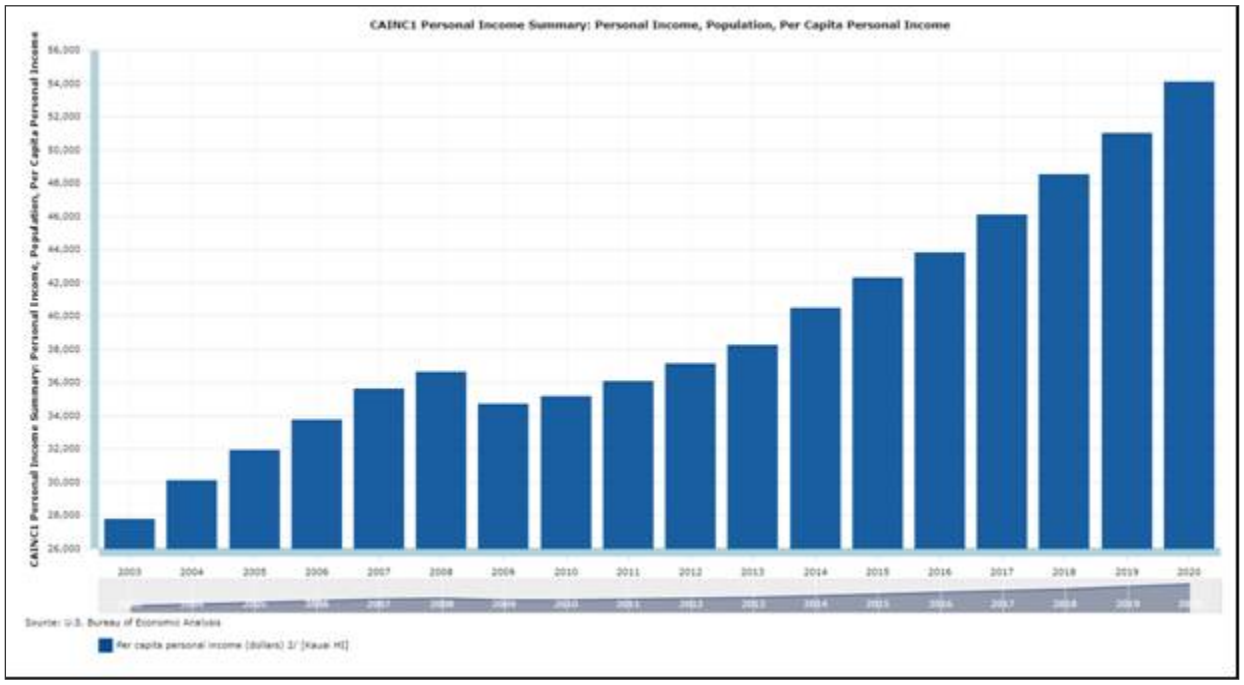
2020 Visitor Arrivals by Island and Month (Arrivals by Air)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
O'ahu	506,708	467,959	236,640	3,601	7,365	13,029	16,448	16,917	11,885	36,009	76,662	113,090	1,506,316
Maui	243,086	234,823	125,353	624	1,131	1,988	2,568	2,453	2,479	23,178	63,748	91,171	792,602
Moloka'i	6,858	5,089	2,384	31	76	114	225	109	75	375	640	1,050	17,025
Lāna'i	6,066	6,146	2,604	21	26	64	121	81	39	595	904	1,257	17,924
Kaua'i	113,796	110,478	56,725	306	603	1,068	1,349	1,342	1,096	11,249	28,487	3,762	330,263
Hawai'i Island	165,297	148,204	77,933	701	1,300	2,605	3,608	3,683	3,642	10,641	28,056	48,147	493,817

Exemplar from Hawaii Tourism Authority, Historical Visitor Statistics, https://www.hawaiitourismauthority.org/research/historical-visitor-statistics/ HTA, 2021

Per Capita Income Data – Kaua`i

Figure B-1 Per Capita Income Data – Kaua`i (2003-2021)



Historical Source: From U.S. Bureau of Economic Analysis (BEA) County Personal Income Summar.
https://apps.bea.gov/iTable/iTable.cfm?reqid=70&step=1&acrdn=6

Figure B-2 UHERO Hawai`i Forecast

Forecast Summary

ECONOMIC INDICATORS, BASELINE FORECAST SCENARIO
PUBLIC SUMMARY

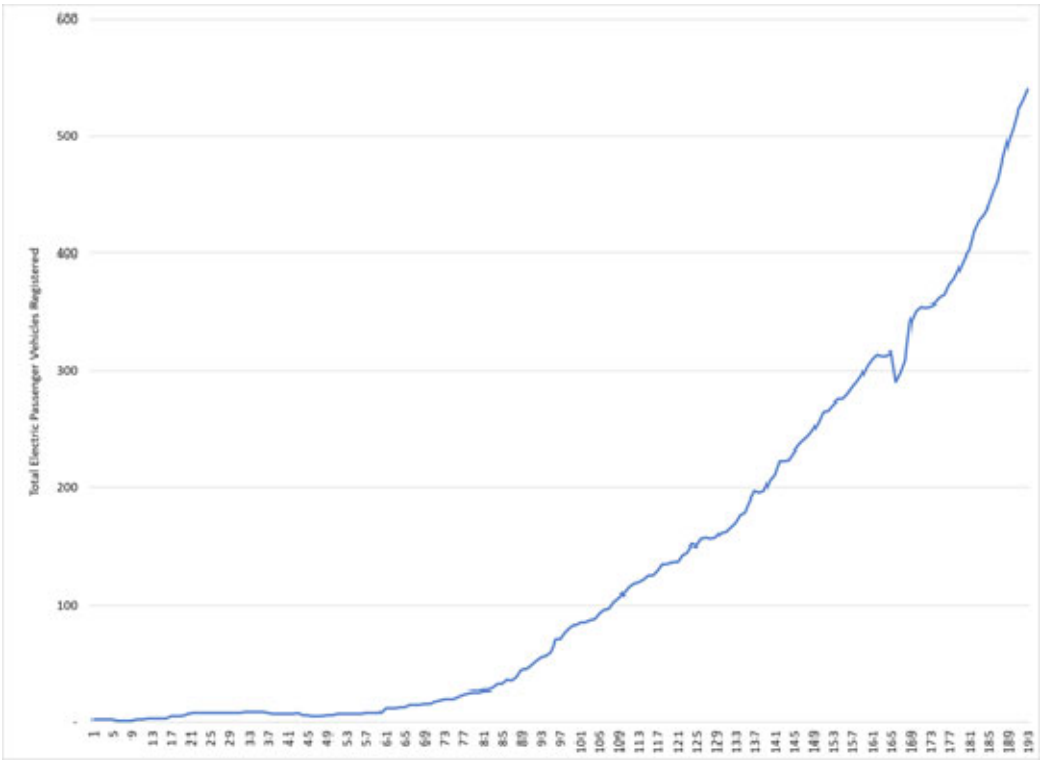
	2018	2019	2020	2021	2022	2023
STATE OF HAWAII						
Nonfarm Payrolls (Thou)	658.2	656.1	569.4	574.9	616.4	628.5
% Change	0.5	-0.3	-13.2	1.0	7.2	2.0
Unemployment Rate (%)	2.5	2.7	12.7	10.9	5.6	4.4
Real Personal Income (Mil 2019$)	79,711.8	80,726.5	84,168.6	77,405.6	78,628.8	80,536.4
% Change	1.2	1.3	4.3	-8.0	1.6	2.4
Real GDP (Mil 2019$)	94,614.7	95,744.3	85,950.1	86,017.7	90,450.4	92,316.9
% Change	2.0	1.2	-10.2	0.1	5.2	2.1
Total Visitor Arrivals by Air (Thou)	9,888.8	10,385.8	2,666.7	4,409.7	8,151.7	9,080.2
% Change	5.2	5.0	-74.3	65.4	84.9	11.4
Visitor Days (Thou)	87,721.3	89,690.4	26,588.6	40,482.2	71,596.7	78,033.7
% Change	4.9	2.2	-70.4	52.3	76.9	9.0
Real Visitor Expenditures (Mil 2019$)	17,794.5	17,716.1	4,791.8	6,263.1	12,000.4	14,041.9
% Change	3.1	-0.4	-73.0	30.7	91.6	17.0
HONOLULU COUNTY						
Nonfarm Payrolls (Thou)	473.2	472.0	417.2	419.9	446.5	454.6
% Change	0.3	-0.3	-11.6	0.6	6.4	1.8
Unemployment Rate (%)	2.4	2.6	11.1	9.5	5.0	3.7
Inflation Rate, Honolulu MSA (%)	1.8	1.6	1.5	1.2	1.0	1.8
Real Personal Income (Mil 2019$)	59,371.2	59,617.7	61,468.8	57,502.9	58,627.9	59,980.5
% Change	1.9	0.4	3.1	-6.5	2.0	2.3
Total Visitor Arrivals by Air (Thou)	5,862.4	6,153.9	1,575.6	2,624.9	4,829.4	5,386.8
% Change	3.2	5.0	-74.4	66.6	84.0	11.5
HAWAII COUNTY						
Nonfarm Payrolls (Thou)	71.2	70.7	62.5	63.1	66.5	67.4
% Change	0.6	-0.7	-11.6	0.9	5.5	1.4
Unemployment Rate (%)	3.0	3.5	12.2	11.3	7.2	6.1
Real Personal Income (Mil 2019$)	8,670.2	8,781.6	9,443.0	8,342.1	8,360.6	8,587.7
% Change	2.7	1.3	7.5	-11.7	0.2	2.7
Total Visitor Arrivals by Air (Thou)	1,706.2	1,763.9	462.3	766.1	1,437.3	1,612.3
% Change	-3.4	3.4	-73.8	65.7	87.6	12.2
MAUI COUNTY						
Nonfarm Payrolls (Thou)	80.3	80.2	63.0	64.6	73.1	75.4
% Change	1.7	-0.1	-21.4	2.5	13.2	3.1
Unemployment Rate (%)	2.4	2.6	19.3	16.7	6.7	5.2
Real Personal Income (Mil 2019$)	8,337.5	8,600.9	9,298.5	8,090.5	8,129.9	8,359.3
% Change	2.2	3.2	8.1	-13.0	0.5	2.8
Total Visitor Arrivals by Air (Thou)	2,963.6	3,111.1	784.1	1,385.0	2,610.4	2,911.5
% Change	5.9	5.0	-74.8	76.6	88.5	11.5
KAUAI COUNTY						
Nonfarm Payrolls (Thou)	32.7	33.2	27.0	27.4	30.3	31.1
% Change	-0.3	1.6	-18.7	1.4	10.7	2.6
Unemployment Rate (%)	2.5	2.7	17.5	13.9	7.4	6.5
Real Personal Income (Mil 2019$)	3,622.5	3,726.3	3,958.4	3,470.1	3,510.4	3,608.9
% Change	3.6	2.9	6.2	-12.3	1.2	2.8
Total Visitor Arrivals by Air (Thou)	1,388.5	1,370.0	326.1	552.9	1,126.5	1,256.2
% Change	8.0	-1.3	-76.2	69.5	103.8	11.5

Note: Source is UHERO. Figures for 2020-2023 are forecasts.

Projection reference: Income forecast through 2020 from https://uhero.hawaii.edu/wp-content/uploads/2020/12/20Q4_Public.pdf

Electric Vehicle Data

Table B-5 Total Electric Passenger Vehicles Registered



Source: Hawai`i Department of Business, Economic Development & Tourism (DBEDT). 2022. Monthly Energy Trends. Website: https://dbedt.hawaii.gov/economic/energy-trends-2/

Table B-6 Prediction Data Example, Residential Class, January 2022-January 2031

Month Counter	Month	Year	Real Personal Capita Income	Real Personal Capita Income Low	Real Personal Capita Income High	Residents	Residents Low	Residents High	Residential Q	Residential Q Low	Residential Price
229	January	2022	$51,238	$50,350	$52,879	72,928	72,399	73,237	34,130,297	32,967,420	302.4
241	January	2023	$52,058	$51,075	$53,894	73,184	72,524	73,585	36,484,823	34,131,873	302.4
253	January	2024	$52,722	$51,661	$54,719	73,720	73,055	74,364	39,001,780	35,337,457	302.4
265	January	2025	$53,395	$52,255	$55,557	74,260	73,590	75,151	41,692,372	36,585,623	302.4
277	January	2026	$54,076	$52,855	$56,407	74,804	74,129	75,946	44,568,579	37,877,876	302.4
289	January	2027	$54,766	$53,461	$57,271	75,352	74,672	76,750	47,643,205	39,215,774	302.4
301	January	2028	$55,464	$54,075	$58,148	75,903	75,219	77,562	50,929,938	40,600,927	302.4
313	January	2029	$56,172	$54,696	$59,038	76,459	75,770	78,383	54,443,412	42,035,006	302.4
325	January	2030	$56,889	$55,324	$59,942	77,019	76,325	79,212	58,199,267	43,519,739	302.4
337	January	2031	$57,614	$55,959	$60,860	77,584	76,884	80,050	62,214,225	45,056,914	302.4

Table B-7 Prediction Data Example, Comm. G Class, January 2022-January 2031

Month Counter	Month	Year	Real Personal Capita Income	Real Personal Capita Income Low	Real Personal Capita Income High	Residents	Residents Low	Residents High	Visitors	Visitors Low	Visitors High	G Class Q	G Class Q Low	G Accounts	G Accounts Low	G Accounts High	G Price
229	January	2022	$51,238	$50,350	$52,879	72,928	72,399	73,237	19,673	16,521	26,830	7,765,636	7,667,869	4,569	4,566	4,607	309.3
241	January	2023	$52,058	$51,075	$53,894	73,184	72,524	73,585	26,830	23,144	29,127	7,931,388	7,700,349	4,605	4,595	4,655	309.3
253	January	2024	$52,722	$51,661	$54,719	73,720	73,055	74,364	29,127	26,830	29,779	8,100,678	7,732,966	4,633	4,620	4,693	309.3
265	January	2025	$53,395	$52,255	$55,557	74,260	73,590	75,151	29,779	29,127	29,779	8,273,581	7,765,722	4,664	4,648	4,733	309.3
277	January	2026	$54,076	$52,855	$56,407	74,804	74,129	75,946	29,779	29,779	29,779	8,450,175	7,798,617	4,695	4,677	4,774	309.3
289	January	2027	$54,766	$53,461	$57,271	75,352	74,672	76,750	29,779	29,779	29,779	8,630,538	7,831,651	4,728	4,707	4,816	309.3
301	January	2028	$55,464	$54,075	$58,148	75,903	75,219	77,562	29,779	29,779	29,779	8,814,751	7,864,824	4,761	4,739	4,859	309.3
313	January	2029	$56,172	$54,696	$59,038	76,459	75,770	78,383	29,779	29,779	29,779	9,002,896	7,898,139	4,794	4,771	4,903	309.3
325	January	2030	$56,889	$55,324	$59,942	77,019	76,325	79,212	29,779	29,779	29,779	9,195,056	7,931,594	4,829	4,804	4,947	309.3
337	January	2031	$57,614	$55,959	$60,860	77,584	76,884	80,050	29,779	29,779	29,779	9,391,319	7,965,191	4,864	4,837	4,992	309.3

Table B-8 Prediction Data Example, Comm. J Class, January 2022-January 2031

Month Counter	Month	Year	Real Personal Capita Income	Real Personal Capita Income Low	Real Personal Capita Income High	Residents	Residents Low	Residents High	Visitors	Visitors Low	Visitors High	J Class Q	J Class Q Low	J Accounts	J Accounts Low	J Accounts High	J Accounts Price
229	January	2022	$51,238	$50,350	$52,879	72,928	72,399	73,237	19,673	16,521	26,830	6,878,487	5,495,131	295	294	295	321.18
241	January	2023	$52,058	$51,075	$53,894	73,184	72,524	73,585	26,830	23,144	29,127	7,222,411	5,495,291	290	290	294	321.18
253	January	2024	$52,722	$51,661	$54,719	73,720	73,055	74,364	29,127	26,830	29,779	7,583,532	5,495,403	286	287	287	321.18
265	January	2025	$53,395	$52,255	$55,557	74,260	73,590	75,151	29,779	29,127	29,779	7,886,873	5,495,405	283	285	284	321.18
277	January	2026	$54,076	$52,855	$56,407	74,804	74,129	75,946	29,779	29,779	29,779	8,123,479	5,495,407	281	282	280	321.18
289	January	2027	$54,766	$53,461	$57,271	75,352	74,672	76,750	29,779	29,779	29,779	8,367,184	5,495,407	278	279	276	321.18
301	January	2028	$55,464	$54,075	$58,148	75,903	75,219	77,562	29,779	29,779	29,779	8,534,528	5,495,407	275	276	273	321.18
313	January	2029	$56,172	$54,696	$59,038	76,459	75,770	78,383	29,779	29,779	29,779	8,705,218	5,495,407	273	274	269	321.18
325	January	2030	$56,889	$55,324	$59,942	77,019	76,325	79,212	29,779	29,779	29,779	8,879,322	5,495,407	270	271	265	321.18
337	January	2031	$57,614	$55,959	$60,860	77,584	76,884	80,050	29,779	29,779	29,779	9,056,909	5,495,407	267	268	261	321.18

Table B-9 Prediction Data Example, Ind. L Class, January 2022-January 2031

Month Counter	Month	Year	Residents	Residents Low	Residents High	Visitors	Visitors Low	Visitors High	L Accounts	L Accounts Low	L Accounts High	L Price	Mar-riott	Prince	Reces-sion	Hyatt	USN
229	January	2022	72,928	72,399	73,237	19,673	16,521	26,830	15	14	15	275.0	0	1	1	0	0
241	January	2023	73,184	72,524	73,585	26,830	23,144	29,127	13	12	13	275.0	0	0	0	0	0
253	January	2024	73,720	73,055	74,364	29,127	26,830	29,779	13	12	14	275.0	0	0	0	0	0
265	January	2025	74,260	73,590	75,151	29,779	29,127	29,779	13	12	13	275.0	0	0	0	0	0
277	January	2026	74,804	74,129	75,946	29,779	29,779	29,779	13	12	13	275.0	0	0	0	0	0
289	January	2027	75,352	74,672	76,750	29,779	29,779	29,779	13	12	13	275.0	0	0	0	0	0
301	January	2028	75,903	75,219	77,562	29,779	29,779	29,779	13	12	13	275.0	0	0	0	0	0
313	January	2029	76,459	75,770	78,383	29,779	29,779	29,779	13	12	13	275.0	0	0	0	0	0
325	January	2030	77,019	76,325	79,212	29,779	29,779	29,779	13	11	13	275.0	0	0	0	0	0
337	January	2031	77,584	76,884	80,050	29,779	29,779	29,779	13	11	12	275.0	0	0	0	0	0

Table B-10 Prediction Data Example, Ind. P Class, January 2022-January 2031

Month Counter	Month	Year	Residents	Residents Low	Residents High	Visitors	Visitors Low	Visitors High	P-Accounts	P Accounts Low	P Accounts High	P Price
229	January	2022	72,928	72,399	73,237	19,673	16,521	26,830	103	102	104	280.8
241	January	2023	73,184	72,524	73,585	26,830	23,144	29,127	103	102	104	280.8
253	January	2024	73,720	73,055	74,364	29,127	26,830	29,779	104	103	105	280.8
265	January	2025	74,260	73,590	75,151	29,779	29,127	29,779	104	103	105	280.8
277	January	2026	74,804	74,129	75,946	29,779	29,779	29,779	104	103	105	280.8
289	January	2027	75,352	74,672	76,750	29,779	29,779	29,779	105	103	106	280.8
301	January	2028	75,903	75,219	77,562	29,779	29,779	29,779	105	104	106	280.8
313	January	2029	76,459	75,770	78,383	29,779	29,779	29,779	105	104	106	280.8
325	January	2030	77,019	76,325	79,212	29,779	29,779	29,779	105	104	106	280.8
337	January	2031	77,584	76,884	80,050	29,779	29,779	29,779	105	104	106	280.8

Table B-11 Warm and Cold Episodes by Season, 2000-2021

Year	DJF	JFM	FMA	MAM	AMJ	MJJ	JJA	JAS	ASO	SON	OND	NDJ
2000	-1.7	-1.4	-1.1	-0.8	-0.7	-0.6	-0.6	-0.5	-0.5	-0.6	-0.7	-0.7
2001	-0.7	-0.5	-0.4	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3	-0.3
2002	-0.1	0.0	0.1	0.2	0.4	0.7	0.8	0.9	1.0	1.2	1.3	1.1
2003	0.9	0.6	0.4	0.0	-0.3	-0.2	0.1	0.2	0.3	0.3	0.4	0.4
2004	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.6	0.7	0.7	0.7	0.7
2005	0.6	0.6	0.4	0.4	0.3	0.1	-0.1	-0.1	-0.1	-0.3	-0.6	-0.8
2006	-0.9	-0.8	-0.6	-0.4	-0.1	0.0	0.1	0.3	0.5	0.8	0.9	0.9
2007	0.7	0.2	-0.1	-0.3	-0.4	-0.5	-0.6	-0.8	-1.1	-1.3	-1.5	-1.6
2008	-1.6	-1.5	-1.3	-1.0	-0.8	-0.6	-0.4	-0.2	-0.2	-0.4	-0.6	-0.7
2009	-0.8	-0.8	-0.6	-0.3	0.0	0.3	0.5	0.6	0.7	1.0	1.4	1.6
2010	1.5	1.2	0.8	0.4	-0.2	-0.7	-1.0	-1.3	-1.6	-1.6	-1.6	-1.6
2011	-1.4	-1.2	-0.9	-0.7	-0.6	-0.4	-0.5	-0.6	-0.8	-1.0	-1.1	-1.0
2012	-0.9	-0.7	-0.6	-0.5	-0.3	0.0	0.2	0.4	0.4	0.3	0.1	-0.2
2013	-0.4	-0.4	-0.3	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.3
2014	-0.4	-0.5	-0.3	0.0	0.2	0.2	0.0	0.1	0.2	0.5	0.6	0.7
2015	0.5	0.5	0.5	0.7	0.9	1.2	1.5	1.9	2.2	2.4	2.6	2.6
2016	2.5	2.1	1.6	0.9	0.4	-0.1	-0.4	-0.5	-0.6	-0.7	-0.7	-0.6
2017	-0.3	-0.2	0.1	0.2	0.3	0.3	0.1	-0.1	-0.4	-0.7	-0.8	-1.0
2018	-0.9	-0.9	-0.7	-0.5	-0.2	0.0	0.1	0.2	0.5	0.8	0.9	0.8
2019	0.7	0.7	0.7	0.7	0.5	0.5	0.3	0.1	0.2	0.3	0.5	0.5
2020	0.5	0.5	0.4	0.2	-0.1	-0.3	-0.4	-0.6	-0.9	-1.2	-1.3	-1.2
2021	-1.0	-0.9	-0.8	-0.7	-0.5	-0.4	-0.4	-0.5	-0.7	-0.8	-1.0	-1.0
2022	-1.											

Source: National Weather Service Climate Prediction Center, 2021.
https://origin.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ONI_v5.php

This page intentionally blank.

Appendix C

KIUC 2021 Annual Modification and Evaluation Report and Energy Services Program Report

This page intentionally blank.

David F. Andrew
Joel D. Kam
Kent D. Morihara
Diane Yuen Praywell
Scott D. Radovich
Robert F. Schneider
Tod Z. Tanaka
Tracy D. Tanaka

Rio H. Kwon

SCHNEIDER TANAKA RADOVICH
ANDREW & TANAKA
A Limited Liability Law Company

1100 Alakea St., Suite 2100, Honolulu, Hawaii 96813
Telephone: 808.792.4200 Facsimile: 808.792.3920
Website: www.stratlaw.com

Counsel:
Lianna L. Figueroa
Gary S. Kerwood
Jamie C. Yoshikane

December 29, 2021

The Honorable Chair and Members of the
Hawaii Public Utilities Commission
465 South King Street
Kekuanaoa Building, Room 103
Honolulu, Hawaii 96813

RE: Docket No. 05-0075 – In re Public Utilities Commission's Investigation of Kauai Island Utility Cooperative's ("KIUC") Proposed Revised Integrated Resource Plan and Demand-Side Management Framework: 2021 Annual Modification and Evaluation Report ("AMER") and Energy Services Program Report ("ESPR")

Dear Commissioners and Commission Staff:

Enclosed herewith please find KIUC's 2021 AMER and ESPR, which describes KIUC's 2021 demand-side management ("DSM") activities, modifications to its existing DSM programs, and plans for the upcoming 2022 program year. The AMER is being submitted pursuant to Decision and Order No. 22490, issued on May 26, 2006, in Docket No. 05-0075, which lifted the suspension approved by Order No. 20957, issued on April 30, 2004, in Docket No. 02-0060 on KIUC's integrated resource plan ("IRP") and DSM filings required by or related to KIUC's IRP Framework as set forth in Docket No. 6617, including, but not limited to, this AMER.

As you are aware, during the suspension period, KIUC continued to provide a status of its DSM programs through an ESPR submitted in lieu of the AMER. In addition to the enclosed AMER, therefore, enclosed please also find the ESPR for the subject year. However, instead of discussing DSM programs as in some prior reports, the purpose of this report, although not required by any Commission mandate or order, is to provide a description of KIUC's current activities and status of program offerings that are non-DSM programs. These non-DSM programs consist of a combination of energy efficiency and customer advantage offerings that seek to provide value added services for KIUC's customers.

200156.1

If you should have any questions, please do not hesitate to contact the undersigned, Ms. Brandee Holt of KIUC at (808) 246-8274, or Ms. Debra Santiago at (808) 246-8220.

Very truly yours,

/s/ Jamie C. Yoshikane
KENT D. MORIHARA
LIANNA L. FIGUEROA
JAMIE C. YOSHIKANE

Schneider Tanaka Radovich Andrew & Tanaka, LLLC
Attorneys for KIUC

Enclosures

cc: Consumer Advocate
Ms. Brandee Holt
Ms. Debra Santiago

KAUA`I ISLAND UTILITY COOPERATIVE

ANNUAL MODIFICATION AND EVALUATION REPORT
Demand-Side Management Programs

AND

ENERGY SERVICES PROGRAM REPORT
Non Demand-Side Management Programs

SUBMITTED TO
THE HAWAII PUBLIC UTILITIES COMMISSION

December 2021

200180.3

ANNUAL MODIFICATION AND EVALUATION REPORT
IRP Related Demand-Side Management Programs
2021

TABLE OF CONTENTS

KAUA`I ISLAND UTILITY COOPERATIVE

ANNUAL MODIFICATION AND EVALUATION REPORT
Demand-Side Management Programs
2021

I. INTRODUCTION

A. Purpose

The purpose of this Annual Modification and Evaluation Report (AMER) is to describe: (1) Kaua`i Island Utility Cooperative's (KIUC) current year Demand-Side Management (DSM) activities; (2) modifications to DSM programs; and (3) the proposed Commercial Energy Services Plan for the 2022 program year (PY2022).

It also includes a description of KIUC's 2021 Residential Energy Services Program activities with an overview of the Residential Energy Services Plan for PY2022.

B. Report Format

The general format of the AMER report consists of four sections, including an area that describes KIUC's five-year DSM implementation plan. This report conforms to the basic reporting guidelines proposed by the Consumer Advocate in 1997 for all of the electric utility companies in the state. In February 2009, KIUC was directed in Docket No. 2006-0165, to suspend all activities conducted pursuant to the Framework for Integrated Resource Planning (IRP Framework). This was done in anticipation of a new investigatory proceeding to examine the 1992 IRP Framework and revise as necessary, addressing the Hawaii Clean Energy Initiative's (HCEI) promotion of clean and renewable energy in Hawaii. On a similar note, it is also important to recognize that on March 8, 2010, the Commission initiated Docket No 2010-0037: a "Proceeding to Investigate Establishing Energy Efficiency Portfolio Standards, Pursuant to Act 155, Session Laws of Hawaii 2009 and Hawaii Revised Statutes § 269-96." For these reasons, KIUC has not developed a five-year implementation plan by which DSM can be formally prescribed. Acknowledging that the current status of DSM reflects a potential transition to a new era and/or process, this AMER has been formatted in the traditional sense to maintain consistency with past and future reports. Section I: "INTRODUCTION" states the purpose and the format for this report. Section II: "CURRENT YEAR 2021 ACTIVITIES" describes KIUC's current year activities, including a discussion of KIUC's avoided costs and net-to-gross (NTG) values used for program cost-effectiveness evaluations. Section III: "PROGRAM MODIFICATIONS" addresses proposed modifications to KIUC's current portfolio of DSM programs for the upcoming fiscal year. And finally, Section IV: "FIVE-YEAR IMPLEMENTATION PLAN" would normally present KIUC's five-year implementation plan with updated forecasts of the budget and load impact (i.e., energy and demand savings) goals for all programs and each program beginning with the first year in the five-year program implementation plan period. As noted above, KIUC does not currently have a Commission-approved five-year implementation plan by which DSM can be formally prescribed. Nevertheless, KIUC will continue to implement its DSM and Energy Services programs at current or similar levels.

II. CURRENT YEAR (2021) ACTIVITIES

A. General Discussion

1. Adherence to Guiding Principles

Kauai Electric (KE), prior to purchase by KIUC, listed its guiding principles for program design and implementation in its April 1997 Integrated Resource Plan (IRP). These principles and how they have been applied are discussed below:

*a. **Minimize the total resource cost of providing energy service within the constraint of an acceptable impact on rates and providing superior customer service.***

From 1998 to 2002, KIUC's predecessor, KE, focused on the orderly implementation of its DSM programs. Following the purchase of KE by KIUC on November 1, 2002, the focus was broadened to accommodate the member-owned cooperative philosophy. This philosophy included goals of offering customer-desired energy services that go above and beyond a typical cost-effective DSM.

In 2006, to assist in achieving these goals, KIUC's internal structure was reorganized. The DSM services that were originally located within the Strategic Planning Department were relocated to the then newly-formed Energy Services section of the Member Services Department. This change helped put DSM and Energy Services programs on the front line and in the department that is directly linked to serving KIUC's customers.

Energy Services was revamped again in 2010 to address renewed emphasis on expanded energy efficiency and to recognize the State of Hawaii's (State) commitment to clean energy, which includes the shift towards smart grid-related technologies such as load control. Under this new structure, Energy Services was placed in the Engineering Department so that it would benefit from the utility system's technical expertise that would be required in the pursuit of smart grid infrastructure upgrades and program implementation. This allowed greater coverage of all technologies available to the utility. In August of 2011, this vision was further enhanced by strategically placing Energy Services under the Regulatory and Integrated Resource and Planning functions of KIUC's Engineering Department. One year later, the Regulatory Area and Energy Services were separated from Engineering into a new Regulatory Affairs Department. This continued to allow the Energy Services staff to benefit from direct contact with Hawaii State energy efficiency policy-making processes and regulatory changes to the integrated resource planning environment.

Due to the addition of an In-Home Display Pilot (IHD) program and the growing number of self-generation applicants requiring intensive "hands on" interaction with KIUC staff, Energy Services was moved back to the Member Services Department in September 2013. This has allowed additional support in managing the large increase in customer inquiries, handling of interconnection applications and facilitating the initialization, distribution and set-up of IHDs. Energy Services continues to work hand-in-hand with (i) the Engineering Department (in evaluating customer self-generation and battery storage interconnection applications), and (ii) the Regulatory Affairs Department, by participating in the development of the Energy

Efficiency Portfolio Standards (EEPS) being established by the Hawaii Public Utilities Commission (PUC). In 2020, the PUC's consultant, Applied Energy Group (AEG) identified and completed the Market Potential Study (MPS) for the State of Hawaii. The MPS has set the foundation for KIUC, and other Hawaii utilities to move forward in a joint effort to address the key measure areas to obtain the best efficiency savings unique to each island.

b. ***Seek to capture all cost-effective savings as economically and efficiently as possible.***

KIUC continues to make significant progress in procuring utility-scale renewable energy, and at times, is running up to 100% renewable energy during the mid-day on a sunny day. KIUC is still dependent on costly imported fuel, which continues to be considerable economic motivation for KIUC's commercial customers to pursue energy efficiency. Commercial program momentum is changing towards newer technology to enhance comfort, innovative methods, renewables, and smart devices to be marketed within KIUC's commercial program offerings.

c. ***Acknowledge the importance of capturing potential lost opportunities in new construction, renovation and major equipment replacement through cost-effective implementation of DSM programs.***

Due to the Hawaii Model Energy Code that was adopted by the County of Kauai (County) and which is now part of the commercial building code, the mandated level of efficiency leaves little opportunity for KIUC to go above and beyond the prescribed levels. As a result, there is not enough potential in new construction to allow for efficient administration of a stand-alone New Commercial Construction Program. This aside, KIUC continues to support new construction measures that are cost effective and fall outside the requirements of the County's commercial building code by including them in the Commercial Retrofit Program (CRP). This portion of the CRP is not marketed in a formal sense, but instead made available to interested new construction building owners and developers on a case-by-case basis.

2. Voluntary Guiding Principles on Incentives:

KIUC has also followed other guiding principles involving customer incentives and implementation. For example, the following principles have been applied in the CRP:

a. ***Customer incentives should evolve to reflect market dynamics with consideration given to ramping up programs depending upon market response.***

Given the momentum of the program and widespread demand for participation, incentive levels are currently sufficient, but programs are being revamped to include newer technologies.

b. ***The potential need to limit DSM services due to rate impacts and managerial or regulatory constraints will focus on the pace of implementation rather than limiting the set of measures offered to customers, individually or collectively.***

There was no need to limit the set of measures offered to customers in 2021, and it is expected that the same will hold true in 2022. As a result, the original scope prescribed at program's

onset in 1998 has not been limited. Since 2004, the last year in KIUC's most recently filed five-year implementation plan, the CRP has been conducted at roughly the same implementation level. Program implementation plans resulting from future IRPs may adjust these levels to be consistent with IRP goals and acceptable rate impact.

c. ***To minimize inequity between customers/classes, KIUC will offer a variety of services targeting all markets.***

Large power customers (i.e., those with a monthly demand of 100kW or greater) continue to make up the largest participant base, in terms of facility kW demand. To insure equity between commercial and large power customer classes, KIUC will continue to aggressively market small and medium-sized commercial customers. In addition, KIUC will continue to offer "no-cost" customer-install Light Emitting Diode (LED) measures to small and medium-size commercial customers.

B. KIUC DSM Planning-Related Activities

1. KIUC Participation in Energy Efficiency Portfolio Standard (EEPS)

In 2013, 2014 and 2015, KIUC was very active in its support for the State's EEPS mandate. In more recent years, the momentum slowed but KIUC continued to participate on the EEPS Technical Working Group, including subgroups that assisted in the development of energy efficiency potential and DSM avoided cost. Activities that KIUC engaged in to support identification and quantification of energy efficiency resource potential include:

- Modeling production simulations to determine DSM avoided cost;
- Updating fuel and load forecasts for the production simulation runs;
- Conducting, through a consultant, an energy efficiency potential study;
- Conducting, through a consultant, a residential appliance saturation survey;
- Organizing and providing commercial program data to assist in determination of resource potential for the commercial sector; and
- Attending various meetings to provide meaningful input to the process of developing energy efficiency potential estimates and avoided cost.

In 2019 and 2020, Hawaii utilities had a productive year working with AEG to identify measures, and customer interval data in the Market Potential Study (MPS). The challenge now will be addressing the increase of renewables into the utility grid and how the State of Hawaii 100% Renewables Mandate will affect the overall energy efficiency goal.

KIUC will continue to participate in the State's EEPS initiatives, MPS, and Technical Working Group efforts.

2. Other KIUC DSM Planning-Related Studies and Activities

a. KIUC engaged in discussions with the County and the State on a potential partnership for an LED streetlight program. Discussions led to the issuance of a Streetlight Replacement RFP by KIUC on May 2, 2014 for all County and State streetlights. The RFP closed on May 30, 2014.

Four vendors/contractors were selected to provide presentations of their RFPs/products. After the presentations, three vendors were selected to participate in an LED Streetlight Pilot Project. Sample LED streetlights were received by KIUC, and installed in various locations on Kauai. Selection of the most favorable locations for the pilot program was done collaboratively by KIUC, the County and the State. KIUC selected one vendor/contractor from the three that provided sample streetlights and has since completed the streetlight replacement project for all County and State streetlights. KIUC requested and the PUC approved a new tariff rate for the LED streetlights.

KIUC continues to look at new areas, in which it can collaborate with the County to assist the island community to use energy more efficiently.

b. KIUC began attending the Hawaii State Energy Office's Technical Working Group meetings on Grid-Interactive Efficient Buildings (GEB) in mid-2021 to learn and assess if this new technology may fit into KIUC's future plans to work with the community to find more innovative ways to use energy efficiently and save money. In 2022, the GEB Technical Working Group will be working with utilities and community partners on identifying potential sites for GEB pilot programs within the State.

C. Detailed Program Design Parameters

1. ***KIUC will strive to distribute the benefits of DSM programs as widely as possible among groups of customers.***

In general, KIUC's large power customers have taken greater advantage of the CRP program than the small and medium-sized commercial customers. In order to distribute the benefits across a broader range of customers, KIUC implemented a customer-install segment for the small commercial customer class in 2001. KIUC has offered this customer-install segment since then and plans to continue this offer to both small and medium commercial customer classes in 2022.

2. ***KIUC will attempt to implement programs which install or cause to be installed a comprehensive set of cost-effective energy efficiency measures.***

The CRP energy survey conducted for commercial customers identifies energy-saving opportunities throughout the customer's entire facility and makes recommendations for a set of DSM measures that are cost-effective as a group. For large facilities that have energy efficiency opportunities in excess of what KIUC can support in one year, it may be necessary for KIUC to work with the customer to develop a multiyear energy plan that will schedule measure implementation over the course of several years as allowed by annual incentive availability.

3. ***KIUC will target its marketing to create a flow of participants who will receive high quality service within a reasonable amount of time.***

As in prior program years, energy audit requests in 2021 were received at a consistent pace through the year. The timing of measure adoption varies depending on the participant's

financial decisions which are often driven by a corporate board of directors and contingent on budgeting and funding criteria that are beyond KIUC's control. The CRP has not experienced any problems with delayed or deficient customer service, other than some minor delays due to trade ally workload scheduling, equipment availability and shipping delays.

4. ***Incentives will be set no higher than necessary to create desirable market penetration over time.***

   Incentives have been ramped up over time as required to maintain program activity at an effective level. Incentive levels were initially set at 30% in 1998 and have been increased over time to its current 50% level. Given the increased customer knowledge of the program parameters and the level of program interest, this incentive level is sufficient to maintain KIUC's desired level of activity.

5. ***There are multiple objectives for the programs, which are:***

   a. ***To reduce energy consumption and peak demand use by encouraging customers to adopt the measures prescribed by the programs.***

      Please see Table 2 for detailed energy consumption and peak demand savings.

   b. ***To educate customers and trade allies about the benefits of energy efficiency.***

      KIUC continues to provide new information through its website and energy audits for its commercial customers. In 2022, KIUC will reach out to existing and new trade allies to promote a broader scope of energy efficiency measures.

   c. ***To assist KIUC customers in receiving the maximum possible value from the energy dollars they spend.***

      KIUC has developed a program to provide new energy efficient product information to its commercial customers.

      In the past, workshops and seminars have provided information that is useful to facility personnel for maintenance of large systems that have been installed through the program. This has helped to assure optimal equipment performance and the persistence of energy savings over time.

   d. ***To minimize rate increases by keeping incentive levels as low as possible.***

      KIUC will maintain incentives at a level that is sufficient to encourage measure adoption. If measure adoption is less than desired, KIUC will analyze continued program viability and consider incentive modifications in conjunction with other potential changes to program delivery and marketing mechanisms.

e. To transform markets over the next five years to increase the availability of energy-efficient equipment.

KIUC's program implementation efforts are dynamic and include the adoption of new technologies, innovative concepts and implementation methods that result in an ongoing effective DSM program.

Accounting

Standard KIUC accounting procedures are followed for processing DSM program invoices (goods, services and incentives). This includes designated supervisor review and approval of purchase orders and invoices.

KIUC processes its accounts payable through the National Information Solutions Cooperative accounting system (NISC). NISC is a general ledger system with the capability to generate purchase orders and requisitions and manage accounts payable.

All DSM-related KIUC staff labor is charged directly to specific DSM program accounts.

DSM program expenditures are summarized on a monthly program trial balance and in general ledger reports. KIUC program staff uses these reports to manage program budgets.

DSM Information Management System

The four components of the DSM Information Management System, developed in 1998 just prior to the initial DSM program implementation, are the: (1) Program Activity Component; (2) Financial Accounting Component; (3) Customer Information Component; and (4) Financial Remuneration Component.

Program Activity Component (PAC)

The PAC data structure was redesigned in 1999 as a relational database in order to streamline the application process and improve data handling capability. In 2002, KIUC updated the PAC to incorporate the newest version of Visual FoxPro. Then in 2010, KIUC engaged consultants to assist with an upgrade to the most recent FoxPro version. This project is ongoing and includes database update, expansion and evaluation of the cost to transition to another database as Microsoft has decided to abandon its FoxPro products.

In late 2019, KIUC began working with Alpha Software to transfer the existing FoxPro DSM Database into a more user friendly and compatible database that will operate with ease on the newer Microsoft platforms. KIUC completed the conversion of the new Alpha Anywhere Software Database and went live in December 2021.

Financial Accounting Component (FAC)

The FAC consists of KIUC's accounting system and the associated general policies, procedures and controls. A DSM chart of accounts provides financial information for: (1) cost accounting;

(2) tracking committed incentives; (3) calculating lost margin revenue; and (4) developing the AMER and other reports.

Customer Information Component (CIC)

The CIC is essentially KIUC's Customer Information System (CIS) which changed from Daffron to NISC in 2015. It contains typical customer data such as billing information, demographics, account numbers, addresses and phone numbers. KIUC is working with NISC in hopes that our Renewable (Photovoltaic) Reporting FoxPro Software and PV Customer Access Database may be combined and integrated into the NISC CIS in 2022.

Financial Remuneration Component (FRC)

The FRC tracks program costs and the associated revenues collected through KIUC's Resource Cost Adjustment Surcharge. Financial data is posted and reconciled monthly and allows KIUC to track the magnitude of under- or over-collected revenues.

Trade Ally General Activities

Commercial Trade Ally Activity

KIUC continues to struggle with the Trade Ally group in 2021. Several prominent trade businesses have closed operations on Kauai, and our customer participation numbers have not been substantial enough to continue secure and dependable Allies timely availability for our customers. KIUC will continue to revamp our trade ally listing to secure dependable partnerships. There are currently 26 actively participating trade allies that meet program requirements, and listed below by their various trade categories:

- 5 Solar/Plumbing contractors
- 6 HVAC/Controls service and sales companies
- 5 Retail lighting suppliers
- 5 Electricians/Lighting companies
- 2 Motor, pump, refrigeration suppliers
- 3 General Contractors/Engineering Consultants

KIUC will continue to monitor licenses and active insurance statuses to ensure compliance with KIUC's trade ally participation requirements.

CRP Highlights

In 2018, KIUC lost two key Energy Services management personnel due to retirements. KIUC filled the Energy Services Supervisor role late in 2018, but required multiple postings in 2019 to search for qualified candidates with specific skill sets to fill the Commercial Energy Services Specialist position. KIUC's Energy Services section became fully staffed in the third quarter of 2019, and was looking forward to a very productive 2020 calendar year.

Unfortunately, due to the world-wide COVID-19 pandemic, 2020 was a challenging year that resulted in many adjustments to our daily business and also impacted the 2021 business year as

well. KIUC's front office has continued to remain closed to walk-in traffic since March 2020. There was also a mandatory stay at home order for a period in 2020, when employees were required to tele-work with minimal in-office exposure, and meetings and training sessions were being done virtually. Only since July 2021 have all employees fully returned to the office. Through all of these unforeseen challenges, KIUC's Energy Services section continued to work with customers to aid with their energy savings needs in a safe, but personal manner.

CRP participation this year began slow, but had a substantial number of projects closing in the later part of 2021. KIUC utilized the full budget funding and financial incentives allotted for 2021.

By design, KIUC provides incentive payment only after the measure has been installed and commissioned. Inherently, this requires that the customer fund the entire cost of the project while waiting for KIUC to issue the incentive payment. In many cases, this created a significant participation barrier as customers did not have the means to provide complete funding in advance of the incentive payments. In order to overcome this barrier, trade allies started to make payment arrangements with their customers. A payment arrangement between the customer and the contractor allows the project to move forward with only the customer's portion of payment. The trade ally then directly seeks the incentive payment from KIUC once the project has been completed.

Due to the magnitude of costs for large commercial participant projects relative to small commercial projects, the large commercial sector generally receives a greater portion of KIUC's annual incentive budget. In order to address this potential inequity, KIUC encourages small commercial participation through additional efforts. These efforts include customer-installation of free LEDs and project management assistance with local contractors.

The introduction of induction technology in street lighting and parking lot applications sparked interest in both the public and private sector. In the past, the County and State governments, local malls and commercial businesses installed induction lighting in parking lots and on roadways throughout the island. KIUC worked with the County and State and competed an LED streetlight replacement program, further reducing annual energy costs for those entities.

Marketing Summary

KIUC's marketing strategy consists of: (1) direct customer contact; (2) trade ally referrals; (3) speaking engagements at workshops and public events along with virtual meetings and videos; (4) and direct vendor contact to encourage energy efficient product sales that qualify for incentive opportunities. KIUC's Commercial Energy Specialist utilizes customer contact when conducting energy audits as a tool to market our commercial DSM programs. Trade allies contribute to KIUC's marketing efforts by referring customers with potential projects as they receive requests for proposals. In 2021, Energy Services updated all of the DSM program brochures, and mailed out as billing inserts, for both Residential and Commercial Program information.

Information and Training Program

In an effort to raise awareness in energy efficiency and to market our DSM programs, KIUC has periodically sponsored workshops so local businesses that offer energy efficient products and

services can speak; and business owners, facility maintenance personnel, and the community are invited to gain knowledge in energy efficiency and KIUC's programs. In 2019, no workshops were held but individual meetings with potential and new trade allies commenced to re-solidify program & incentive offerings to customers, especially in under-utilized measure areas. Our Energy Services staff also takes advantage of participating in local community events such as the Kauai County Farm Bureau Fair and Contractors Association of Kauai (CAK) to promote efficient energy use. In 2020, physical presentations moved to the web and were held virtually due to the COVID-19 pandemic. The Energy Services staff created a virtual presentation for the Kauai Chamber of Commerce for its members on energy savings tips and KIUC's various efficiency programs offered. In 2021, KIUC began working with a few organizations to hold small in-person sessions while following CDC safety guidelines, such as new Habitat for Humanity homeowners. The KIUC website was also revamped in 2021 by adding information on some of our Residential and Commercial Programs and will include customer energy efficiency educational videos in 2022.

Accomplishments

The program measures, expenses, and accomplishments for 2021, along with 2022 future goals are shown in the following four tables:

Program Impacts
COMMERCIAL RETROFIT PROGRAM

		2021			
	IMPACT	(a) Planned	(b) Recorded	(c) Annualized	(d) 2022 Planned
1	Administrative Costs	$103,970	$75,413	$100,550	$107,090
2	Marketing & Advertising Costs	$2,300	$0	$0	$2,300
3	Customer Incentives	$466,835	$326,773	$435,697	$466,835
4	Monitoring & Evaluation Costs	$0	$0	$0	$0
5	Total Utility Costs	$573,105	$402,185	$536,247	$576,225
6	Measure Costs (gross $)	$831,079	$559,557	$746,076	$831,079
7	Resource Benefits (gross $)[1]	$4,837,187	$1,450,354	$1,933,806	$4,835,362
8	Net to Gross Ratio (NTG)	85%	85%	85%	85%
9	Measure Costs (net $)	$706,417	$475,623	$634,164	$706,417
10	Resource Benefits (net $)[1]	$4,111,609	$1,232,801	$1,643,735	$4,110,058
11	Net Resource Benefits (TRC)[1]	$3,390,590	$1,156,879	$1,542,505	$3,414,577
12	Net Resource Benefits (UC)[1]	$3,665,275	$1,184,141	$1,578,854	$3,678,519
13	Earnings Basis[1]	N/A	N/A	N/A	N/A
14	Earnings Rate (including taxes)	N/A	N/A	N/A	N/A
15	Shareholder Incentive (SI)[1]	N/A	N/A	N/A	N/A
16	TRC B/C Ratio (w/o SI)[1]	5.70	16.24	16.24	5.91
17	TRC B/C Ratio (w/SI)[1]	N/A	N/A	N/A	N/A
18	UC B/C Ratio (w/o SI)[1,2]	9.21	25.33	25.33	9.52
19	UC B/C Ratio (w/SI)[1,2]	N/A	N/A	N/A	N/A

column (a) - source: Crp_program_screening_20.xls
column (b) - source: recorded Jan to Sept values
column (c) - source: column (b) + 9/21- 12/21 estimated
column (d) - source: program model file Crp_Program_screening_21(final 12.06.21).xls
[1] based on present value, 1998 base year, 9.0% discount rate
[2] UC B/C Ratio does include M&E cost

Table 1

Per Unit Annual Load Impact Values For 2021 and 2022
COMMERCIAL RETROFIT PROGRAM

	Unit Load Impacts (Gross) (Energy - kWh)			Unit Load Impacts (Gross) (Demand - kW)			Useful Life (Years)		
	PY 2021		PY 2022	PY 2021		PY 2022	PY 2021		PY 2022
Measure Name	Planned[1]	In Use[2]	Planned[3]	Planned[1]	In Use[2]	Planned[3]	Planned[1]	In Use[4]	Planned[3]
101 Chiller Retrofit (CRP)	260,000	0	260,000	39.000	0.000	39.000	20	0	20
103 Energy Management System	4,698	0	4,698	0.980	0.000	0.980	20	0	20
104 CER Variable Speed Drive	6,460	0	6,460	2.950	0.000	2.950	15	10	15
105 Packaged dx (rooftop,etc)	12,540	17,319	12,540	0.940	1.390	0.940	7	0	7
108 CER Split System A/C	2,053	12,833	2,053	0.000	1.060	0.000	10	10	10
110 EMS - Chiller	2,948	3,672	2,948	0.320	0.842	0.320	10	10	10
110 CNC EMS - Chiller	0	0	0	0.000	0.000	0.000			
112 Window Tinting	75	0	75	0.000	0.000	0.000	10	10	10
112 CNC Window Tinting	0	0	0	0.000	0.000	0.000			
300 Compact fluorescent lamps	160	0	160	0.031	0.000	0.031	3	3	3
301 2' T8 Fluorescent lamps - elec. ballast	150	0	150	0.020	0.000	0.020	20	3	20
302 3' T8 Fluorescent lamps - elec. ballast	111	0	111	0.020	0.000	0.020	20	0	20
303 4' T8 Fluorescent lamps - elec. ballast	138	0	138	0.030	0.000	0.030	20	3	20
305 8' T8 Fluorescent lamps - elec. ballast	75	0	75	0.020	0.000	0.020	20	3	20
306 Metal Halide	153	0	153	0.070	0.000	0.070	2	2	2
310 Occupancy Sensors	321	0	321	0.040	0.000	0.040	12	0	12
311 Exit lights	424	0	424	0.050	0.000	0.050	6	0	6
312 Delamping	94	0	94	0.000	0.000	0.000	20	0	20
313 LED Lighting	150	100	150	0.030	0.038	0.030	20	20	20
313 CNC-LED Lighting	0	0	0	0.000	0.000	0.000			
315 Hard-wired CFL	271	0	271	0.070	0.000	0.070	3	3	3
400 Refrigeration	0	3,827	0	0.000	12.000	0.000	0	10	0
600 Solar	5,637	0	5,637	0.000	0.000	0.000	15	15	15
800 High Efficiency Motors	76,843	0	76,843	0.000	0.000	0.000	15	0	15

[1] source: program design model file Crp_program_screening_20(final12.14.20).xls
[2] source: tracking system report - "Program Resource Benefit Report"
[3] source: program design model file Crp_program_screening_21(final 12.06.21).xls
[4] source: tracking system - measures.dbf
T8 - measure life updated in 2016 to reflect ballast life of 20 yrs.
Refrigeration measure added in 2020; life 10 yrs

Table 2

Per Unit Measure Costs and Participation Units
For 2021 and 2022
COMMERCIAL RETROFIT PROGRAM

	Unit Measure Costs			# of Participation Units		
	PY 2021		PY 2022	PY 2021		PY 2022
Measure Name	Planned[1]	In Use[2]	Planned[3]	Planned[1]	In Use[4]	Planned[3]
101 Chiller Retrofit (CRP)	$241,000	$0	$241,000	1	0	1
103 Energy Management System	$3,280	$0	$3,280	1	0	1
104 CER Variable Speed Drive	$5,400	$0	$5,400	22	0	22
105 Packaged dx (rooftop,etc)	$1,724	$7,839	$1,724	2	13	2
108 CER Split System A/C	$528	$6,959	$528	5	4	5
110 EMS - Chiller	$2,500	$5,445	$2,500	65	1	65
110 CNC EMS - Chiller	$0	$0	$0	0	0	0
112 Window Tinting	$15	$0	$15	300	0	300
112 CNC Window Tinting	$0	$0	$0	0	0	0
300 Compact fluorescent lamps	$35	$0	$35	700	0	700
301 2' T8 Fluorescent lamps - elec. ballast	$96	$0	$96	5	0	5
302 3' T8 Fluorescent lamps - elec. ballast	$69	$0	$69	25	0	25
303 4' T8 Fluorescent lamps - elec. ballast	$65	$0	$65	200	0	200
305 8' T8 Fluorescent lamps - elec. ballast	$81	$0	$81	50	0	50
306 Metal Halide	$47	$0	$47	37	0	37
310 Occupancy Sensors	$42	$0	$42	10	0	10
311 Exit lights	$34	$0	$34	30	0	30
312 Delamping	$4	$0	$4	10	0	10
313 LED Lighting	$75	$76	$75	3000	3981	3000
313 CNC-LED Lighting	$0	$0	$0	0	0	0
315 Hard-wired CFL	$29	$0	$29	16	0	16
400 Refrigeration	$0	$5,714	$0	0	21	0
600 Solar	$4,600	$0	$4,600	1	0	1
800 High Efficiency Motors	$4,111	$0	$4,111	3	0	3

[1] source: program design model file Crp_program_screening_20(final12.14.20).xls
[2] source: KIUC general ledger - subsidiary accounts for measures/tracking system "Closed" measures, 1/1/21 to 9/30/21
[3] source: program design model file Crp_program_screening_21(Final 12.06.21).xls
[4] source: DSM tracking system

Table 3

Lifecycle Load Impacts (Net)
For 2021 and 2022 Program Year Participants
COMMERCIAL RETROFIT PROGRAM

ANNUAL ENERGY - kWh				ANNUAL DEMAND - kW			
PY 2021			PY 2022	PY 2021			PY 2022
Planned[1]	Recorded (To Date)[2]	Annualized	Planned[1]	Planned[1]	Recorded (To Date)[2]	Annualized	Planned[1]
1,289,205	643906	858,541	1,289,205	215	362	483	215

[1] source: program model "crp_program_screening_20(Final12.14.20).xls"
[2] source: DSM Tracking System: Resource Benefit Report - 01/01/21 to 9/30/21

Table 4

D. Measurement and Evaluation (M&E) Activity

Pursuant to KIUC's most recent Measurement and Evaluation Plan, KIUC's predecessor, KE, conducted analyses of actual savings achieved for its 1998-1999 and 2000-2001 program years. Due to the transition from an investor-owned utility to a cooperative utility and the pending investigation of the IRP process during this period (i.e., Docket No. 2009-0109 proceeding), KIUC did not apply the results of the two studies to past program years. However, KIUC incorporated the results of these studies in KIUC's April 26, 2005 "Energy Efficiency Potential Study" and has utilized the corroborated results from this Potential Study in its most current IRP[1].

E. Avoided Cost

KIUC updated its avoided cost in its most recent IRP filed in December 2008. For 2021, KIUC used its current modelling 2018 IRP avoided cost values for measure and program screening.

F. Net-to-Gross

As provided in the 1997 IRP, KIUC has incorporated a net-to-gross ratio of 85% for the 2021 program year.

III. PROGRAM MODIFICATIONS

A. General

General Budget Changes

The 2022 CRP budget is at $576,225.

B. DSM Viability – Changes to Specific Programs

Commercial Retrofit Program Modifications

There were no significant changes to the implementation process or marketing approach in 2021.

New Technologies

Interest in LED technology continues to be high in popularity and participation among the smaller commercial sector in 2021. Participation was from a wide range of businesses around the island. General feedback from participating businesses in the customer install program indicates they are pleased and satisfied with this new technology and the incentive assistance from KIUC.

[1] KIUC filed its most recent IRP in December 2008 for Commission review in Docket 2006-0165; however, the Commission directed KIUC to suspend all activities pursuant to the IRP Framework and closed Docket No. 2006-0165.

Surface Mounted Diodes continued to spark interest in the business community. This technology replicates halogen lighting in appearance, but uses less energy and has a longer life – up to 50,000 hours. Feedback from these program participants again shows favorable results.

High ceiling industrial bays, parking lots and other high elevation installations utilizing high pressure sodium (HPS) and other high-density discharge type lighting applications were difficult to retrofit in the past. Improvements and LED lighting technology make LEDs a viable energy efficient alternative. Induction lighting still remains a good alternative, as well. Both LED and induction lighting offer improvements in both energy efficiency and longevity. KIUC will continue to promote the adoption of these lighting alternatives in 2022.

Smart Devices are growing in interest as smart technology and self-monitoring products become more common for household users. KIUC initially planned to roll out and add this new measure into our programs offered in 2020. Unfortunately, due to the global COVID-19 pandemic, this program was marketed in early 2021, and included both Smart Thermostats and Water Heater Timers.

As the State of Hawaii pushes towards Electrical Vehicle (EV) adoption. Kauai does not have a solid infrastructure to support EV's yet for public utilization, and has been working on a partnership with the County and a private entity to promote more EV infrastructure installations. Due to COVID-19 and financial hardships, the County dropped out. The State rolled out a state-wide rebate program to be administered by Hawaii Energy. The island of Kauai had three commercial entities that applied for and received funding.

KIUC is committed to assist Kauai businesses in the EV venture in the upcoming calendar year, and will be working with the State and County to determine what programs or pilots best meet the specific needs of our island community and customers.

IV. FIVE-YEAR IMPLEMENTATION PLAN

As noted in Section I.B. above, KIUC does not have a five-year implementation plan at this time and will continue to conduct DSM and Energy Services' programs at current implementation levels until such time that the PUC provides new direction with regard to each utility's integrated resource planning process timeline.

For the past several years, KIUC has focused a lot on energy efficient lighting measures. The Hawaii PUC Market Potential Study confirmed that lighting is still a major area on which to continue our energy efficiency efforts. In the upcoming year, a new direction or focus will be to find measures that are more diverse for residential and commercial markets, outreach to customers with limitations in resources and funding available to them, and more proactive marketing of programs to the hard to reach and underdeveloped customer groups such as low income and small businesses.

KIUC will evaluate the need and requirements for new programs and pilots in 2022 to address EV adoption, and EV Charging Station installations. KIUC will also address the key measures identified in the Hawaii PUC Market Potential Study for both Commercial and Residential customers on Kauai to obtain maximum savings potential.

KAUA`I ISLAND UTILITY COOPERATIVE

ENERGY SERVICES PROGRAMS REPORT
Non Demand-Side Management Programs
2021

TABLE OF CONTENTS

ENERGY SERVICES PROGRAMS REPORT
Non Demand-Side Management Programs
2021

I. INTRODUCTION

A. Purpose

KIUC Energy Services programs offer two service components to KIUC customers: (1) DSM-related programs that are developed in conjunction with KIUC's integrated resource planning process and (2) other customer-desired energy services that combine energy efficiency programs with "Customer Advantage" programs that may or may not address the typical IRP resource acquisition needs of a utility. Customer-desired energy services programs do not specifically target cost effectiveness, are non-discriminatory (a cooperative principle) and are primarily designed to provide KIUC customers with the level of energy services expected from a not-for-profit, member-owned cooperative. In order to report on both service components, KIUC compiles two (2) annual reports that describe the service program achievements to date, current-year activities and future-year modifications. The Annual Modification and Evaluation Report (AMER) provides information on KIUC's DSM-related programs. The Energy Services Programs Report (ESPR) provides information on other customer-desired energy services programs not included within the AMER.

B. Report Format

The ESPR for 2021 has been included in this document for informational purposes and to demonstrate KIUC's commitment to energy services over and above IRP-related DSM, as stated in KIUC's position, testimony and closing statement in Docket No. 05-0069 regarding statewide energy efficiency policy.

The ESPR has been formatted in the traditional sense to maintain consistency with past and future reports. Section I: "INTRODUCTION" states the purpose and the format for this report. An overview of the energy efficiency and Customer Advantage programs are also briefly highlighted in this area. Section II: "CURRENT YEAR 2021 ACTIVITIES" describes KIUC's current year activities in energy efficiency and Customer Advantage Programs, Section III: "PROGRAM MODIFICATIONS" addresses proposed modifications to KIUC's current portfolio of Non-DSM programs for the upcoming fiscal year.

C. Overview

KIUC and its predecessor, KE, have been involved with full-scale energy programs since 1998[2]. When KE was sold to KIUC in 2002, there was a strong need to develop an Energy Services section dedicated to providing customer-driven energy services to KIUC's customers. KIUC's Energy Services section was formed to meet this need. From late 2005 until early 2010, Energy

[2] KIUC's predecessor, KE, began conducting DSM pilot programs in 1993 to test certain concepts in preparation for full-scale implementation in 1998.

Services fell under the purview of KIUC's Member Services Department. In January of 2010, Energy Services was reassigned to the Engineering Department under the direction of KIUC's Senior Energy Solutions Engineer. This reassignment resulted in additional engineering support to address the need to expand end-use conservation and self-generation. In the third quarter of 2011 Energy Services was reassigned to the Regulatory section of the Engineering Department. One year later, the Regulatory Area and Energy Services were separated from Engineering into a new Regulatory Affairs Department. This allowed the Energy Services staff to benefit from direct contact with Hawaii State energy efficiency policy-making processes and regulatory changes to the integrated resource planning environment.

Due to the addition of an In-Home Display Pilot (IHD) program and the growing number of self-generation applicants requiring intensive "hands on" interaction with KIUC staff, Energy Services was moved back to the Member Services Department in September 2013. This has allowed additional support in managing the large increase in customer inquiries, handling of interconnection applications and facilitating the initialization, distribution and set-up of IHDs. Energy Services continues to work hand-in-hand with (i) the Engineering Department (in evaluating self-generation and battery storage applications), and (ii) with the Regulatory Affairs Department (by participating in the development of the Energy Efficiency Portfolio Standards (EEPS) and recent completion of the Market Potential Study (MPS) established and commissioned by the Hawaii PUC).

The evolution of the organizational structure of Energy Services demonstrates KIUC's commitment to energy efficiency, customer satisfaction and changing times. KIUC's Energy Services continues to offer a variety of programs that are designed to satisfy a wide range of customer interests.

KIUC has characterized its non-DSM programs, which are divided into two basic categories: (1) Energy Efficiency programs and (2) Customer Advantage programs.

Energy Efficiency Programs

Conventional DSM programs tend to set limits on eligibility based on a utility perspective economic threshold. While this approach is designed to achieve the IRP-related objectives of deferring capacity and containing rates, it also inherently sets in motion the unintended policy of selective and perceived discriminatory participation. This results from use of the standard DSM cost tests[3] that have been accepted in the State of Hawaii as the means by which cost effectiveness is determined and whereby the decision to provide a DSM-related incentive is a "black or white" decision. For example, a residential customer whose hot water usage is substantial can qualify for an incentive to install a solar water heating system, while a customer who does not make the threshold, even by a very small margin, would not be eligible for an incentive payment. To address this, KIUC's residential non-DSM programs do not require that an economic threshold be met. As

[3] The State of Hawaii has adopted the cost tests described in the California DSM Standard Practices Manual as the means for determining economic viability of a DSM program or measure. The key test is the Total Resource Cost test (TRC) test which takes into account the entire cost of a measure or program, regardless of who pays. This methodology prevents implementation of incentive mechanisms that would allow for incremental incentives that could be based on a metric like *the portion of cost equal to or less than the benefit*, i.e., partial incentives.

such, KIUC can engage customers non-discriminately on their level and allow them to receive the benefits of participation, even if such participation will not yield net positive life-cycle benefits. Under this concept, KIUC's customers, represented by its Board of Directors, can make the decision, in the interest of sustainability, to "purchase" energy efficiency at an acceptable premium.

Customer Advantage Programs

Customer Advantage programs provide services beyond efficient use of energy. These programs create additional customer value in the goods and/or services provided.

II. CURRENT YEAR 2021 ACTIVITIES

A. Energy Programs and Services

Solar Water Heater Loan Program

From 2006 to present, KIUC has offered a financing program for residential solar water heating. KIUC developed a partnership with Kauai Community Federal Credit Union (KCFCU), now renamed as Gather Federal Credit Union (Gather) to allow for no-interest financing of solar water heaters for existing homes. KIUC also coordinated with the Kauai County Housing Agency to provide loans for those customers that do not meet Gather's lending criteria. Under both arrangements, five-year, interest-free loans are available with no down payment requirement. To clarify, KIUC covers the interest costs charged by the lending institution on behalf of the customer as an incentive.

Although KIUC has increased marketing efforts to aggressively promote this program, participation has been declining since 2012. KIUC accounts this trend as a direct correlation with the popularity of solar photovoltaic (PV) systems in today's market. Participation dropped by more than 57% in 2012 compared to 2011 as more island residents chose to install solar PV systems in lieu of solar water heating. The number of participants in 2019 were 3 solar water heating systems installed and no completed systems were installed in the same time period in 2020 and 2021.

Over the past two years, KIUC has not seen interest from its customers in the Solar Water Heater Loan Program. KIUC will evaluate if marketing more involvement with other local financial institutions on Kauai in 2022 will enhance participation or if this program will be discontinued. McBryde Federal Credit Union was approached in 2020, but they opted out due to their limited customer base of old plantation and KE employees, along with only customers who reside in the towns of Eleele and Hanapepe.

Solar Water Heater Rebate Program

Between 1998 and 2004, KIUC offered solar water heating incentives as part of the larger Residential Direct Install DSM program. Since then, KIUC has provided rebates for solar water heating through a non-DSM, stand-alone rebate program. In this program, the economic

constraints for participation and screening for cost-effectiveness are not applied and as such, rebates are made available to all KIUC customers that install a solar water heating system through an approved KIUC participating solar contractor.

It was originally anticipated that removing the economic qualifiers would greatly expand the availability of the program and increase participation. However, there were other drivers and marketing hurdles affecting participation levels, such as social pressure, technology education, slow economic recovery, fluctuating electric rates and tax incentives. This is a prime example that simply removing economic qualifiers alone does not increase participation levels.

KIUC increased marketing efforts to promote this program and also began to offer a promotional rebate from October 1, 2012 through December 31, 2012. The promotion offered a $1,000 rebate for solar water heating installations instead of $800. To continue to make solar water heating systems financially attractive to its customers, KIUC decided to set the rebate back to $1,000 in the second quarter of 2013 and anticipates leaving the rebate at this level for the foreseeable future. The program yielded 12 solar water heater installations through September 2020, compared to 35 solar water heaters installed during the same period of 2019. The impact of members continuing to choose to install rooftop photovoltaic systems instead of solar water heaters is reflected in the overall annual decrease in numbers over last several years. In 2021, KIUC increased the rebate amount to $1,500 to encourage more participation and participation increased to 25 over the first nine months of the year.

Heat Pump Water Heater Rebate Program

Heat pump water heaters were offered as part of the Residential Direct Install program which began in 1998. Heat pump water heating technology is not well known on Kauai, nor is there any dedicated company infrastructure for installation, maintenance and repair. This technology has met with very little interest from program participants and continues to suffer from a low acceptance rate.

Until 2010, the heat pump water heating industry consisted of small regional manufacturers that lacked the infrastructure and ability to make the capital investments needed for further development, distribution and product support that would bring the technology into the mainstream.

Large companies like Rheem and General Electric invested resources into the redesign of heat pump water heaters to improve overall performance and reliability and to create a more attractive product. In addition, *Energy Star* created standards for integral heat pump water heater performance which certify the products that meet performance specifications and guidelines.

With involvement from large manufacturers, there may be renewed interest in this technology. However, there is resistance from Kauai contractors to promote and support heat pump water heaters which is proving to be an impediment to the expansion of this program.

The incentive amount offered through this program was $300 per installation. It is designed to assist residential account holders with existing electric water heater replacement. Retrofit of gas fired water heaters are prohibited from this program. Customers with multiple properties may

receive rebates for each qualifying dwelling. In 2021, this rebate was raised to $500 to increase customer participation.

Overall, there have been 93 program participants since January 2010, with 17 through September of 2021. Nevertheless, Kauai's average ambient temperature is well suited for this technology, which will continue to be an alternative for KIUC customers where individual situations may not be suitable for solar water heating or electric water heater replacement.

Home Visitation / High Bill Assistance

KIUC's Call Center provides the initial response to any question that a customer may have about home energy use. If the Call Center is not able to satisfactorily address the question, customers are referred to the Energy Services Staff (Staff). If the question continues to be unsatisfactorily addressed, a follow-up home visit may be scheduled so KIUC's Staff can conduct an on-site survey and provide energy-related advice to the customer.

After an in-depth study of the customer's billing history, household size, appliances, electronic equipment in the home, usage patterns, etc., Staff determines if there are energy-reduction opportunities and recommendations are made. Staff may also visit the home to do an energy survey, provide at no cost to the customer energy-saving devices such as power switches, smart power strips and LEDs, if the customer does not already have such devices.

As of September 2021, KIUC conducted 94 home visits/audits compared to 41 in 2020. In addition, Member Service Representatives (MSRs) have been trained to handle high bill inquires with in-depth data usage analysis made available through KIUC's Advanced Meter Infrastructure. Our MSRs were able to answer 744 high bill inquiries in 2019, 409 high bill inquiries in 2020, and 297 high bill inquiries in 2021, during the same period. These numbers have decreased substantially, potentially due to the Governmental mandate of no utility service suspensions from March 2020 through the end of May 2021 as a result of the COVID-19 pandemic, and the various avenues for financial assistance that have been available through different organizations on Kauai this year.

However, MSRs will continue to refer customers to Energy Services when problems cannot be resolved during the phone conversation. Annual audit levels for 2021 will depend on staffing and the continued success of high bill inquiry intervention provided by KIUC's MSRs. Due to KIUC's on-going promotion of energy efficiency programs, community outreach/education and products, Kauai's residents are more aware of methods that may be used to achieve energy savings, product awareness when purchasing, and better management of their overall electric consumption.

To achieve even greater customer energy efficiencies, KIUC provided individual online access to customer accounts. Access was available through both NISC, the CIS software installed in 2015, as well as the online portal program called "MyMeter". MyMeter was provided through Accelerated Innovations and was accessed exclusively by customers using AMI meters. In addition, the portals allowed each customer to perform a self-audit of their energy usage, set consumption reduction goals for themselves, etc. Via the MyMeter portal, customers could sign

up to view electric consumption and bill information based on a fifteen-minute interval, hourly, daily or monthly time periods.

The MyMeter portal was not renewed in 2018 and was replaced by NISC's SmartHub portal which provides customers with enhanced billing and consumption features, various interval usage data and graphs, along with reduced operating costs for KIUC. The SmartHub website is available for all KIUC customer account holders with an AMI meter.

In conjunction with the County of Kauai, KIUC sponsored an energy efficiency retrofit program through Pono Home in 2016. This program was available to low income and elderly account holders, those most likely unable to bear the cost of more energy efficient equipment for their homes. The program started in September 2016 and completed one month later by the end of October. The technician installed low flow showerheads, aerators, LEDs and a smart power strip, if needed. Based on funding, 66 qualifying households were able to participate, lowering their electric bills and furthering both Kauai County and KIUC's energy efficiency goals. KIUC again collaborated with the County of Kauai in 2018, to provide energy efficiency retrofits through Pono Home to households that would qualify for the programs based on 2016 criteria. As of the end of 2018, 63 qualifying homes participated. This program was extended through March 2019, adding another 11 qualifying homes to the total.

Community Presentations

In addition to home visits, Staff participate in numerous community-based events and functions across the island to promote KIUC's energy efficiency programs such as the Kauai Energy Conference, LEED workshops, County of Kauai and Hawaii State Energy Office Energy Code workshops and training, and Rotary Club meetings. KIUC has also worked with Habitat for Humanity, Kauai Economic Opportunity Transitional Housing participants, Department of Education Career Fairs, Contractors' Association of Kauai, Kauai Chamber of Commerce, Kauai Realty, and homeowner associations. Over the past two years, the COVID-19 global pandemic restrictions changed our world from in-person meetings to virtual Zoom web sessions for the safety of our employees and the public. There have been a few modified presentations to small groups in 2021 following all CDC guidelines to keep both our employees and customers safe.

Appliance Metering Service

KIUC offers an Appliance Metering Service (AMS) to assist in determining energy consumption of major appliances within the home. The AMS allows the customer to plug an appliance, such as a refrigerator, into a small monitoring device and record its energy consumption for a period of up to one week. Once the energy use information has been collected, KIUC can assist the member with a determination of whether or not there are opportunities to reduce appliance energy consumption through maintenance, operational practices or replacement.

Qualified Member Appliance Replacement Program

The Qualified Member Appliance Replacement Program (QMARP) was created to provide assistance to qualifying low-income[4], senior citizens by reducing their electricity use through the replacement of old, inefficient appliances with new, efficient models at no direct cost to the participant. Qualifying measures for this program are refrigerators[5] and defective electric water heaters and includes removal of still-functioning, secondary refrigerators.

KIUC has partnered with the County of Kauai to solicit participation and to minimize administrative costs. Outreach and recruitment for this program is also coordinated through the Offices of Community Assistance, Agency on Elderly Affairs (AEA), who utilizes its existing community-based network to identify potential QMARP candidates. AEA also assists with administrative support and financial need verification.

Marketing efforts to communicate program availability have been intensified by using social service agencies and churches, along with bill inserts, radio announcements and energy efficiency presentations at Kauai Senior Centers.

To qualify for the refrigerator replacement portion of the program, seniors must meet the income and age guidelines and have an existing refrigerator that is 10 or more years old. In situations where a home has more than one refrigerator, only the primary refrigerator will qualify to be replaced.

As part of the agreement to receive a new, high efficiency refrigerator, any operational secondary refrigerators must also be removed. KIUC will remove these secondary units at no cost to the participant. All removed refrigerators are brought to a Kauai County recycling center for proper and environmentally safe disposal.

To qualify for the water heater replacement portion of the program, income and age eligible residents must have an existing electric water heater that has reached the end of its useful life (i.e., leaking hot water from the tank or other catastrophic condition).

Program participation increased slightly as KIUC replaced 1 defective water heater and 4 older refrigerators with new energy efficient appliances in 2021, compared to 1 defective water heater and 2 older refrigerators over the same period in 2020.

Efficient Appliance Replacement Program

The Efficient Appliance Replacement Program (EARP) promotes appliance retrofits through education on the benefits of using energy-efficient appliances. A $50.00 rebate is offered for any appliance with an upgrade of a new energy-efficient one. Originally, the program was conducted as a series of two-month segments with one appliance type during each segment annually. In an

[4] Federal Poverty Guidelines are used to determine low-income status for households.
[5] Refrigeration, considered one largest consumers of household energy, is second in energy consumption only to water heating.

effort to increase market penetration, rebates for three listed appliances are now available year-round.

The original list of eligible appliances included refrigerators, clothes washers and dishwashers. During the first quarter of 2011, changes were made to enhance the program appliance list by removing the less popular dishwashers and adding freezers which were more desirable. KIUC also added Energy Star rated window air conditioners and ceiling fans to the list of qualified appliances for a three-month period in 2015.

In order to effectively implement the EARP program, appliance dealers on Kauai stock and promote the purchase of eligible energy-efficient appliances. Program marketing is done through printed advertisements in KIUC publications, advertising in local publications, radio spots, web-based advertising and social media.

Kauai has seen over the past several years large retail store and small independent dealer closures that carried appliances such as Sears, Kmart, and Kapaa Appliance; thus reducing the selection and ease of purchasing these items. There are now only two retail outlets selling new appliances on Kauai. In the past, the majority of appliances were sold by Home Depot and Sears. However, Sears closed its store on Kauai in June 2013 and Kmart closed its doors in September 2018. Costco carries a very limited selection of appliances. KIUC has partnered with the two remaining retail outlets – Costco and Home Depot to promote and offer this program to island residents.

Customer participation in the Efficient Appliance Replacement Program has decreased considerably for refrigerators, freezers, and clothes washers compared to the same period in 2020. In 2021, participation, including rebates for window air conditioners, and ceiling fans yielding an aggregate of 1,032 appliance rebates through September, versus 1,683 appliance rebates over the same period in 2020. The total rebates paid through September 2021 for each qualified appliance are as follows:

- Refrigerators: 509
- Clothes washers: 426
- Freezers: 92
- Window air conditioners: 2
- Ceiling Fans: 3

Energy Efficient Device Retrofit Program

In 2021, KIUC added the Energy Efficient Device Retrofit Program to the Residential Programs offered to our customers. This is a $200 rebate for the purchase and installation of a Water Heater Timer or Smart Thermostat if approved. These smart devices help the customer to monitor usage and pre-set allowable times when the air conditioner or water heater is actually being used.

New Customer Lighting Program (Merged into Lighting Program)

In April 2014, the New Customer Lighting Program (NCLP) began offering three 8.5-watt LEDs instead of the previously distributed 20-watt CFLs to new residential customers at no direct cost.

This welcoming gift includes energy saving information regarding the use of LEDs versus incandescent and CFL light bulbs. The NCLP program distributed 1,021 LEDs in 2014 to new customers. This program became part of KIUC's overall Lighting Program in 2015. A total of 926 LED bulbs were distributed to new customers in 2019 and 273 in 2020. KIUC's main office was closed to walk-in customer traffic in March 2020 and continues to remain closed to keep both customers and employees safe from the COVID-19 virus spread. No LED's were distributed to new customers in 2021 due to the ongoing closure of the main office.

In-Home Display Pilot Program

In concert with the Advanced Meter Infrastructure (AMI) implementation that was partially funded by a grant from the Rural Utilities Service, KIUC was able to purchase IHDs for distribution to residential customers. These units monitor real-time electric usage displayed by kilowatt-hours (kWh) and also provide approximate cost per kWh. Customers that applied to be part of the pilot program agreed to data collection/disclosure and received the IHD free of charge. As an IHD must be linked to an advanced meter, installations were started in late June 2012. Installations were completed in August 2013. A total of 1,146 devices were provided to KIUC residential customers. Those customers now have the capability of viewing their electric usage and approximate costs at any given moment in time. This allows customers to be more aware of the kWh being used in their homes, which in turn gives them the opportunity to be more energy efficient. Devices are slowly being decommissioned as they fail, and are being replaced with our SmartHub, where customers can view their personal account billing data, and actual and historical usage online. Less than half of the initial IHD's are still in use in the field.

Residential Stimulus Programs

Residential stimulus programs consisted of the: (1) SEEARP Energy Star Refrigerator Replacement Rebate Program and (2) the ARRA-SEP Rental Solar Water Heating Program. The SEEARP Energy Star Refrigerator Replacement Program was implemented in May of 2010 and ended several months later. The ARRA-SEP Rental Solar Water Heating Program began in August 2010, with completion in early 2012. These two programs are further described below.

Stimulus Program 1: SEEARP Energy Star Refrigerator Replacement Program

The SEEARP ENERGY STAR Refrigerator Replacement Program rebates encouraged replacement of older, less-efficient refrigerators with ENERGY STAR-qualified refrigerators. This program was designed to assist KIUC and other implementing entities experience with: (1) customer response to incentives; (2) the ability to retain jobs; (3) maintaining sales; (4) maintaining distribution activities; and (5) promoting recycling.

The program allowed a maximum of 385 rebates issued for Energy Star-rated refrigerator replacements from the time the program was implemented in May 2010 through November 2010. Although all rebate forms were distributed by July 2010, KIUC filed with the State of Hawaii Department of Business Economic Development and Tourism (DBEDT) for program completion at the end of November 2010.

Stimulus Program 2: Rental Solar Water Heating Program

The ARRA-SEP Rental Solar Water Heating Program paid the total cost to purchase and install solar water heaters for owners of single-family homes that were used exclusively as full-time rentals. The ARRA-SEP Program objectives were to: (1) raise awareness of the high ratio of renter households; (2) stimulate the economy; and (3) reduce fossil fuel dependence, electricity consumption and carbon emissions. Ineligible dwellings included owner-occupied dwellings, residences whereby the owner lives in only a portion of the dwelling, multifamily dwellings including apartment buildings and "stack housing", and single-family homes with leases shorter than one month.

The ARRA-SEP Grant allowed for a maximum of 24 completely-funded solar water heating systems to be installed under the ARRA-SEP program. This program began in August 2010. By the end of 2011, 22 solar water heating systems had been installed. By the end of the program in April 2012, another four systems were installed bringing the aggregate total to 26 solar water heating units installed through this program. Although stimulus funding was limited to 24 units, KIUC worked closely with the participating solar contractors and installers to reduce installation costs, thereby adding two additional units to the total.

Incandescent Bulb Exchange/CFL Distribution Program (Discontinued January 2014)

The Incandescent Bulb Exchange Program offered a one-to-one CFL exchange for every incandescent bulb provided by the member. The main objectives of this program were to: (1) raise energy efficiency awareness; (2) reduce energy consumption and utility bills; (3) decrease Kauai's dependence on fossil fuel; and (4) decrease carbon emissions from electric generation plants.

In February of 2012, KIUC purchased an additional 25,872 CFL's with plans to distribute 24,000 units by the end of the 2012 program year. KIUC partnered with various community organizations and schools to administer this program; The Independent Kauai Food Bank, Kekaha Neighborhood board, Alu Like and four elementary schools (Eleele, King Kaumualii, Koloa and Kilauea). Community CFL exchanges were available on the first Friday of each month at Kukui Grove Shopping Center during the early evening hours.

This program yielded a total of 22,882 CFLs exchanged and distributed by the end of the third quarter in 2012, almost surpassing the annual goal. In January 2013, the exchange/distribution program was moved to KIUC's main office in Lihue during normal hours of operation. To further advance the use of the more energy efficient CFLs, KIUC also distributed bulbs to Kauai residents at KIUC's Annual Meeting, Kauai Farm Fair, Kauai Energy Conference and other community events in which KIUC participated. This program has been replaced by the Lighting Program (see description immediately below).

Lighting Program (Replaced Incandescent Bulb Exchange/CFL Distribution, Light Up a Life and New Customer Lighting Programs)

KIUC decided to aggressively assist customers with energy savings by distributing over 25,000 8.5-watt LED light bulbs in both 2014 and 2015. This was done via KIUC public meetings, energy

efficiency presentations, low-income assistance agencies on Kauai, Kauai County Departments "Green Challenge", giveaways at a local mall, Kauai Farm Fair, etc. In 2014, KIUC distributed 25,677 LEDs, and in 2015 KIUC distributed 25,152 LEDs (the 2015 number includes the LEDs given to new customers). The number of bulbs decreased for several years, but KIUC continued to distribute 5,480 LED's in 2016, and 5,119 LEDs by the end of 2017, 2,661 LEDs in 2018, 8,347 LED's in 2019, and a total of 6,877 in 2020, inclusive of the new member lighting bulbs given out. KIUC distributed 9,327 LED bulbs through September of 2021, even though no bulbs were given out to new customer account holders since the COVID-19 pandemic closed our front office in March 2020. This year, bulb giveaways were distributed to organizations such as the Kauai Office of Elderly Affairs, Kauai Food Bank, Habitat for Humanity, The Church of Jesus Christ of Latter-Day Saints-Kekaha Ward, Ho'ola Lahui, Catholic Charities of Hawaii, Sun Village, Nana's House, Hale Hoomalu, and Kauai Economic Opportunity.

B. Customer Advantage Programs

Light Up a Life (Merged into Lighting Program)

Light Up a Life was a program built around KIUC's commitment to support the Kauai Independent Food Bank (KIFB). KIUC was a designated drop off center for food donations for KIFB until June 2013. KIUC provided an incentive of a free 20-watt CFL bulb to its customers who donated non-perishable food items. KIUC witnessed a slow-down in food donations mid-2013 and as a result, ceased to be a food collection location. Instead, KIUC gave CFLs directly to KIFB and other food pantries for distribution. This type of donation assists those on Kauai least able to participate in other energy efficiency programs while allowing them to take advantage of some energy cost savings. The program merged with the Lighting Program in 2014. Due to legal and ethical issues that aroused at KIFB, KIUC decided to cease working with KIFB. KIUC continues to donate LEDs to other charitable entities on Kauai that work with those that may not have the means to invest in energy saving measures, i.e., the elderly and low-income families.

III. PROGRAM MODIFICATIONS FOR 2022

A. Energy Services Program and Services Budget

Implementation of KIUC's Energy Services programs align with KIUC's strategic goals for energy efficiency and cooperative value-added service principles will continue during 2022, with the addition of two new programs.

The proposed 2022 Energy Services budget is as follows:

SWH Rebate ($1500 per rebate)	$48,500
SWH Loan	$ 4,800
Efficient Appliance Rebates	$140,700
Qualified Appliance Replacement	$ 8,850
Consulting & Professional Services	$ 75,000
Heat Pump Water Heater Rebate ($500)	$6,500
Split System Air Conditioner Rebate	$18,200

Air Conditioning Maintenance Rebate	$2,400
Lighting Program	$ 22,750
High Bill Inquiry	$16,000
Efficient Device Rebate/WH Timer	$ 3,700
Electrical Vehicle Rebate/Incentive	$123,500
Total Residential Energy Services Budget	$470,900

B. Changes to Energy Services Programs

Solar Water Heater Rebate Program

KIUC will continue to offer this rebate at $1,500 per approved customer-installation by one of our trade allies.

Solar Water Heater Loan Program

Similar to the Solar Water Heater Rebate Program, KIUC will continue to offer its current solar water heater loan program for 2022. KIUC is working with local financial institutions on how to enhance advertising to promote and improve this program which customers have not shown interest in over the past 2 years. More customers are opting for loans on entire whole house solar systems.

Efficient Appliance Incentive Program

The budget amount for 2022 reflects anticipated program participation for all qualified appliances. It was decided in late 2021, to add dryers to the eligible appliances in 2022.

Lighting Program

KIUC will continue to distribute up to 10,000 energy efficient LEDs to island residents and charitable organizations annually.

Qualified Member Appliance Replacement Program

No changes are planned for 2022.

Consulting & Professional Services

In 2021, KIUC continued its conversion project of its old FoxPro Demand-Side Management (DSM) Database into the newer Alpha Anywhere Software Database. There were some delays due to technical issues which staff, consultants, engineers, and developers resolved and tested this year to complete the transition and go live in December 2021. Additionally, a conversion project of KIUC's Renewable FoxPro Database will be deferred to 2022 pending discussions to possibly integrate this renewable database, reporting features, the Photovoltaic (PV) access database, and our NISC CIS system.

High Bill Inquiry

KIUC will continue this program for 2022.

Heat Pump Water Heater Program

KIUC will continue its program rebate at $500 in 2022 to encourage more participation.

Energy Efficient Device Retrofit Program

Introduced in 2021, this program has no changes planned in 2022.

In-Home Display Pilot Program

No additional IHD devices will be purchased or distributed in 2022. As units fail, they are decommissioned.

NISC and SmartHub

No changes in 2022 are anticipated for SmartHub. Enhancements may be added to consolidate the renewables database and reporting within the NISC CIS platform.

IV. POTENTIAL NEW AND PILOT PROGRAMS FOR 2022

KIUC will continue to review and explore new energy efficient concepts and opportunities for future program development and implementation that will align with the State of Hawaii Energy Efficiency Portfolio Standard framework, and the recently finalized Market Potential Study.

Our Energy Services section will be adding a few new Rebate/Incentive programs into our Residential Program offerings. New or replacement Split System Air Conditioning Unit Rebates of $300, along with Air Conditioning Annual Maintenance Rebates of $100, to keep systems operating properly and efficiently. It has been more common in recent years for our residential customers to install air conditioning in their homes.

KIUC was working on a partnership with the County of Kauai and a private entity on potential Electric Vehicle (EV) charger rebates, and /or EV purchase rebates in 2020. This project was to be in addition to the State program administered by Hawaii Energy. Unfortunately, this venture fell through with the lack of County of Kauai funding and participation due to financial hardships from the global COVID-19 pandemic in 2020.

KIUC is currently working with the County of Kauai (COK) through the Energy Transitions Initiative Partnership Project Grant. Consultants from the National Renewable Energy Laboratory, Pacific Northwest National Laboratory (PNNL), Sandia National Laboratory, and Lawrence Berkeley National Laboratory provide program assistance and technical expertise to COK and will be providing mapping specific potential EV charger sites and sizing. Once this grant is completed,

COK hopes to secure governmental funding for purchase and implementation of several EV chargers on Kauai to meet the needs of our island community. KIUC will continue to be involved and assist in this project.

KIUC is also partnering with the COK Transportation Agency, the State of Hawaii, and its consultants, Center for Transportation and the Environment (CTE) on required power needs and infrastructure for the Kauai base yard to accommodate a Battery Electric Bus (BEB) Pilot Program. These buses were received through federal grants. The BEB's are expected to arrive in March 2023.

Presently, KIUC is still evaluating how to address our environmental obligations and customers' needs with EV adoption and charging. All options are being assessed including installing, owning and maintaining chargers, implementing Time of Use rate structures, or providing rebates and incentives for EV purchases or EV charger installations.

KIUC continues to be an active participant in monthly Grid-Interactive Efficient Building meetings with the Hawaii Public Utilities Commission and the State of Hawaii Energy Office to see if this new technology may have potential hosts or sites here in the State and on Kauai in the future. With technical assistance from PNNL, this work was funded by the Building Technologies Office within the U.S. Department of Energy to create a Technical Brief for Pilot Considerations for Grid-Interactive Efficient Buildings in Hawaii.

As technology advances, KIUC will look into new energy efficient options, additional incentives and/or rebates, and partnerships with local entities to seek out innovative ways to meet the needs of our Kauai community in developing future programs or pilots in the upcoming year.

This page intentionally blank.

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT TAL-1004
(Part 1)

(1 PAGE)

ATTACHMENT TAL-1004 (Part 1)

Change in Sales Estimate: September Update of March 2022 Load Forecast

	2022 Sales Estimate			2023 Sales Estimate		
	March	**September**	***(%)***	**March**	**September**	***(%)***
Base Case						
Residential D	185,022	184,386	*-0.3*	184,912	186,678	*1.0*
Commercial G	61,756	64,178	*3.9*	62,070	64,650	*4.2*
Commercial J	47,154	49,280	*4.5*	46,229	47,884	*3.6*
Industrial L	45,371	43,971	*-3.1*	46,452	44,354	*-4.5*
Industrial P	105,663	105,488	*-0.2*	105,934	106,292	*0.3*
Street Lights	770	768	*-0.3*	770	768	*-0.3*
Irrigation	746	1,743	*133.6*	746	1,092	*46.4*
EV Growth Adj.	1,645	1,645	*0.0*	2,401	2,401	*0.0*
Total	448,128	451,458	*0.7*	449,515	454,119	*1.0*
High Case						
Residential D	189,820	186,422	*-1.8*	191,044	186,312	*-2.5*
Commercial G	64,192	65,293	*1.7*	64,496	65,779	*2.0*
Commercial J	49,455	50,457	*2.0*	48,622	49,360	*1.5*
Industrial L	46,020	44,093	*-4.2*	47,615	45,557	*-4.3*
Industrial P	106,014	105,780	*-0.2*	106,231	106,924	*0.7*
Street Lights	770	768	*-0.3*	770	768	*-0.3*
Irrigation	746	1,743	*133.6*	746	1,092	*46.4*
EV Growth Adj.	1,645	1,645	*0.0*	2,401	2,401	*0.0*
Total	458,663	456,201	*-0.5*	461,925	458,195	*-0.8*
Low Case						
Residential D	179,505	183,473	*2.2*	179,805	180,744	*0.5*
Commercial G	59,826	63,549	*6.2*	60,033	63,987	*6.6*
Commercial J	46,015	48,408	*5.2*	45,139	46,950	*4.0*
Industrial L	43,334	43,808	*1.1*	44,508	43,940	*-1.3*
Industrial P	105,363	105,198	*-0.2*	105,689	105,668	*0.0*
Street Lights	770	768	*-0.3*	770	768	*-0.3*
Irrigation	746	1,743	*133.6*	746	1,092	*46.4*
EV Growth Adj.	1,645	1,645	*0.0*	2,401	2,401	*0.0*
Total	437,204	448,593	*2.6*	439,091	445,551	*1.5*
Very Low Case						
Residential D	178,888	183,356	*2.5*	182,509	180,467	*-1.1*
Commercial G	58,970	63,716	*8.0*	58,952	63,973	*8.5*
Commercial J	45,568	47,975	*5.3*	44,756	46,420	*3.7*
Industrial L	41,611	43,482	*4.5*	42,776	43,113	*0.8*
Industrial P	104,726	104,487	*-0.2*	105,200	104,173	*-1.0*
Street Lights	770	768	*-0.3*	770	768	*-0.3*
Irrigation	746	1,743	*133.6*	746	1,092	*46.4*
EV Growth Adj.	1,645	1,645	*0.0*	2,401	2,401	*0.0*
Total	432,924	447,173	*3.3*	438,109	442,409	*1.0*

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT TAL-1004
(Part 2)

(7 PAGES)

FLY HIGHER HALCYON
Halcyon Consulting, Inc.
3105 Seclusion Bay Drive
Anchorage, AK 99515
jonathan@halcyoncg.com

November 13, 2022

Tom Lovas
Energy and Resource Economics
5840 Azalea Drive
Anchorage, AK 99516

Dear Tom,

The purpose of this letter is to provide text and figures documenting the mid-year update of the load forecast prepared for KIUC. The information provided within reflects our September 2022 update of the March 2022 long-range forecast.

Summary of Changes to the Section 3.2.3 Variable Data

In our September 2022 update of the March 2022 long-range forecast, we made the following changes to the ARIMA models' independent and dependent variables:

- Updated the following historical yearly independent variables with newly available data: *per capita income*, *population*.
- Updated the following historical monthly independent variables with newly available data: *monthly customer accounts by class*, *monthly average daily census*, *installed Q (customer PV generation) by class*, *large customer alternative-specific constants used when large customers go to "warm status"*, monthly weather and climate data including *cooling degree days* and the *El Niño Southern Oscillation (ENSO) Index*.
- Updated the historical sales by class (i.e., the dependent variable).

Summary of Changes to the Future States of Independent Variables

The statistical model must make assumptions about the state of each independent variable in the future to predict future sales. We updated the future state of all the independent variables noted above based on newly collected information. We wish to call attention to these particular updates:

- **Changed *per capita income* predictions based on new U.S. Bureau of Economic Analysis data and University of Hawai'i Economic Research Organization (UHERO) forecasts.** Real personal income per capita is expected to be roughly $2,000 higher in 2022 and 2023 than in the prior forecast thanks to the robust rebound in tourism activity. While per capita income will be lower in 2022 and 2023 than it was in 2020 and 2021 when federal government pandemic aid raised income, the decline is not expected to be as steep as predicted by prior forecasts.

- **Refreshed future *average daily census* predictions based on newly available tourism data and updated UHERO forecasts.** Hawai'i's tourism numbers rebounded faster than predicted in UHERO's 2021 and early 2022 forecasts. In fact, Kauai's Q2 2022 tourism numbers were the best Q2 on record. We expect that future activity in the base case-scenario will look more like prior high-case scenarios. For example, our estimate for the January 2023 base case is that daily census will average nearly 31,000 while the high case was a prediction of 29,000. We adjusted all four conditional scenarios accordingly.

- **Adjusted future Schedule Q installations based on recent trends.** Residential D PV installations, and to a lesser extent Commercial G installations, increased during the recent global pandemic and period of low interest rates. The updated model predicts January 2023 residential installations at 37,700 to 38,000 MWh compared to 36,500 MWh in the prior forecast. We note that going forward that PV installs may be subject to two countervailing pressures: 1) if PV installations prove to be interest rate sensitive that installations could be substantially lower than forecast given the U.S. Federal Reserve's recent rate increases, 2) the Inflation Reduction Act includes an extension of the Residential Clean Energy credit which could mitigate the effect of increased rates.

- **Aligned the *ENSO* variable to account of forecasters' expectations for continued La Niña condition through the winter of '22-'23.** The National Oceanic and Atmospheric Administration (NOAA) is forecasting a third consecutive year of La Niña conditions in the equatorial Pacific. La Niña conditions generally increase KIUC power sales. The prior forecast presumed a more neutral ENSO state.

Updated Forecasts

We show revised sales forecasts for 2022-2024 below using the same format as Section 3.3 of the March 2022 long-term forecast.

Table 1 Residential D History and Projections, 2019-2024

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	181,264	181,264	181,264	181,264
2020	177,182	177,182	177,182	177,182
2021	186,244	186,244	186,244	186,244
Forecast				
2022	183,356	183,473	184,386	186,422
2023	180,467	180,744	186,678	186,312
2024	179,424	180,253	187,444	188,583

Table 2 Commercial G History and Projections, 2019-2024

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	67,418	67,418	67,418	67,418
2020	57,698	57,698	57,698	57,698
2021	60,189	60,189	60,189	60,189
Forecast				
2022	63,716	63,549	64,178	65,293
2023	63,973	63,987	64,650	65,779
2024	63,448	63,461	64,320	65,660

Table 3 Commercial J History and Projections, 2019-2024

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	51,257	51,257	51,257	51,257
2020	46,669	46,669	46,669	46,669
2021	48,348	48,348	48,348	48,348
Forecast				
2022	47,975	48,408	49,280	50,457
2023	46,420	46,950	47,884	49,360
2024	46,196	46,773	47,958	49,680

Table 4 Industrial L History and Projections, 2019-2024

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	51,265	51,265	51,265	51,265
2020	39,586	39,586	39,586	39,586
2021	40,153	40,153	40,153	40,153
Forecast				
2022	43,482	43,808	43,971	44,093
2023	43,113	43,940	44,354	45,557
2024	42,116	43,802	44,658	46,307

Table 5 Industrial P History and Projections, 2019-2024

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	108,216	108,216	108,216	108,216
2020	91,894	91,894	91,894	91,894
2021	98,582	98,582	98,582	98,582
Forecast				
2022	104,487	105,198	105,488	105,780
2023	104,173	105,668	106,292	106,924
2024	104,564	106,100	106,507	106,942

In addition, please note the following:

- Street Light sales are predicted at 768.345 MWh going forward.
- Irrigation sales are predicted at 1,743.276 MWh for 2022 and 1,091.629 MWh in 2023 and 2024.
- Electric vehicle related sales were not updated from the March 2022 long-range forecast. For completeness, here is the requisite information.

Table 6 Projected EV Sales, 2021-2024

Year	EV Related Sales (MWh)			
	Total Related Sales	New YOY Sales	Adjustment Factor	Total YOY Sales Adjustment
Actuals				
2021	1,692	-	-	-
Forecast				
2022	2,523	831	30.23	1,645
2023	3,324	802	45.75	2,401
2024	4,096	772	61.55	3,112

We estimate the following aggregate sales including all classes.

Table 7 Aggregate Sales History and Projections, 2019-2024

Year	Year Ending Totals by Scenario (MWh)			
	Very Low	Low	Base	High
Actuals				
2019	460,710	460,710	460,710	460,710
2020	415,291	415,291	415,291	415,291
2021	435,156	435,156	435,156	435,156
Forecast				
2022	447,173	448,593	451,458	456,201
2023	442,409	445,551	454,119	458,195
2024	440,722	445,363	455,859	462,147

The following tables show actual and projected year-ending customer accounts by class.

Table 8 Residential D Year-Ending Customer Account Projections, 2021-2024

Year	Year Ending Totals by Scenario (Accounts)			
	Very Low	Low	Base	High
Actuals				
2021	29,883	29,883	29,883	29,883
Forecast				
2022	29,915	29,947	30,085	30,195
2023	29,947	30,010	30,288	30,509
2024	29,979	30,074	30,493	30,827

Table 9 Commercial G Year-Ending Customer Account Projections, 2021-2024

Year	Year Ending Totals by Scenario (Accounts)			
	Very Low	Low	Base	High
Actuals				
2021	4,629	4,629	4,629	4,629
Forecast				
2022	4,687	4,687	4,687	4,686
2023	4,687	4,687	4,686	4,685
2024	4,711	4,711	4,719	4,731

Table 10 Commercial J Year-Ending Customer Account Projections, 2021-2024

Year	Year Ending Totals by Scenario (Accounts)			
	Very Low	Low	Base	High
Actuals				
2021	293	293	293	293
Forecast				
2022	290	290	290	290
2023	285	285	286	288
2024	289	289	292	297

Table 11 Industrial L Year-Ending Customer Account Projections, 2021-2024

Year	Year Ending Totals by Scenario (Accounts)			
	Very Low	Low	Base	High
Actuals				
2021	15	15	15	15
Forecast				
2022	13	14	15	15
2023	12	13	14	14
2024	12	13	13	13

Table 12 Industrial P Year-Ending Customer Account Projections, 2021-2024

Year	Year Ending Totals by Scenario (Accounts)			
	Very Low	Low	Base	High
Actuals				
2021	104	104	104	104
Forecast				
2022	101	102	103	104
2023	101	102	103	104
2024	102	103	104	105

In addition, please note the following:

- Street Light accounts are predicted at 3,766 going forward.
- Irrigation accounts are predicted at 2-3 active accounts in each year.

We estimate the following aggregate customer accounts including all classes.

- Table 13 Summary Year-Ending Customer Account Projections, 2021-2024

Year	Year Ending Totals by Scenario (Accounts)			
	Very Low	Low	Base	High
Actuals				
2021	38,693	38,693	38,693	38,693
Forecast				
2022	38,774	38,808	38,948	39,057
2023	38,800	38,866	39,146	39,369
2024	38,860	38,958	39,389	39,743

Closing

We hope this information covers your needs with respect to supporting documentation and the results of the September update of the March load forecast.

Warm regards,

Jonathan King, M.S., PCC
Consulting Economist
ICF-Credentialed Coach

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

EXHIBIT 10

TESTIMONY OF NANCY HELLER HUGHES (EXHIBIT 10-T-1100)

(18 PAGES)

KAUAI ISLAND UTILITY COOPERATIVE
DOCKET NO. 2022-0208
EXHIBIT 10-T-1100

DIRECT TESTIMONY
OF
NANCY HELLER HUGHES

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS.

A. My name is Nancy Heller Hughes. I am a Principal at NewGen Strategies and Solutions, LLC ("NewGen"). My business address is 20014 Southeast 19th Street, Sammamish, Washington 98075.

Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND.

A. I graduated from the University of Chicago with a bachelor's degree in Business and Statistics in 1977. I received a master's degree in Business Administration at the University of Chicago in 1978.

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE.

A. From 1977 through 1982, I was employed by Ernst & Ernst (now Ernst & Young), working primarily on telecommunications regulatory matters before the Federal Communications Commission. From 1982 through 2012, I was employed by R. W. Beck, Inc. ("R. W. Beck"), an engineering and consulting firm that provided services in the energy and water resources utility industry. I held positions with increasing responsibilities and was an owner in R. W. Beck until July 2009, when R. W. Beck was

acquired by Scientific Applications International Corporation ("SAIC"). In June 2012, I left SAIC to form my own independent consulting firm called Heller Hughes Utility Consulting, LLC. In September 2012, I became an owner and director in NewGen. In April 2020, I retired as an owner in NewGen and continue to work on projects at NewGen in my present role as Principal.

A substantial part of my work experience involves depreciation and valuation issues. I have performed depreciation studies for utilities and reviewed depreciation studies filed by utilities in several rate proceedings. I have testified on depreciation, valuation, and other rate and regulatory issues before the Federal Energy Regulatory Commission (also known as FERC), state regulatory commissions, and courts of law. A copy of my resume and record of testimony is provided as Attachment NHH-1101.

Q. DO YOU HAVE ANY PROFESSIONAL CERTIFICATIONS?

A. Yes. I am a Certified Depreciation Professional certified by the Society of Depreciation Professionals. I am also an Accredited Senior Appraiser of public utility property certified by the American Society of Appraisers.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE HAWAII PUBLIC UTILITIES COMMISSION?

A. Yes. I testified before this Commission on behalf of Kauai Island Utility Cooperative ("KIUC") in support of the depreciation study performed for KIUC based on KIUC's plant in service as of December 31, 2007

("2007 Depreciation Study") that was used in KIUC's last rate case proceeding in Docket No. 2009-0050.

Q. ON WHOSE BEHALF ARE YOU PRESENTING THIS TESTIMONY?

A. I am testifying on behalf of KIUC.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to summarize and support the results of the depreciation study that NewGen performed for KIUC to determine the recommended annual depreciation accrual rates based on KIUC's plant in service as of December 31, 2017 ("2017 Depreciation Study"). See Attachment NHH-1102.

Q. ARE YOU SPONSORING ANY OF THE EXHIBITS TO THE APPLICATION?

A. Other than this testimony (Exhibit 10-T-1100), no.

Q. HAVE YOU PREPARED OR ASSISTED WITH THE PREPARATION OF ANY ATTACHMENTS IN SUPPORT OF YOUR TESTIMONY?

A. Yes, the attachments listed below have been prepared in support of my direct testimony, including the analyses and recommended annual depreciation accrual rates discussed herein.

1. Attachment NHH-1101 – My Resume and Record of Testimony
2. Attachment NHH-1102 – 2017 Depreciation Study for KIUC prepared by NewGen based on KIUC's plant in service as of December 31, 2017

3. Attachment NHH-1103 – Letter from United States Department of Agriculture Rural Development, Rural Utilities Service ("RUS") dated May 7, 2020 approving the recommendations to KIUC's depreciation rates set forth in the 2017 Depreciation Study

4. Attachment NHH-1104 – Comparison of Depreciation Rates and Annual Accruals Based on Plant in Service at December 31, 2017

5. Attachment NHH-1105 – Comparison of Existing (2012 Study) and Proposed (2017 Study) Depreciation Factors and Annual Accrual Rates

6. Attachment NHH-1106 – Comparison of Existing (2012 Study) and Proposed (2017 Study) Generating Unit Estimated Retirement Year and Life Span

Q. WERE THESE ATTACHMENTS PREPARED BY YOU OR UNDER YOUR DIRECT SUPERVISION?

A. With the exception of the letter from RUS (Attachment NHH-1103), I prepared or directly supervised the above-referenced attachments. With respect to the 2017 Depreciation Study (Attachment NHH-1102), I served as senior technical advisor and Ms. Gina Baxter of NewGen served as project manager. As senior technical advisor, I reviewed the depreciation analyses performed, approved the recommended depreciation rates, and approved the final depreciation study report.

Q. PLEASE DESCRIBE YOUR INVOLVEMENT IN KIUC'S PREVIOUS DEPRECIATION STUDIES.

A. I was the project manager for KIUC's 2007 Depreciation Study that was used in KIUC's last rate case proceeding in Docket No. 2009-0050. I was also the project manager for KIUC's depreciation study based on KIUC's

electric plant in service as of December 31, 2012 ("2012 Depreciation Study"), which was the subject of the proceeding before this Commission in Docket No. 2015-0127.[1] I am familiar with KIUC plant assets, having performed field reviews of the KIUC system for depreciation study purposes and interviewed KIUC staff about the plant facilities and factors affecting service lives and net salvage.

Q. WHAT DEPRECIATION RATES ARE CURRENTLY USED BY KIUC?

A. KIUC's existing depreciation rates are equal to the rates developed in the 2012 Depreciation Study which were approved by this Commission in Decision and Order No. 36023, issued on December 27, 2018, in Docket No. 2015-0127 ("Decision and Order No. 36023"). KIUC implemented these rates immediately following the issuance of Decision and Order No. 36023, effective January 1, 2019.

Q. WHAT EFFECT DOES THE TIMING OF DECISION AND ORDER NO. 36023 HAVE ON THE 2017 DEPRECIATION STUDY REPORT?

A. The timing of Decision and Order No. 36023 does not have any effect on the proposed depreciation rates in the 2017 Depreciation Study. However, because Decision and Order No. 36023 approving the 2012 Depreciation Study rates was issued after the 2017 Depreciation Study

[1] On May 8, 2015, KIUC filed a Petition for a Declaratory Ruling Regarding Changing Depreciation Rates in Docket No. 2015-0127 ("Petition"). As noted in footnote 1 of the Petition, RUS requires KIUC to periodically conduct depreciation studies to review the reasonableness of KIUC's depreciation rates, and KIUC is prohibited from adopting depreciation rates that have not yet been previously approved for KIUC by RUS. A copy of the 2012 Depreciation Study is attached to the Petition as Exhibit 2.

was completed on November 7, 2018, the "existing" depreciation rates used for comparison purposes in the 2017 Depreciation Study are equal to the 2007 Depreciation Study rates. As a result, the tables and schedules in the 2017 Depreciation Study comparing existing and recommended depreciation rates and annual accruals are based on the 2007 Depreciation Study rates, and not the 2012 Depreciation Study rates.

Q. IN DECISION AND ORDER NO. 36023 APPROVING THE DEPRECIATION RATES IN THE 2012 DEPRECIATION STUDY, THE COMMISSION ADOPTED THE RECOMMENDATION THAT KIUC SHOULD DEVELOP ESTIMATES OF FUTURE DISMANTLEMENT COSTS FOR ITS GENERATION UNITS THAT MAY BE INCLUDED IN FUTURE DEPRECIATION STUDIES. DOES THE 2017 DEPRECIATION STUDY INCLUDE ANY ESTIMATES OF FUTURE DISMANTLEMENT COSTS?

A. No. By way of background, the recommendation for KIUC to develop estimates of future dismantlement costs that may be included in KIUC's future depreciation studies, was made by SAIC/NewGen in the 2012 Depreciation Study that was the subject of Docket No. 2015-0127 (which study was based on KIUC's electric plant in service as of December 31, 2012 as noted above, though referred to in the docket as the August 30, 2013 Depreciation Study, which was the date the study was finalized). In the Consumer Advocate's Statement of Position filed on

September 21, 2015 in Docket No. 2015-0127, at page 15, the Consumer Advocate stated that it did not object to this recommendation.

In that Statement of Position filed on September 21, 2015 in Docket No. 2015-0127, the Consumer Advocate also identified various issues that it contends that KIUC will need to address related to the collection of future dismantlement costs in depreciation rates. These issues can be addressed at such time that KIUC requests recovery of future generation plant dismantlement costs in depreciation rates.

Q. PLEASE EXPLAIN WHY SAIC/NEWGEN RECOMMENDED THAT KIUC DEVELOP ESTIMATES OF FUTURE DISMANTLEMENT COSTS FOR ITS GENERATION UNITS THAT MAY BE INCLUDED IN FUTURE DEPRECIATION STUDIES.

A. It is standard practice for utilities to include recovery of future net salvage in depreciation rates, whether it be transmission and distribution plant or production plant. NewGen recommended that KIUC perform dismantlement studies to estimate the cost to dismantle its generating units upon retirement, net of salvage value, so that KIUC can plan for and begin recovering these costs through depreciation over the remaining life of the plant instead of waiting until a few years before the plant is scheduled to retire. In addition, including the recovery of dismantlement costs in utility depreciation rates provides an appropriate matching of cost recovery from consumers who receive the benefits of the asset.

Q. PLEASE DESCRIBE THE PROCESS USED TO DEVELOP YOUR RECOMMENDED ANNUAL DEPRECIATION ACCRUAL RATES IN THE 2017 DEPRECIATION STUDY.

A. The process I used to develop the recommended annual depreciation accrual rates for KIUC in the 2017 Depreciation Study consisted of the following steps:

- Compile plant accounting data;
- Conduct field review and interviews with KIUC staff;
- Perform life analyses using the forecast (or life span) method for production plant and the survivor curve method for transmission, distribution, and general plant;
- Perform net salvage analyses;
- Prepare account narratives with recommended average service lives, survivor curves, and net salvage rates;
- Calculate recommended annual depreciation accrual rates; and
- Prepare written report with summary schedules.

The above are described in greater detail in Section 4 (Analysis) of the 2017 Depreciation Study (Attachment NHH-1102).

Q. WHAT METHOD OF DEPRECIATION DID YOU USE TO CALCULATE THE RECOMMENDED DEPRECIATION RATES FOR KIUC?

A. The annual depreciation accrual rates in the 2017 Depreciation Study were developed using the straight line method, vintage group procedure, and remaining life technique. The remaining life technique provides for the recovery of the undepreciated original cost of property (i.e., net plant),

adjusted for net salvage, over the remaining life of the property. The formula for computing the annual depreciation accrual rate using the remaining life technique is:

$$D = \frac{1 - NS - R}{RL}$$

where: D = depreciation rate
NS = estimated net salvage rate
R = depreciation reserve ratio
RL = remaining life

The annual depreciation accrual rate is calculated as a percentage of gross plant and is applied to the gross plant investment on the utility's books. See Attachment NHH-1102, at 11 of 188 (Summary Schedule 1, Calculation of Annual Depreciation Accrual Rates Based on Plant in Service at December 31, 2017).

Q. IS THIS THE SAME METHOD OF DEPRECIATION USED IN PAST DEPRECIATION STUDIES FOR KIUC?

A. Yes.

Q. WAS THE 2017 DEPRECIATION STUDY REVIEWED AND APPROVED BY RUS?

A. Yes, RUS approved the depreciation rates and recommendations set forth in the 2017 Depreciation Study by letter dated May 7, 2020. A copy of this RUS letter is provided as Attachment NHH-1103 to my testimony. As an RUS borrower, KIUC is required to periodically perform, and submit to RUS, depreciation studies which are comprehensively reviewed by RUS

pursuant to depreciation study requirements described in REA Bulletin 183-1 and subsequent updates.[2]

Q. PLEASE DESCRIBE THE ORGANIZATION OF THE 2017 DEPRECIATION STUDY PROVIDED IN ATTACHMENT NHH-1102.

A. The 2017 Depreciation Study (Attachment NHH-1102) describes the analyses performed and the basis for the recommended annual depreciation accrual rates. Section 1 (Summary and Conclusions) of the 2017 Depreciation Study contains a summary of the depreciation study results and conclusions. Summary schedules at the end of Section 1 show the calculation of the recommended annual depreciation accrual rates based on the average service lives, survivor curves, and net salvage rates recommended in the study. Other summary schedules compare the "existing" and proposed depreciation accrual rates and the factors used to develop those rates and summarize other detailed information from the depreciation study. As discussed above, for purposes of the 2017 Depreciation Study, the comparison and references therein to "existing" depreciation accrual rates are to the 2007 Depreciation Study rates, and not the 2012 Depreciation Study rates, due to the timing of the 2017 Depreciation Study in relation to Decision and Order No. 36023 approving the 2012 Depreciation Study rates.

[2] See supra n. 1. See also https://www.rd.usda.gov/sites/default/files/UEP-Bulletin_183-1.pdf.

Section 2 (Background on Depreciation) of the 2017 Depreciation Study provides a background on the depreciation methods used in the study, while Section 3 (Description of the System) provides an overview of the KIUC system. Section 4 (Analysis) describes the analyses that were performed in the study as discussed above. Lastly, Section 5 (Account Narratives) provides detailed account narratives for each depreciable plant account that describe the basis for the recommended average service lives, survivor curves, and net salvage rates.

Q. WHAT DEPRECIATION RATES DO YOU RECOMMEND FOR KIUC FOR PURPOSES OF THIS RATE PROCEEDING?

A. The depreciation rates I recommend for KIUC for purposes of this proceeding are shown in Summary Schedule 1 of the 2017 Depreciation Study (see Attachment NHH-1102, at 11 of 188).

Q. AS YOU DISCUSS ABOVE, DUE TO THE TIMING OF THE COMPLETION OF THE 2017 DEPRECIATION STUDY IN RELATION TO DECISION AND ORDER NO. 36023 APPROVING THE 2012 DEPRECIATION STUDY RATES, THE 2017 DEPRECIATION STUDY'S REFERENCES TO "EXISTING" DEPRECIATION RATES ARE TO THE 2007 DEPRECIATION STUDY RATES AND NOT THE 2012 DEPRECIATION STUDY RATES. DID YOU PREPARE A SCHEDULE COMPARING KIUC'S CURRENT DEPRECIATION RATES BASED ON

THE 2012 DEPRECIATION STUDY WITH THE RECOMMENDED RATES IN THE 2017 DEPRECIATION STUDY?

A. Yes. Attachment NHH-1104 to my testimony compares KIUC's current depreciation rates from the 2012 Depreciation Study (which were approved in Decision and Order No. 36023) and annual accruals with the recommended depreciation rates in the 2017 Depreciation Study by plant account based on plant in service at December 31, 2017. Table 1 below is a summary of the data in Attachment NHH-1104 by plant function.

Table 1
Comparison of Depreciation Rates and Annual Accruals
Based on Plant in Service at December 31, 2017

	Original	Existing (2012 Study)		Proposed (2017 Study)		
Description	Cost at 12/31/2017	Accrual Rate	Annual Accrual	Accrual Rate	Annual Accrual	Change In Accrual
Steam Production	$26,071,186	2.80%	$729,425	2.71%	$705,507	($23,917)
Hydro Production	5,712,986	3.35%	191,484	3.13%	178,679	(12,806)
Other Production	113,893,548	3.03%	3,450,150	3.46%	3,937,676	487,526
Subtotal	145,677,720	3.00%	4,371,059	3.31%	4,821,862	450,803
Transmission	78,992,654	1.87%	1,477,666	1.72%	1,358,635	(119,030)
Distribution	189,179,922	3.17%	5,987,583	3.21%	6,070,874	83,291
General	32,889,843	3.34%	1,098,175	7.90%	2,599,566	1,501,391
Total Plant	$446,740,139	2.90%	$12,934,482	3.32%	$14,850,938	$1,916,455

Note: numbers may not add due to rounding.

Q. IF DECISION AND ORDER NO. 36023 HAD BEEN ISSUED PRIOR TO COMPLETION OF THE 2017 DEPRECIATION STUDY, WHAT DIFFERENCES WOULD HAVE BEEN PRESENTED IN THE 2017 DEPRECIATION STUDY?

A. If Decision and Order No. 36023 was issued prior to completion of the 2017 Depreciation Study, (1) the comparative results shown in Table 1 above would replace Table 1-1 of the 2017 Depreciation Study (see

Attachment NHH-1102, at page 9 of 188); and (2) the comparative schedules shown in Attachment NHH-1104 and Attachment NHH-1105 to my testimony would replace Summary Schedule 2 and Summary Schedule 3 in the 2017 Depreciation Study, respectively (see Attachment NHH-1102, at pages 13 and 14 of 188). The timing of Decision and Order No. 36023 only affects the reference to existing depreciation rates and parameters shown in the 2017 Depreciation Study and has no effect on the proposed depreciation rates.

Q. GIVEN THE PASSAGE OF TIME SINCE THE COMPLETION OF THE 2017 DEPRECIATON STUDY ON NOVEMBER 7, 2018, IS IT PRUDENT AND REASONABLE TO USE THE PROPOSED DEPRECIATION RATES IN THE 2017 DEPRECIATION STUDY FOR PURPOSES OF THIS RATE PROCEEDING?

A. Yes. The proposed rates in the 2017 Depreciation Study are based on more current data and analyses that better reflect KIUC's retirement and net salvage experience than the 2012 Depreciation Study. It is reasonable and prudent to use the proposed depreciation rates in the 2017 Depreciation Study for purposes of KIUC's current rate proceeding.

Q. PLEASE DISCUSS THE REASONS FOR THE CHANGE IN DEPRECIATION RATES AND ANNUAL ACCRUALS BY PLANT FUNCTION BETWEEN THE EXISTING RATES IN THE 2012

DEPRECIATION STUDY AND THE RECOMMENDED RATES IN THE 2017 DEPRECIATION STUDY.

A. Referring to Table 1 above and Attachment NHH-1104:

- The depreciation rate for Steam Production Plant decreased compared to existing depreciation rates because the estimated retirement year for the Port Allen and Kapaia generation units were each extended by five (5) years. A schedule comparing the existing (2012 Depreciation Study) and proposed (2017 Depreciation Study) generating unit estimated retirement years and life spans is provided in Attachment NHH-1106.
- Hydro Production Plant depreciation rates decreased because the estimated retirement year for the Waiahi Generating Station was extended from 2036 to 2051 in recognition of upgrades that KIUC has made to the Upper and Lower Hydro units. (See Attachment NHH-1106).
- The composite depreciation rate for Other Production Plant increased compared to existing depreciation rates because the 2017 Depreciation Study recommends a -3% net salvage rate for several Other Production Plant accounts which causes the depreciation accrual to increase; however, this increase is mitigated by the increase in the estimated remaining life span for the

generating units at Port Allen and Kapaia noted above. (See Attachment NHH-1106).

- The change in Transmission and Distribution Plant depreciation rates is largely due to recommended changes in the average service lives for several plant accounts which are shown in Attachment NHH-1105 to my testimony. The large increase in the composite depreciation rate for General Plant is due to the increase in the depreciation rate for Account 391.10, Computer Equipment.

Q. PLEASE EXPLAIN THE INCREASE IN DEPRECIATION RATE FOR ACCOUNT 391.10, COMPUTER EQUIPMENT.

A. Table 2 below shows the depreciation rates for Account 391.10, Computer Equipment, recommended in the 2007, 2012, and 2017 Depreciation Studies.

Table 2
Account 391.10, Computer Equipment
Comparison of Depreciation Rates

Study Year	Reserve Ratio [1]	Avg, Service Life (yrs)	Remaining Life (yrs)	Depreciation Rate [2]
2007	61.41%	4.5	1.80	21.44%
2012	91.66%	6.5	2.82	2.96%
2017	58.79%	4.5	2.32	17.76%

[1] Reserve ratio = accumulated depreciation / gross plant
[2] Depreciation rate = (1-reserve ratio) / remaining life

As shown in Table 2, the recommended depreciation rate in the 2012 Depreciation Study (2.96%) is significantly lower than the depreciation rates recommended in the 2007 Depreciation Study (21.44%) and 2017

Depreciation Study (17.76%). Although NewGen recommended increasing the average service life from 4.5 years to 6.5 years in the 2012 Depreciation Study, the most significant factor impacting the depreciation rate calculation was the high reserve ratio indicating that the investment in Account 391.10, Computer Equipment, was 91.66% depreciated as of December 31, 2012, resulting in a low depreciation rate. Compared to the reserve ratios shown in Table 2 above in the 2007 and 2017 studies, the 2012 reserve ratio is an anomaly. As further support for this conclusion, the reserve ratio for Account 391.10, Computer Equipment, as of September 30, 2022, equaled 48.37% (accumulated depreciation of $8,307,339 divided by original cost investment of $17,175,737). In summary, the seemingly large increase in the depreciation rate for Account 391.10, Computer Equipment, as set forth in the 2017 Depreciation Study as compared to the existing depreciation rate developed in the 2012 Depreciation Study, is due to an anomaly in the depreciation reserve ratio that existed at the time of the 2012 Depreciation Study which caused the 2012 depreciation rate for this account to be very low.

Q. WHAT DEPRECIATION RATE DO YOU RECOMMEND FOR ACCOUNT 391.10, COMPUTER EQUIPMENT?

A. I recommend that KIUC use the 17.76% depreciation rate for Account 391.10, Computer Equipment, as shown in the 2017 Depreciation Study (see Attachment NHH-1102, at page 11 of 188).

Q. ARE THE RECOMMENDED DEPRECIATION RATES SHOWN IN SUMMARY SCHEDULE 1 OF THE 2017 DEPRECIATION STUDY (ATTACHMENT NHH-1102, AT PAGE 11 OF 188) REASONABLE TO USE IN THIS RATE FILING?

A. Yes, they are. I recommend the use of the annual depreciation accrual rates shown in Summary Schedule 1 of the 2017 Depreciation Study for purposes of determining KIUC's test year depreciation expense and revenue requirement in this proceeding.

Q. WHEN WILL KIUC PERFORM ITS NEXT DEPRECIATION STUDY?

A. KIUC's practice is to perform a depreciation study every five years and I was personally involved in performing KIUC's 2007, 2012, and 2017 depreciation studies. KIUC has contracted with NewGen to perform a new depreciation study in 2023 based on plant in service as of December 31, 2022. Once that depreciation study is completed and approved by both KIUC's Board of Directors and RUS, KIUC will file a separate application with the Commission to request approval to implement the proposed new depreciation rates resulting from that study.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT NHH-1101

(7 PAGES)

Ms. Nancy Hughes specializes in utility rates and regulation, depreciation, and valuation. She has testified as an expert witness on these issues before federal and state regulatory commissions, city councils and courts of law and has worked in the public utility industry since 1977.

Ms. Hughes is an Accredited Senior Appraiser (ASA) of utility property and has performed appraisal studies to determine the value of a wide range of utility assets including electric, natural gas, water, wastewater, telecommunications and solid waste property. These studies have been performed in connection with the sale and acquisition of property, eminent domain cases, property tax issues, fixed asset inventory development and utility rate cases.

In addition, Ms. Hughes is a recognized expert on depreciation issues and has performed and critically evaluated depreciation studies for utilities across the U.S. She has also evaluated the appropriateness of decommissioning cost estimates and funding methodologies for nuclear and non-nuclear generating units. Ms. Hughes is a Certified Depreciation Professional (CDP) designated by the Society of Depreciation Professionals.

In 2012, Ms. Hughes became a founding member of NewGen Strategies and Solutions, LLC (NewGen). Prior to joining NewGen, she worked for R. W. Beck and its successor firm, SAIC, for 30 years.

EDUCATION

- Master of Business Administration in Finance and Accounting, University of Chicago
- Bachelor of Arts in Business and Statistics, University of Chicago

PROFESSIONAL REGISTRATIONS / CERTIFICATIONS

- Accredited Senior Appraiser (ASA), Public Utility Discipline, American Society of Appraisers
- Certified Depreciation Professional (CDP), Society of Depreciation Professionals

KEY EXPERTISE

- Depreciation
- Utility Appraisals and Valuations
- Expert Witness and Litigation Support

RELEVANT EXPERIENCE

Depreciation Studies

Ms. Hughes is a Certified Depreciation Professional, an expert on depreciation issues and is responsible for leading and performing depreciation studies. The typical scope of work for these studies includes performing a site visit and interviewing utility staff familiar with plant operations about factors affecting service lives; working closely with plant accountants to develop the depreciation database used in the study; performing statistical life and net salvage analyses; recommending depreciation parameters (average service lives, survivor curves and net salvage rates); preparing detailed account narratives summarizing the basis for her recommendations; developing recommended annual depreciation accrual rates; and preparing the final report. Frequently her depreciation analyses and resultant reports are filed at state regulatory commissions and the depreciation rates have been approved by commissions with no or only minor changes.

Ms. Hughes is also retained by clients to review depreciation studies filed in utility rate cases. Ms. Hughes has testified as an expert witness on depreciation before the Federal Energy Regulatory Commission and state public utility commissions. She has also evaluated the appropriateness of decommissioning cost estimates and funding methodologies for nuclear and non-nuclear generating units. Ms. Hughes depreciation clients include:

- CPS Energy, Texas
- Los Angeles Department of Water & Power, California
- Kaua'i Island Utility Cooperative, Hawai'i
- Independence Power & Light, Missouri
- Homer Electric Association, Alaska
- Garland Power & Light, Texas
- Salem Electric, Oregon
- Navajo Tribal Utility Authority, Arizona
- Tri-State Generation and Transmission Association, Inc., Colorado
- Austin Energy, Texas
- Keys Energy Services, Florida
- Freeport Electric, New York
- Kaua'i Department of Water, Hawai'i
- Lloyd Gosselink Rochelle & Townsend, PC, on behalf of Texas Cities
- Fort Worth Water Department, Texas

Appraisals and Valuations

Ms. Hughes is an Accredited Senior Appraiser of utility property and has performed appraisal studies to determine the value of a wide range of utility assets including electric, natural gas, water, wastewater, telecommunications, and solid waste property. She performs field reviews to identify and assess the age and condition of the assets appraised, and develops indicators of value using the cost, income and market approaches to valuation to determine the fair market value of the assets. Ms. Hughes appraisal clients include:

Electric Generation, Transmission and Distribution System Assets

- International Transmission Company, ITC Midwest and Michigan Electric Transmission Company, Michigan
- City of Boulder, Colorado
- Exelon Corporation, Illinois
- Southern California Public Power Authority
- Lafayette Utilities System, Louisiana
- Access Leasing Corporation and Cypress Leasing Corporation (Appraisal of Martins Creek and Sunbury Power Blocks)
- Kanab City, Utah
- Eugene Water and Electric Board, Oregon
- Emerald People's Utility District, Oregon
- Dayton Power & Light Company, Ohio
- City of Hermiston, Oregon
- City and County of San Francisco, California
- South San Joaquin Irrigation District, California
- Public Service Company of New Mexico, New Mexico
- City of San Diego, California
- City of Chicago, Illinois
- Cambridge Electric Light Company, Massachusetts
- Duquesne Light Company, Pennsylvania
- Potomac Electric Power Company, Washington, D.C.
- Trinity Public Utilities District, California
- City of Lakewood, Washington
- Clatskanie People's Utility District, Oregon
- City of Azusa, California
- Truckee-Donner Public Utility District, California

Water, Wastewater, and Solid Waste Assets

- City of Claremont, California
- City of Visalia, California
- City of Bend, Oregon
- The Commons Water Supply, Texas
- Cascade Water Alliance, Washington
- St. Tammany Parish, Louisiana
- Arkansas State Highway Department (solid waste landfill)

Oil Pipeline Assets

- North Slope Borough, Fairbanks North Star Borough, and City of Valdez, Alaska (Trans Alaska Pipeline System)

Expert Witness and Litigation Support

Ms. Hughes provides expert witness and litigation support related to a variety of issues including appraisal and valuation, depreciation, streetlight tariffs and rates before state and local regulatory bodies and courts. Ms. Hughes expert witness and litigation clients include:

- Lloyd, Gosselink, Rochelle & Townsend, P.C. representing Texas Cities
- Northwest Iowa Power Cooperative, Iowa
- Lafayette Utilities System, Louisiana
- Colorado Local Government Intervenors Group/Kissinger & Fellman, P.C., Colorado
- Tri-State Generation & Transmission Association, Inc., Colorado
- North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency
- City Council of New Orleans, Louisiana
- City of Austin, Texas
- Schiff Hardin LLP
- Dentons US LLP
- Best Best & Krieger, LLP
- Matteoni, O'Laughlin & Hechtman
- Alaska Electric Generation and Transmission Cooperative, Inc.
- Confederated Salish and Kootenai Tribes, Montana
- Florida Municipal Power Agency
- Mayer Brown LLP
- Thompson Coburn LLP, representing Cities of Anaheim, Azusa, Banning, Colton, Pasadena and Riverside, California
- City of Fayetteville, North Carolina
- New England States Committee on Electricity (NESCOE)

Record of Testimony: **NANCY HUGHES**

UTILITY	PROCEEDING	SUBJECT OF TESTIMONY	BEFORE	CLIENT	DATE
1. Los Angeles Department of Water and Power (LADWP)	2022 Reform of Electric Transmission Tariff and Electric Transmission Rates	Depreciation Study	LADWP Open Access Transmission Tariff (OATT) Stakeholder Proceeding	Los Angeles Department of Water and Power	2022
2. Southwest Power Pool, Inc.	Docket ER21-2581	Depreciation Study	Federal Energy Regulatory Commission	City of Independence, MO d/b/a Independence Power & Light	2021
3. Northwest Iowa Power Cooperative	Docket No. ER15-2115-003	Depreciation	Federal Energy Regulatory Commission	Northwest Iowa Power Cooperative	2020
4. AEP Texas, Inc.	Docket 49494	Depreciation	Public Utility Commission of Texas	Cities Served by AEP Texas, Inc.	2019
5. Constellation Mystic Power, LLC	Docket No. ER18-1639-000	Rate Base Value of LNG Marine Terminal	Federal Energy Regulatory Commission	New England States Committee on Electricity (NESCOE)	2018
6. United Power, Inc	Case No. 17CV107	Just Compensation - Service Territory	District Court, Adams County, Colorado	United Power, Inc.	2018
7. Southwest Power Pool, Inc.	Docket No. ER18-985-000	Depreciation Study	Federal Energy Regulatory Commission	Tri-State Generation and Transmission Association, Inc	2018
8. Duke Energy Progress	Docket No. E-2, Sub 1142	Depreciation	North Carolina Utility Commission	Fayetteville Public Works Commission	2017
9. Los Angeles Department of Water and Power (LADWP)	2017 Reform of Electric Transmission Tariff and Electric Transmission Rates	Depreciation Study	LADWP Open Access Transmission Tariff (OATT) Stakeholder Proceeding	Los Angeles Department of Water and Power	2017
10. Southwest Power Pool, Inc.	Docket No. ER16-204-001	Transmission Plant Depreciation Rates	Federal Energy Regulatory Commission	Tri-State Generation and Transmission Association, Inc.	2016
11. Golden State Water Company	Case No. BC566125	Eminent Domain, Right to Take Phase - Financial Feasibility	Superior Court of the State of California, County of Los Angeles	City of Claremont, CA	2016
12. Golden Valley Electric Association	Docket U-15-104	Depreciation Study	Regulatory Commission of Alaska	Golden Valley Electric Association	2015
13. Public Service Company of Colorado	Docket No. 15AL-0233E	LED Street Light Tariff	Colorado Public Utilities Commission	Municipal Intervenor Group	2015
14. Exelon Corporation	Docket Nos. 29183-13 and 29184-13	Appraisal Review Reports Regarding Value of Power Plants in Sale and Leaseback Transactions	United States Tax Court	Exelon Corporation	2015
15. PPL Montana, LLC	AAA No. 77-198-00416-12	Kerr Hydroelectric Project Conveyance Price - Depreciation	American Arbitration Association	Confederated Salish and Kootenai Tribes of the Flathead Reservation	2014

Record of Testimony: **NANCY HUGHES**

UTILITY	PROCEEDING	SUBJECT OF TESTIMONY	BEFORE	CLIENT	DATE
16. Austin Energy	Docket No. 40627	Non-Nuclear Generation Plant Dismantlement Cost	Public Utility Commission of Texas	Austin Energy	2013
17. Public Service Company of Colorado	Docket No. 11AL-768E	Streetlight Tariff Issue	Public Utilities Commission of Colorado	Local Government Intervenors (12 Colorado cities and towns)	2012
18. Chugach Electric Association, Inc.	Docket No. U-09-097	Depreciation	Regulatory Commission of Alaska	Homer Electric Association	2010
19. Public Service Company of Colorado	Docket No. 09AL-299E	Streetlight Rates	Public Utilities Commission of Colorado	Local Government Intervenors (16 Colorado cities and towns)	2009
20. AmerenCILCO, AmerenCIPS and AmerenIP	Docket Nos. 09-0306 thru 09-0311 Cons.	Streetlight Rates	Illinois Commerce Commission	City of Champaign and the Town of Normal, Illinois	2009
21. Kaua'i Island Utility Cooperative	Docket No. 2009-0050	Depreciation Study	Hawai'i Public Utilities Commission	Kaua'i Island Utility Cooperative	2009
22. Garland Power & Light	Docket No. 36439	Depreciation Study	Public Utility Commission of Texas	City of Garland, Texas, d/b/a Garland Power & Light	2008
23. AmerenCILCO, AmerenCIPS and AmerenIP	Docket Nos. 07-0585 thru 07-0590 Cons.	Streetlight Rates	Illinois Commerce Commission	Cities of Champaign, Urbana, Decatur and Bloomington, and the Town of Normal, Illinois	2008
24. Alyeska Pipeline Company (Trans-Alaska Pipeline System)	OAH No. 07 SARB-TAX	Property Tax Value	Alaska State Assessment Review Board	North Slope Borough, Fairbanks North Star Borough, City of Valdez	2007
25. Chugach Electric Association, Inc.	Docket No. U 06-134	Depreciation	Regulatory Commission of Alaska	Homer Electric Association	2007
26. AEP Texas Central Company	Docket 33309	Depreciation	Texas Public Utilities Commission	Cities Served by AEP Texas Central Company	2007
27. AEP Texas North Company	Docket 33310	Depreciation	Texas Public Utilities Commission	Cities Served by AEP Texas North Company	2007
28. Alyeska Pipeline Company (Trans-Alaska Pipeline System)	OAH No. 06 SARB-TAX	Property Tax Value	Alaska State Assessment Review Board	North Slope Borough, Fairbanks North Star Borough, City of Valdez	2006
29. Entergy Gulf States, Inc.	Docket No. 00994490	Expropriation of Electric Distribution Facilities	15th Judicial District Court, Parish of Lafayette, Louisiana	Lafayette Utilities System	2006
30. Aquila, Inc. d/b/a Aquila Networks-MPS and Aquila Networks–L&P	Case No. ER 2005-0436	Combustion Turbine Valuation	Missouri Public Service Commission	Aquila, Inc.	2005
31. 31. PSEG Power Connecticut, LLC	Case No. ER05-231-003	Depreciation	Federal Energy Regulatory Commission	Connecticut Department of Public Utility Control	2005

Record of Testimony: **NANCY HUGHES**

UTILITY	PROCEEDING	SUBJECT OF TESTIMONY	BEFORE	CLIENT	DATE
32. Chugach Electric Association, Inc.	Docket No. U 04 102	Depreciation	Regulatory Commission of Alaska	Homer Electric Association	2005
33. Alyeska Pipeline Company (Trans-Alaska Pipeline System)	OAH No. 05 0307-TAX	Property Tax Value	Alaska State Assessment Review Board	North Slope Borough, Fairbanks North Star Borough, City of Valdez	2005
34. Qwest Corporation	Docket Nos. T 01051B-03-0454 and T 00000D-00-0672	Reproduction Cost New Less Depreciation Study	Arizona Corporation Commission	Qwest Corporation	2004
35. AEP Texas Central Company	PUC Docket No. 28840	Depreciation	The Public Utility Commission of Texas	Cities served by AEP Texas Central Company	2004
36. Chugach Electric Association, Inc.	Docket No. U 01-108	Depreciation	Regulatory Commission of Alaska	Homer Electric Association, Inc.	2002
37. Connecticut Light & Power Company and Yankee Gas Services Company	Docket No. (X07) CV-95-0072561-S	Property Tax Value	Superior Court of the State of Connecticut, Judicial District of Tolland	City of Meriden, Connecticut	2001
38. Pennsylvania Power & Light, Inc.		Fair Market Value of Two Power Blocks	Arbitration Panel	Access Leasing Corp. and Cypress Leasing Corp.	1999
39. U S WEST Communications, Inc.	Docket No. T 1051B-99-105	Reproduction Cost New Less Depreciation Study	Arizona Corporation Commission	U S WEST Communications, Inc.	1999, 2000
40. Chugach Electric Association, Inc.	Docket No. U 97-107	Depreciation	Alaska Public Utilities Commission	Alaska Electric Generation & Transmission Cooperative	1997
41. Municipal Electric Authority of Georgia	Docket No. 7967 U	Authority to Provide Telecommunications Services	Public Service Commission State of Georgia	Municipal Electric Association of Georgia	1997
42. Southern California Edison	Case No. BC 093 146	Condemnation of Electric Distribution Plant	Superior Court of the State of California, County of Los Angeles	City of Azusa, California	1995
43. Waste Management of Arkansas, Inc.	Case No. 93 0234	Landfill Condemnation	Circuit Court of Pulaski County, Arkansas	Arkansas State Highway Department	1994
44. Chugach Electric Association	Docket No. U 93-15	Depreciation	Alaska Public Utilities Commission	Homer Electric Assn., Matanuska Electric Assn., and Alaska Electric Generation & Transmission Cooperative	1993
45. U S WEST Communications, Inc.	Docket No. T 1051-93-183	Reproduction Cost New Less Depreciation Study	Arizona Corporation Commission	U S WEST Communications, Inc.	1993
46. 31. PSEG Power Connecticut, LLC	Case No. ER05-231-003	Depreciation	Federal Energy Regulatory Commission	Connecticut Department of Public Utility Control	2005
47. Chugach Electric Association, Inc.	Docket No. U 04 102	Depreciation	Regulatory Commission of Alaska	Homer Electric Association	2005

Record of Testimony: **NANCY HUGHES**

UTILITY	PROCEEDING	SUBJECT OF TESTIMONY	BEFORE	CLIENT	DATE
48. Alyeska Pipeline Company (Trans-Alaska Pipeline System)	OAH No. 05 0307-TAX	Property Tax Value	Alaska State Assessment Review Board	North Slope Borough, Fairbanks North Star Borough, City of Valdez	2005
49. Qwest Corporation	Docket Nos. T 01051B-03-0454 and T 00000D-00-0672	Reproduction Cost New Less Depreciation Study	Arizona Corporation Commission	Qwest Corporation	2004
50. AEP Texas Central Company	PUC Docket No. 28840	Depreciation	The Public Utility Commission of Texas	Cities served by AEP Texas Central Company	2004
51. Chugach Electric Association, Inc.	Docket No. U 01-108	Depreciation	Regulatory Commission of Alaska	Homer Electric Association, Inc.	2002
52. Connecticut Light & Power Company and Yankee Gas Services Company	Docket No. (X07) CV-95-0072561-S	Property Tax Value	Superior Court of the State of Connecticut, Judicial District of Tolland	City of Meriden, Connecticut	2001
53. Pennsylvania Power & Light, Inc.		Fair Market Value of Two Power Blocks	Arbitration Panel	Access Leasing Corp. and Cypress Leasing Corp.	1999
54. U S WEST Communications, Inc.	Docket No. T 1051B-99-105	Reproduction Cost New Less Depreciation Study	Arizona Corporation Commission	U S WEST Communications, Inc.	1999, 2000
55. Chugach Electric Association, Inc.	Docket No. U 97-107	Depreciation	Alaska Public Utilities Commission	Alaska Electric Generation & Transmission Cooperative	1997
56. Municipal Electric Authority of Georgia	Docket No. 7967 U	Authority to Provide Telecommunications Services	Public Service Commission State of Georgia	Municipal Electric Association of Georgia	1997
57. Southern California Edison	Case No. BC 093 146	Condemnation of Electric Distribution Plant	Superior Court of the State of California, County of Los Angeles	City of Azusa, California	1995
58. Waste Management of Arkansas, Inc.	Case No. 93 0234	Landfill Condemnation	Circuit Court of Pulaski County, Arkansas	Arkansas State Highway Department	1994
59. Chugach Electric Association	Docket No. U 93-15	Depreciation	Alaska Public Utilities Commission	Homer Electric Assn., Matanuska Electric Assn., and Alaska Electric Generation & Transmission Cooperative	1993
60. U S WEST Communications, Inc.	Docket No. T 1051-93-183	Reproduction Cost New Less Depreciation Study	Arizona Corporation Commission	U S WEST Communications, Inc.	1993
61. Washington Natural Gas Company	Cause No. U 84-60	Revenue Attrition	Washington Utilities and Transportation Commission	Commission Staff	1984
62. Anchorage Telephone Utility	Docket No. U 80-42	Access Charge Cost of Service and Rate Design	Alaska Public Utilities Commission	Municipality of Anchorage	1981

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT NHH-1102

(188 PAGES)

FINAL REPORT | November 7, 2018

Kaua'i Island Utility Cooperative
Your Touchstone Energy® Cooperative

2017 DEPRECIATION STUDY

Kaua`i Island Utility Cooperative

PREPARED BY:

NewGen Strategies & Solutions

ECONOMICS STRATEGY STAKEHOLDERS SUSTAINABILITY www.newgenstrategies.net

Table of Contents

Table of Contents

List of Appendices

List of Tables

List of Figures

Section 1
SUMMARY AND CONCLUSIONS

Introduction

NewGen Strategies and Solutions, LLC (NewGen) was retained by the Kaua'i Island Utility Cooperative (KIUC) to perform a depreciation study to review the reasonableness of its existing depreciation rates. This report summarizes the results of the depreciation study of electric plant in service as of December 31, 2017. Summary tables showing the recommended service lives and resulting annual depreciation accrual rates are presented at the end of this section. We recommend that KIUC implement these depreciation accrual rates upon receiving approval from the Rural Utilities Services (RUS) and the Hawai'i Public Utilities Commission (Hawai'i PUC).

Acknowledgements

We greatly appreciate the assistance of the KIUC staff that provided the data necessary to perform this depreciation study. Following is a list of KIUC staff who contributed to the depreciation study:

- Corinne Cuaresma – Controller
- Brad Rockwell – Power Supply Manager
- Richard Vetter – Port Allen Station Manager
- Brooks Braun – Kapaia Power Station Manager
- Soni Tupou – Construction Superintendent
- Cameron Kruse – Substation Operations Supervisor
- Fred Pascual – Distribution Planning Coordinator
- Maile Alfiler – Member Services Manager
- Stephen Tangalin – Information Technology Manager
- Lorna Probasco – Plant Accountant

Methodology

The annual depreciation accrual rates were developed using the straight line method, vintage group procedure, and remaining life technique. The remaining life technique provides for the recovery of the undepreciated original cost of property (i.e., net plant), adjusted for net salvage, over the remaining life of the property.

The formula for computing the annual depreciation accrual rate using the remaining life technique is:

Remaining Life

$$D = \frac{1 - NS - R}{RL}$$

where: D = depreciation rate
NS = estimated net salvage ratio
R = depreciation reserve ratio
RL = average remaining life

The annual depreciation accrual rate is calculated as a percentage of gross plant and is applied to the gross plant investment on the utility's books.

Section 2 of this report provides a background on depreciation that explains the methodology used to develop the recommended annual depreciation accrual rates. Section 3 is a description of the KIUC system. Section 4 describes the specific analyses performed in the depreciation study and the information presented in the Appendices. The account narratives in Section 5 of the report describe the basis for the recommended average service lives, survivor curves, and net salvage rates.

Summary of Results

Based on the analyses described in this report, we recommend that several adjustments be made to KIUC's existing depreciation rates. Seven summary schedules are presented at the end of this section:

Schedule 1	Calculation of Annual Depreciation Accrual Rates
Schedule 2	Comparison of Depreciation Rates and Annual Accruals
Schedule 3	Comparison of Existing and Proposed Depreciation Factors and Annual Accrual Rates
Schedule 4	Comparison of Actual and Theoretical Depreciation Reserve
Schedule 5	Generating Unit Estimated Life Spans
Schedule 6	Breakdown of Annual Depreciation Accrual Rates by Net Salvage and Plant Components
Schedule 7	Comparison of Proposed Depreciation Rates and RUS Guideline Rates

As shown in Table 1-1 below, our recommended depreciation rates, if approved, result in a slight increase in total annual depreciation expense compared to existing rates. When applied to KIUC's plant in service as of December 31, 2017, the existing depreciation rates result in a total annual depreciation accrual rate equal to 3.32 percent. In comparison, although there are changes to the depreciation rates for individual plant accounts, the recommended depreciation rates result in no change to the total annual depreciation accrual rate. Based on plant in service as of December 31, 2017, the effect of adopting the recommended rates is to increase total annual depreciation expense by $5,598 (a 0.04 percent increase) compared to existing rates.

Table 1-1
Kaua'i Island Utility Cooperative
Comparison of Depreciation Rates and Annual Accruals
Based on Plant in Service at December 31, 2017

		Existing		Proposed		
Description	Original Cost at 12/31/2017	Accrual Rate	Annual Accrual	Accrual Rate	Annual Accrual	Change in Accrual
Steam Production	$26,071,186	2.94%	$767,768	2.71%	$705,507	($62,260)
Hydro Production	5,712,986	3.47%	198,092	3.13%	178,679	(19,413)
Other Production	113,893,548	2.07%	2,359,879	3.46%	3,937,676	1,577,797
Subtotal	$145,677,720	2.28%	$3,325,739	3.31%	$4,821,862	$1,496,124
Transmission	$78,992,654	2.90%	$2,288,132	1.72%	$1,358,635	($929,497)
Distribution	189,179,922	3.33%	6,300,340	3.21%	6,070,874	(229,467)
General	32,889,843	8.91%	2,931,128	7.90%	2,599,566	(331,562)
Total Plant	$446,740,139	3.32%	$14,845,340	3.32%	$14,850,938	$5,598

The existing annual depreciation accrual rates and amounts shown in Table 1-1 reflect the depreciation rates developed in the 2007 Depreciation Study that were approved by the RUS and Hawaii PUC and implemented by KIUC. Since then, the 2012 Depreciation Study was performed and approved by RUS, but because the Hawaii PUC never issued a decision regarding the study, the 2012 Depreciation Study rates were not implemented. Therefore, the change in depreciation rates and annual accrual shown in Table 1-1 represents the change in depreciation rates between 2017 and 2007 and do not incorporate changes to the life and net salvage parameters that were recommended in the 2012 Depreciation Study. Incremental changes in the life and net salvage parameters between the 2007, 2012, and current 2017 study are shown in the Account Narratives in Section 5.

As shown in Table 1-1, the largest change in depreciation rates and annual depreciation accrual in the current study is for Other Production Plant. As explained in more detail in Section 5, the increase in depreciation rates for Other Production Plant is due to a change in the method used to calculate the average remaining life for Other Production Plant from the 2007 Depreciation Study. This change was included in the 2012 Depreciation Study, but the depreciation rates were not implemented. Having reviewed the methodology used in the 2007 study, we believe that the Forecast (or Life Span) method used to calculate the remaining life and depreciation accrual for Other Production Plant in the 2012 study and 2017 study is more accurate and is consistent with generally accepted depreciation methods. In addition, the 2017 study recommends a -3 percent net salvage rate for several Other Production Plant accounts, which causes the depreciation accrual rate to increase. The increase in depreciation rates for Other Production Plant is mitigated because the estimated remaining life span for KIUC's generating units at Port Allen and Kapaia were extended by five years. KIUC is balancing its power production resources with renewable energy (solar purchased power agreements). As a result, KIUC's generating units are operating at lower run hours, which is extending the useful life spans of these units.

The proposed depreciation rates and annual accrual for Steam Production Plant decreased compared to existing rates because the estimated retirement year for the Port Allen and Kapaia steam generation units was extended by five years. In addition, the weighted average remaining lives for the Steam Production

Plant accounts, reflecting both the Port Allen and Kapaia generating plants, were calculated using net plant weighting in the 2012 and 2017 studies as opposed to gross plant weighting that was used in the 2007 Depreciation Study. (KIUC does not maintain its production plant accounts by generating plant; therefore, it is necessary to calculate a weighted average remaining life for each production plant account.) The weighted average remaining lives for the Other Production Plant accounts were also calculated using net plant weighting. Net plant weighting was used because the remaining life method of depreciation determines the annual accrual needed to recover the net plant investment over the remaining life of the asset.

Hydro Production depreciation rates decreased because the estimated retirement year for the Waiahi Generating Station was extended from 2036 to 2051 in recognition of recent and planned upgrades to the Upper and Lower Hydro units.

The decrease in transmission and distribution plant depreciation rates is largely due to recommended increases in the average service lives for several plant accounts. No change is recommended to the existing depreciation rate for Account 363 – Storage Battery Equipment, although we understand that KIUC plans to retire all investment in this plant account next year. The decrease in General Plant depreciation is due in large part to the decrease in the depreciation rate for Account 391.1 – Computer Equipment, which is discussed in more detail in the Account Narratives in Section 5.

Recommendations

Based upon the studies, assumptions, considerations, and analyses described in this report, we are of the opinion that:

1. The recommended annual depreciation accrual rates set forth in Schedule 1 are appropriate and reasonable and should be adopted by KIUC, subject to approval by the RUS and the Hawai'i PUC.
2. A review of KIUC's depreciation rates should be conducted every three to five years, or more often if plant additions, retirements, changes in accounting practices, or other changes indicate that a review of the depreciation accrual rates would be appropriate.
3. The depreciation rates for production plant recommended in this depreciation study do not include plant dismantlement costs. We recommend that KIUC develop estimates of future dismantlement costs for its generating units, which may be included in future depreciation studies.

Kaua'i Island Utility Cooperative
Summary Schedule 1
Calculation of Annual Depreciation Accrual Rates
Based on Plant in Service at December 31, 2017 (1)

Account	Description	Original Cost	Estimated Net Salvage %	Estimated Net Salvage Amount ($)	Depreciation Reserve	Amount to be Recovered	Survivor Curve	Average Service Life	Average Remaining Life	Annual Accrual Amount	Annual Accrual Rate
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
	STEAM PRODUCTION PLANT										
311.00	STRUCTURES AND IMPROVEMENTS	$5,627,209	0%	$0	$4,866,246	$760,964	Forecast	58	11.76	$64,687	1.15%
312.00	BOILER PLANT EQUIPMENT	16,189,980	-5%	(809,499)	9,298,964	7,700,515	Forecast	50	15.29	503,581	3.11%
313.00	ENGINE DRIVEN GENERATORS (2)	5,556	n/a	0	5,556	0	n/a	n/a	n/a	n/a	n/a
314.00	TURBOGENERATOR UNITS	2,802,766	0%	0	1,733,428	1,069,338	Forecast	57	12.41	86,166	3.07%
315.00	ACCESSORY ELECTRICAL EQUIPMENT	776,822	0%	0	547,181	229,641	Forecast	60	10.41	22,056	2.84%
316.00	MISCELLANEOUS POWER EQUIPMENT	668,853	0%	0	351,902	316,950	Forecast	59	10.92	29,017	4.34%
	TOTAL STEAM PRODUCTION PLANT	**$26,071,186**		**($809,499)**	**$16,803,277**	**$10,077,408**				**$705,507**	**2.71%**
	HYDRO PRODUCTION PLANT										
331.00	STRUCTURES AND IMPROVEMENTS	$1,006,789	0%	$0	$45,528	$961,261	Forecast	50	33.50	$28,694	2.85%
332.00	RESERVOIRS, DAMS AND WATERWAYS	2,030,551	0%	0	284,880	1,745,670	Forecast	50	33.50	52,110	2.57%
333.00	WATERWHEELS, TURBINES AND GOVERNORS	1,956,745	0%	0	124,499	1,832,245	Forecast	50	23.23	78,868	4.03%
334.00	ACCESSORY EQUIPMENT	718,901	0%	0	82,176	636,725	Forecast	50	33.50	19,007	2.64%
	TOTAL HYDRO PRODUCTION PLANT	**$5,712,986**		**$0**	**$537,084**	**$5,175,902**				**$178,679**	**3.13%**
	OTHER PRODUCTION PLANT										
341.00	STRUCTURES AND IMPROVEMENTS	$18,689,459	-3%	($560,684)	$9,377,338	$9,872,804	Forecast	47	15.57	$634,247	3.39%
342.00	FUEL HOLDERS	4,932,794	0%	0	2,218,789	2,714,005	Forecast	45	17.59	154,257	3.13%
343.00	PRIME MOVERS	67,029,806	-3%	(2,010,894)	37,348,891	31,691,810	Forecast	48	12.76	2,483,613	3.71%
344.00	GENERATORS	11,321,990	0%	0	5,158,019	6,163,971	Forecast	45	19.29	319,613	2.82%
345.00	ACCESSORY ELECTRICAL EQUIPMENT	9,587,188	0%	0	6,495,899	3,091,289	Forecast	44	19.38	159,484	1.66%
346.00	MISCELLANEOUS EQUIPMENT	2,332,311	-3%	(69,969)	59,512	2,342,768	Forecast	44	12.56	186,463	7.99%
	TOTAL OTHER PRODUCTION PLANT	**$113,893,548**		**($2,641,547)**	**$60,658,448**	**$55,876,648**				**$3,937,676**	**3.46%**
	TOTAL PRODUCTION PLANT	**$145,677,720**		**($3,451,046)**	**$77,998,808**	**$71,129,958**				**$4,821,862**	**3.31%**
	TRANSMISSION PLANT										
352.00	STRUCTURES AND IMPROVEMENTS	$263,001	0%	$0	$165,596	$97,405	R4	57	31.04	$3,138	1.19%
353.00	STATION EQUIPMENT	26,923,468	-10%	(2,692,347)	11,881,974	17,733,840	R0.5	40	29.42	602,808	2.24%
354.00	TOWERS AND FIXTURES	58,189	-15%	(8,728)	31,217	35,700	R2	50	34.21	1,044	1.79%
355.00	POLES AND FIXTURES	30,496,894	-20%	(6,099,379)	24,438,020	12,158,253	R2	56	36.06	337,166	1.11%
356.00	OVERHEAD CONDUCTORS AND DEVICES	20,750,050	-20%	(4,150,010)	13,720,771	11,179,289	R2	44	27.68	403,894	1.95%
357.00	UNDERGROUND CONDUIT	8,865	0%	0	2,980	5,885	R3	60	49.55	119	1.34%
358.00	UNDERGROUND CONDUCTORS	492,187	-10%	(49,219)	113,894	427,512	R3	50	40.84	10,468	2.13%
	TOTAL TRANSMISSION PLANT	**$78,992,654**		**($12,999,683)**	**$50,354,452**	**$41,637,885**				**$1,358,635**	**1.72%**
	DISTRIBUTION PLANT										
361.00	STRUCTURES AND IMPROVEMENTS	$3,650,626	-5%	($182,531)	$595,817	$3,237,340	R2	55	48.32	$66,994	1.84%
362.00	STATION EQUIPMENT	20,273,750	-15%	(3,041,063)	5,182,733	18,132,080	R0.5	30	23.87	759,726	3.75%
363.00	STORAGE BATTERY EQUIPMENT (3)	7,627,943	0%	0	3,939,084	3,688,860	n/a	10	n/a	762,794	10.00%
364.00	POLES, TOWERS AND FIXTURES	36,919,344	-25%	(9,229,836)	23,144,290	23,004,889	R2	44	26.04	883,374	2.39%
365.00	OVERHEAD CONDUCTORS AND DEVICES	39,514,451	-20%	(7,902,890)	21,695,900	25,721,441	R1	44	30.36	847,155	2.14%
366.00	UNDERGROUND CONDUIT	8,935,883	-20%	(1,787,177)	4,261,378	6,461,681	R1.5	58	43.74	147,727	1.65%
367.00	UNDERGROUND CONDUCTORS AND DEVICES	26,318,489	-25%	(6,579,622)	14,678,089	18,220,023	R1.5	43	31.22	583,673	2.22%
368.00	LINE TRANSFORMERS	26,179,832	-18%	(4,712,370)	10,358,500	20,533,701	L1	32	21.57	951,862	3.64%
369.00	SERVICES	6,828,967	-25%	(1,707,242)	5,394,584	3,141,624	R2	50	31.88	98,537	1.44%
370.00	METERS	7,398,700	0%	0	1,585,403	5,813,297	S2	15	8.92	651,424	8.80%
371.00	INSTALLATIONS ON CUSTOMER'S PREMISES	29,138	0%	0	9,227	19,911	n/a	10	n/a	2,914	10.00%
372.00	LEASED PROPERTY	18,709	0%	0	16,069	2,640	S2	10	2.56	1,030	5.51%
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	5,484,090	-7%	(383,886)	805,075	5,062,901	SQ	20	16.14	313,663	5.72%
	TOTAL DISTRIBUTION PLANT	**$189,179,922**		**($35,526,616)**	**$91,666,149**	**$133,040,389**				**$6,070,874**	**3.21%**
	GENERAL PLANT										
390.00	STRUCTURES AND IMPROVEMENTS	$11,732,559	0%	$0	6,349,472	$5,383,087	R2	46	29.76	$180,858	1.54%
391.00	OFFICE FURNITURE AND EQUIPMENT	2,147,831	0%	0	1,301,775	846,056	SQ	20	10.90	77,589	3.61%
391.10	COMPUTER EQUIPMENT	10,109,329	0%	0	5,943,331	4,165,998	SQ	4.5	2.32	1,795,877	17.76%
393.00	STORES EQUIPMENT	172,010	0%	0	156,633	15,377	SQ	25	5.86	2,626	1.53%
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	1,957,649	0%	0	1,384,487	573,162	SQ	15	8.14	70,454	3.60%
395.00	LABORATORY EQUIPMENT	822,994	0%	0	751,192	71,802	SQ	15	4.24	16,921	2.06%
396.00	POWER OPERATED EQUIPMENT	257,151	0%	0	243,642	13,510	SQ	15	4.17	3,243	1.26%
397.00	COMMUNICATION EQUIPMENT	4,338,795	0%	0	1,592,540	2,746,255	SQ	15	8.00	343,262	7.91%
398.00	MISCELLANEOUS EQUIPMENT	1,351,526	0%	0	210,776	1,140,751	SQ	15	10.49	108,737	8.05%
	TOTAL GENERAL PLANT	**$32,889,843**		**$0**	**$17,933,846**	**$14,955,997**				**$2,599,566**	**7.90%**
TOTAL DEPRECIABLE PLANT		**$446,740,139**		**($51,977,345)**	**$237,953,255**	**$260,764,229**				**$14,850,938**	**3.32%**

Kaua'i Island Utility Cooperative
Summary Schedule 1
Calculation of Annual Depreciation Accrual Rates
Based on Plant in Service at December 31, 2017 (1)

Account	Description	Original Cost	Estimated Net Salvage %	Estimated Net Salvage Amount ($)	Depreciation Reserve	Amount to be Recovered	Survivor Curve	Average Service Life	Average Remaining Life	Annual Accrual Amount	Annual Accrual Rate
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
NONDEPRECIABLE PLANT											
	INTANGIBLE PLANT										
301.00	ORGANIZATION	$0									
302.00	FRANCHISES AND CONSENTS	0									
	TOTAL INTANGIBLE PLANT	**$0**									
	OTHER NONDEPRECIABLE PLANT										
310.00	LAND AND LAND RIGHTS	$290,735									
330.00	LAND AND LAND RIGHTS	0									
340.00	LAND AND LAND RIGHTS	8,604,211									
350.00	LAND AND LAND RIGHTS	576,538									
360.00	LAND AND LAND RIGHTS	495,365									
389.00	LAND AND LAND RIGHTS	216,685									
392.00	TRANSPORTATION EQUIPMENT (4)	5,950,580									
114.00	PLANT ACQUISITION ADJUSTMENT	54,852,453									
	TOTAL OTHER NONDEPRECIABLE PLANT	**$70,986,567**									
TOTAL NONDEPRECIABLE PLANT		**$70,986,567**									
TOTAL PLANT IN SERVICE		**$517,726,706**		**($51,977,345)**	**$237,953,255**	**$260,764,229**				**$14,850,938**	

Notes:
(1) Numbers may not add due to rounding.
(2) Plant account is nearly fully depreciated. Annual accrual is equal to the amount to be recovered.
(3) KIUC is planning to fully retire battery storage equipment account in 2019; therefore, no change recommended to the depreciation parameters. Recommend an SQ-10 for any new investment in this
(4) The transportation equipment is treated as a clearing account.

Kaua'i Island Utility Cooperative
Summary Schedule 2
Comparison of Depreciation Rates and Annual Accruals
Based on Plant in Service at December 31, 2017 (1)

			Existing		Proposed		
Account	Description	Original Cost	Depreciation Rate	Annual Accrual	Depreciation Rate	Annual Accrual	Change In Accrual
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
	STEAM PRODUCTION PLANT						
311.00	STRUCTURES AND IMPROVEMENTS	$5,627,209	4.22%	$237,468	1.15%	$64,687	($172,781)
312.00	BOILER PLANT EQUIPMENT	16,189,980	2.92%	472,747	3.11%	503,581	30,833
313.00	ENGINE DRIVEN GENERATORS (2)	5,556	4.00%	n/a	n/a	n/a	n/a
314.00	TURBOGENERATOR UNITS	2,802,766	0.58%	16,141	3.07%	86,166	70,025
315.00	ACCESSORY ELECTRICAL EQUIPMENT	776,822	0.79%	6,162	2.84%	22,056	15,894
316.00	MISCELLANEOUS POWER EQUIPMENT	668,853	5.27%	35,249	4.34%	29,017	(6,232)
	TOTAL STEAM PRODUCTION PLANT	**$26,071,186**	**2.94%**	**$767,768**	**2.71%**	**$705,507**	**($62,260)**
	HYDRO PRODUCTION PLANT						
331.00	STRUCTURES AND IMPROVEMENTS	$1,006,789	3.37%	$33,953	2.85%	$28,694	($5,259)
332.00	RESERVOIRS, DAMS AND WATERWAYS	2,030,551	3.49%	70,820	2.57%	52,110	(18,710)
333.00	WATERWHEELS, TURBINES AND GOVERNORS	1,956,745	3.49%	68,246	4.03%	78,868	10,622
334.00	ACCESSORY EQUIPMENT	718,901	3.49%	25,073	2.64%	19,007	(6,067)
	TOTAL HYDRO PRODUCTION PLANT	**$5,712,986**	**3.47%**	**$198,092**	**3.13%**	**$178,679**	**($19,413)**
	OTHER PRODUCTION						
341.00	STRUCTURES AND IMPROVEMENTS	$18,689,459	2.64%	$494,251	3.39%	$634,247	$139,996
342.00	FUEL HOLDERS	4,932,794	2.86%	141,125	3.13%	154,257	13,131
343.00	PRIME MOVERS	67,029,806	1.77%	1,187,595	3.71%	2,483,613	1,296,019
344.00	GENERATORS	11,321,990	2.70%	305,201	2.82%	319,613	14,412
345.00	ACCESSORY ELECTRICAL EQUIPMENT	9,587,188	1.79%	171,610	1.66%	159,484	(12,125)
346.00	MISCELLANEOUS EQUIPMENT	2,332,311	2.58%	60,098	7.99%	186,463	126,365
	TOTAL OTHER PRODUCTION PLANT	**$113,893,548**	**2.07%**	**$2,359,879**	**3.46%**	**$3,937,676**	**$1,577,797**
	TOTAL PRODUCTION PLANT	**$145,677,720**	**2.28%**	**$3,325,739**	**3.31%**	**$4,821,862**	**$1,496,124**
	TRANSMISSION PLANT						
352.00	STRUCTURES AND IMPROVEMENTS	$263,001	2.72%	$7,160	1.19%	$3,138	($4,022)
353.00	STATION EQUIPMENT	26,923,468	3.98%	1,070,253	2.24%	602,808	(467,445)
354.00	TOWERS AND FIXTURES	58,189	1.97%	1,145	1.79%	1,044	(102)
355.00	POLES AND FIXTURES	30,496,894	2.27%	691,630	1.11%	337,166	(354,465)
356.00	OVERHEAD CONDUCTORS AND DEVICES	20,750,050	2.44%	505,307	1.95%	403,894	(101,414)
357.00	UNDERGROUND CONDUIT	8,865	2.72%	241	1.34%	119	(122)
358.00	UNDERGROUND CONDUCTORS	492,187	2.52%	12,396	2.13%	10,468	(1,927)
	TOTAL TRANSMISSION PLANT	**$78,992,654**	**2.90%**	**$2,288,132**	**1.72%**	**$1,358,635**	**($929,497)**
	DISTRIBUTION PLANT						
361.00	STRUCTURES AND IMPROVEMENTS	$3,650,626	2.26%	$82,424	1.84%	$66,994	($15,430)
362.00	STATION EQUIPMENT	20,273,750	2.86%	580,655	3.75%	759,726	179,071
363.00	STORAGE BATTERY EQUIPMENT	7,627,943	10.00%	762,794	10.00%	762,794	0
364.00	POLES, TOWERS AND FIXTURES	36,919,344	2.54%	937,411	2.39%	883,374	(54,037)
365.00	OVERHEAD CONDUCTORS AND DEVICES	39,514,451	3.25%	1,284,610	2.14%	847,155	(437,455)
366.00	UNDERGROUND CONDUIT	8,935,883	2.12%	189,083	1.65%	147,727	(41,356)
367.00	UNDERGROUND CONDUCTORS AND DEVICES	26,318,489	1.77%	465,152	2.22%	583,673	118,522
368.00	LINE TRANSFORMERS	26,179,832	4.05%	1,061,376	3.64%	951,862	(109,513)
369.00	SERVICES	6,828,967	2.76%	188,653	1.44%	98,537	(90,116)
370.00	METERS	7,398,700	8.00%	591,543	8.80%	651,424	59,881
371.00	INSTALLATIONS ON CUSTOMER'S PREMISES	29,138	10.00%	2,914	10.00%	2,914	0
372.00	LEASED PROPERTY	18,709	10.35%	1,936	5.51%	1,030	(906)
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	5,484,090	2.77%	151,788	5.72%	313,663	161,874
	TOTAL DISTRIBUTION PLANT	**$189,179,922**	**3.33%**	**$6,300,340**	**3.21%**	**$6,070,874**	**($229,467)**
	GENERAL PLANT						
390.00	STRUCTURES AND IMPROVEMENTS	$11,732,559	2.18%	$256,280	1.54%	$180,858	($75,422)
391.00	OFFICE FURNITURE AND EQUIPMENT	2,147,831	2.62%	56,308	3.61%	77,589	21,282
391.10	COMPUTER EQUIPMENT	10,109,329	21.44%	2,167,572	17.76%	1,795,877	(371,695)
393.00	STORES EQUIPMENT	172,010	0.81%	1,388	1.53%	2,626	1,238
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	1,957,649	9.21%	180,228	3.60%	70,454	(109,774)
395.00	LABORATORY EQUIPMENT	822,994	5.07%	41,739	2.06%	16,921	(24,818)
396.00	POWER OPERATED EQUIPMENT	257,151	3.93%	10,104	1.26%	3,243	(6,861)
397.00	COMMUNICATION EQUIPMENT	4,338,795	4.08%	177,087	7.91%	343,262	166,175
398.00	MISCELLANEOUS EQUIPMENT	1,351,526	2.99%	40,423	8.05%	108,737	68,314
	TOTAL GENERAL PLANT	**$32,889,843**	**8.91%**	**$2,931,128**	**7.90%**	**$2,599,566**	**($331,562)**
TOTAL DEPRECIABLE PLANT		**$446,740,139**	**3.32%**	**$14,845,340**	**3.32%**	**$14,850,938**	**$5,598**

Note:
(1) Numbers may not add due to rounding.
(2) Account is fully depreciated.

Kaua'i Island Utility Cooperative
Summary Schedule 3
Comparison of Existing and Proposed
Depreciation Factors and Annual Accrual Rates

		Survivor Curve		ASL		Net Salvage		Depreciation Accrual	
Account	Description	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
	STEAM PRODUCTION PLANT								
311.00	STRUCTURES AND IMPROVEMENTS	Forecast	Forecast	49	58	0%	0%	4.22%	1.15%
312.00	BOILER PLANT EQUIPMENT	Forecast	Forecast	27	50	0%	-5%	2.92%	3.11%
313.00	ENGINE DRIVEN GENERATORS	n/a	n/a	n/a	n/a	n/a	n/a	4.00%	n/a
314.00	TURBOGENERATOR UNITS	Forecast	Forecast	50	57	0%	0%	0.58%	3.07%
315.00	ACCESSORY ELECTRICAL EQUIPMENT	Forecast	Forecast	49	60	0%	0%	0.79%	2.84%
316.00	MISCELLANEOUS POWER EQUIPMENT	Forecast	Forecast	36	59	0%	0%	5.27%	4.34%
	TOTAL STEAM PRODUCTION PLANT							**2.94%**	**2.71%**
	HYDRO PRODUCTION PLANT								
331.00	STRUCTURES AND IMPROVEMENTS	Forecast	Forecast	35	50	0%	0%	3.37%	2.85%
332.00	RESERVOIRS, DAMS AND WATERWAYS	Forecast	Forecast	35	50	0%	0%	3.49%	2.57%
333.00	WATERWHEELS, TURBINES AND GOVERNORS	Forecast	Forecast	35	50	0%	0%	3.49%	4.03%
334.00	ACCESSORY EQUIPMENT	n/a	Forecast	29	50	0%	0%	3.49%	2.64%
	TOTAL HYDRO PRODUCTION PLANT							**3.47%**	**3.13%**
	OTHER PRODUCTION								
341.00	STRUCTURES AND IMPROVEMENTS	SQ	Forecast	35	47	0%	-3%	2.64%	3.39%
342.00	FUEL HOLDERS	SQ	Forecast	35	45	0%	0%	2.86%	3.13%
343.00	PRIME MOVERS	SQ	Forecast	31	48	0%	-3%	1.77%	3.71%
344.00	GENERATORS	SQ	Forecast	35	45	0%	0%	2.70%	2.82%
345.00	ACCESSORY ELECTRICAL EQUIPMENT	SQ	Forecast	35	44	0%	0%	1.79%	1.66%
346.00	MISCELLANEOUS EQUIPMENT	SQ	Forecast	34	44	0%	-3%	2.58%	7.99%
	TOTAL OTHER PRODUCTION PLANT							**2.07%**	**3.46%**
	TOTAL PRODUCTION PLANT							**2.28%**	**3.31%**
	TRANSMISSION PLANT								
352.00	STRUCTURES AND IMPROVEMENTS	R5	R4	40	57	0%	0%	2.72%	1.19%
353.00	STATION EQUIPMENT	S2	R0.5	30	40	-4%	-10%	3.98%	2.24%
354.00	TOWERS AND FIXTURES	R2	R2	50	50	-15%	-15%	1.97%	1.79%
355.00	POLES AND FIXTURES	S2.5	R2	41	56	-20%	-20%	2.27%	1.11%
356.00	OVERHEAD CONDUCTORS AND DEVICES	R2	R2	35	44	-15%	-20%	2.44%	1.95%
357.00	UNDERGROUND CONDUIT	R3	R3	35	60	0%	0%	2.72%	1.34%
358.00	UNDERGROUND CONDUCTORS	R3	R3	35	50	0%	-10%	2.52%	2.13%
	TOTAL TRANSMISSION PLANT							**2.90%**	**1.72%**
	DISTRIBUTION PLANT								
361.00	STRUCTURES AND IMPROVEMENTS	R5	R2	40	55	0%	-5%	2.26%	1.84%
362.00	STATION EQUIPMENT	R0.5	R0.5	30	30	-10%	-15%	2.86%	3.75%
363.00	STORAGE BATTERY EQUIPMENT	n/a	n/a	10	10	0%	0%	10.00%	10.00%
364.00	POLES, TOWERS AND FIXTURES	S1.5	R2	37	44	-10%	-25%	2.54%	2.39%
365.00	OVERHEAD CONDUCTORS AND DEVICES	R2	R1	36	44	-20%	-20%	3.25%	2.14%
366.00	UNDERGROUND CONDUIT	R0.5	R1.5	50	58	-30%	-20%	2.12%	1.65%
367.00	UNDERGROUND CONDUCTORS AND DEVICES	R2.5	R1.5	34	43	-10%	-25%	1.77%	2.22%
368.00	LINE TRANSFORMERS	R0.5	L1	30	32	-18%	-18%	4.05%	3.64%
369.00	SERVICES	R3	R2	41	50	-38%	-25%	2.76%	1.44%
370.00	METERS	R2.5	S2	20	15	-2%	0%	8.00%	8.80%
371.00	INSTALLATION ON CUSTOMER PREMISES	n/a	n/a	10	10	0%	0%	10.00%	10.00%
372.00	LEASED PROPERTY	S2	S2	10	10	0%	0%	10.35%	5.51%
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	SQ	SQ	25	20	-7%	-7%	2.77%	5.72%
	TOTAL DISTRIBUTION PLANT							**3.33%**	**3.21%**
	GENERAL PLANT								
390.00	STRUCTURES AND IMPROVEMENTS	L1.5	R2	36	46	0%	0%	2.18%	1.54%
391.00	OFFICE FURNITURE AND EQUIPMENT	L3	SQ	26	20	0%	0%	2.62%	3.61%
391.10	COMPUTER EQUIPMENT	SQ	SQ	4.5	4.5	0%	0%	21.44%	17.76%
393.00	STORES EQUIPMENT	R4	SQ	21	25	0%	0%	0.81%	1.53%
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	S6	SQ	15	15	0%	0%	9.21%	3.60%
395.00	LABORATORY EQUIPMENT	S6	SQ	19	15	0%	0%	5.07%	2.06%
396.00	POWER OPERATED QUIPMENT	S6	SQ	13	15	0%	0%	3.93%	1.26%
397.00	COMMUNICATION EQUIPMENT	R5	SQ	16	15	0%	0%	4.08%	7.91%
398.00	MISCELLANEOUS EQUIPMENT	S3	SQ	22	15	0%	0%	2.99%	8.05%
	TOTAL GENERAL PLANT							**8.91%**	**7.90%**
TOTAL DEPRECIABLE PLANT								**3.32%**	**3.32%**

Kaua'i Island Utility Cooperative
Summary Schedule 4
Comparison of Actual vs. Theoretical Depreciation Reserve
Based on Plant in Service at December 31, 2017 (1)

			Actual Reserve		Theoretical Reserve		
Account	Description	Original Cost	Amount	Ratio	Amount	Ratio	Difference
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
	STEAM PRODUCTION PLANT						
311.00	STRUCTURES AND IMPROVEMENTS	$5,627,209	$4,866,246	86.48%	$4,485,294	79.71%	$380,952
312.00	BOILER PLANT EQUIPMENT	16,189,980	9,298,964	57.44%	11,781,739	72.77%	(2,482,775)
313.00	ENGINE DRIVEN GENERATORS (2)	5,556	5,556	100.00%	5,556	100.00%	0
314.00	TURBOGENERATOR UNITS	2,802,766	1,733,428	61.85%	2,193,185	78.25%	(459,757)
315.00	ACCESSORY ELECTRICAL EQUIPMENT	776,822	547,181	70.44%	642,020	82.65%	(94,839)
316.00	MISCELLANEOUS POWER EQUIPMENT	668,853	351,902	52.61%	543,966	81.33%	(192,063)
	TOTAL STEAM PRODUCTION PLANT	**$26,071,186**	**$16,803,277**	**64.45%**	**$19,651,759**	**75.38%**	**($2,848,483)**
	HYDRO PRODUCTION PLANT						
331.00	STRUCTURES AND IMPROVEMENTS	$1,006,789	$45,528	4.52%	$332,240	33.00%	($286,713)
332.00	RESERVOIRS, DAMS AND WATERWAYS	2,030,551	284,880	14.03%	670,082	33.00%	(385,201)
333.00	WATERWHEELS, TURBINES AND GOVERNORS	1,956,745	124,499	6.36%	1,047,572	53.54%	(923,073)
334.00	ACCESSORY EQUIPMENT	718,901	82,176	11.43%	237,237	33.00%	(155,061)
	TOTAL HYDRO PRODUCTION PLANT	**$5,712,986**	**$537,084**	**9.40%**	**$2,287,132**	**40.03%**	**($1,750,048)**
	OTHER PRODUCTION						
341.00	STRUCTURES AND IMPROVEMENTS	$18,689,459	$9,377,338	50.17%	$12,808,797	68.53%	($3,431,459)
342.00	FUEL HOLDERS	4,932,794	2,218,789	44.98%	3,017,366	61.17%	(798,577)
343.00	PRIME MOVERS	67,029,806	37,348,891	55.72%	50,755,427	75.72%	(13,406,537)
344.00	GENERATORS	11,321,990	5,158,019	45.56%	6,450,209	56.97%	(1,292,190)
345.00	ACCESSORY ELECTRICAL EQUIPMENT	9,587,188	6,495,899	67.76%	5,374,341	56.06%	1,121,558
346.00	MISCELLANEOUS EQUIPMENT	2,332,311	59,512	2.55%	1,710,012	73.32%	(1,650,499)
	TOTAL OTHER PRODUCTION PLANT	**$113,893,548**	**$60,658,448**	**53.26%**	**$80,116,152**	**70.34%**	**($19,457,704)**
	TOTAL PRODUCTION PLANT	**$145,677,720**	**$77,998,808**	**53.54%**	**$102,055,043**	**70.06%**	**($24,056,235)**
	TRANSMISSION PLANT						
352.00	STRUCTURES AND IMPROVEMENTS	$263,001	$165,596	62.96%	$139,251	52.95%	$26,345
353.00	STATION EQUIPMENT	26,923,468	11,881,974	44.13%	7,592,936	28.20%	4,289,038
354.00	TOWERS AND FIXTURES	58,189	31,217	53.65%	19,763	33.96%	11,454
355.00	POLES AND FIXTURES	30,496,894	24,438,020	80.13%	12,775,376	41.89%	11,662,644
356.00	OVERHEAD CONDUCTORS AND DEVICES	20,750,050	13,720,771	66.12%	9,164,089	44.16%	4,556,682
357.00	UNDERGROUND CONDUIT	8,865	2,980	33.62%	1,535	17.31%	1,445
358.00	UNDERGROUND CONDUCTORS	492,187	113,894	23.14%	106,335	21.60%	7,559
	TOTAL TRANSMISSION PLANT	**$78,992,654**	**$50,354,452**	**63.75%**	**$29,799,285**	**37.72%**	**$20,555,167**
	DISTRIBUTION PLANT						
361.00	STRUCTURES AND IMPROVEMENTS	$3,650,626	$595,817	16.32%	$464,457	12.72%	$131,360
362.00	STATION EQUIPMENT	20,273,750	5,182,733	25.56%	4,904,299	24.19%	278,434
363.00	STORAGE BATTERY EQUIPMENT (3)	7,627,943	3,939,084	51.64%	3,939,084	51.64%	0
364.00	POLES, TOWERS AND FIXTURES	36,919,344	23,144,290	62.69%	18,696,875	50.64%	4,447,415
365.00	OVERHEAD CONDUCTORS AND DEVICES	39,514,451	21,695,900	54.91%	14,579,098	36.90%	7,116,802
366.00	UNDERGROUND CONDUIT	8,935,883	4,261,378	47.69%	2,570,210	28.76%	1,691,168
367.00	UNDERGROUND CONDUCTORS AND DEVICES	26,318,489	14,678,089	55.77%	8,957,303	34.03%	5,720,786
368.00	LINE TRANSFORMERS	26,179,832	10,358,500	39.57%	9,926,748	37.92%	431,753
369.00	SERVICES	6,828,967	5,394,584	79.00%	2,865,790	41.97%	2,528,794
370.00	METERS	7,398,700	1,585,403	21.43%	2,599,937	35.14%	(1,014,534)
371.00	INSTALLATIONS ON CUSTOMER'S PREMISES (4)	29,138	9,227	31.67%	9,227	31.67%	0
372.00	LEASED PROPERTY	18,709	16,069	85.89%	6,955	37.17%	9,114
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	5,484,090	805,075	14.68%	1,133,824	20.67%	(328,750)
	TOTAL DISTRIBUTION PLANT	**$189,179,922**	**$91,666,149**	**48.45%**	**$70,653,806**	**37.35%**	**$21,012,342**
	GENERAL PLANT						
390.00	STRUCTURES AND IMPROVEMENTS	$11,732,559	$6,349,472	54.12%	$4,118,152	35.10%	$2,231,320
391.00	OFFICE FURNITURE AND EQUIPMENT	2,147,831	1,301,775	60.61%	667,543	31.08%	634,232
391.10	COMPUTER EQUIPMENT	10,109,329	5,943,331	58.79%	3,780,716	37.40%	2,162,615
393.00	STORES EQUIPMENT	172,010	156,633	91.06%	43,845	25.49%	112,788
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	1,957,649	1,384,487	70.72%	635,617	32.47%	748,870
395.00	LABORATORY EQUIPMENT	822,994	751,192	91.28%	185,201	22.50%	565,991
396.00	POWER OPERATED EQUIPMENT	257,151	243,642	94.75%	49,680	19.32%	193,962
397.00	COMMUNICATION EQUIPMENT	4,338,795	1,592,540	36.70%	1,940,265	44.72%	(347,725)
398.00	MISCELLANEOUS EQUIPMENT	1,351,526	210,776	15.60%	406,913	30.11%	(196,137)
	TOTAL GENERAL PLANT	**$32,889,843**	**$17,933,846**	**54.53%**	**$11,827,932**	**35.96%**	**$6,105,914**
TOTAL DEPRECIABLE PLANT		**$446,740,139**	**$237,953,255**	**53.26%**	**$214,336,066**	**47.98%**	**$23,617,188**

Notes:
(1) Numbers may not add due to rounding.
(2) Plant account is fully depreciated. Annual accrual is equal to the amount to be recovered.
(3) KIUC is planning to fully retire battery storage equipment account in 2019; therefore, the theoretical reserve is not estimated on a remaining life basis.
(4) Recommend no change to the existing 10% depreciation rate (1/10 years); therefore, the theoretical reserve is not estimated on a remaining life basis.

Kaua'i Island Utility Cooperative
Summary Schedule 5
Generating Unit Estimated Life Spans

Unit	Type	Manufacturer	Model	Size (kW)	2017 Gross Generation (MWh)	2017 Operating Hours	Major Overhaul Last	Major Overhaul Next	In-Service Year	Estimated Retirement Year	Estimated Life Span (years)
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(I)	(J)	(K)
Kapaia Power Station											
CT1	IC - Gas Turbine	General Electric (GE)	LM2500PH	27,500	186,071	7,941	2017	2022	2002	2042	40
			Subtotal:	**27,500**	**186,071**						
Port Allen Power Station											
D1	IC-Diesel	Electro-Motive Division (EMD)	567-D4, 16 cylinder	2,000	597	433	1993	n/a	1964	2028	64
D2	IC-Diesel	Electro-Motive Division (EMD)	567-D4, 16 cylinder	2,000	783	560	1993	2021	1964	2028	64
D3	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	1,477	769	2013	n/a	1968	2028	60
D4	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	649	450	1999	n/a	1968	2028	60
D5	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	1,432	761	2013	n/a	1968	2028	60
S1	Steam	General Electric (GE)	Straight-Condensing, Single Flow	10,000	1,846	609	2016	2026	1968	2028	60
GT1	IC-Gas Turbine	Hitachi/General Electric (GE)	MS5001R N/T	17,500	110	30	2009	2021	1973	2028	55
GT2	IC-Gas Turbine	John Brown / General Electric (GE)	MS5001P N/T	22,600	3,694	349	2011	2021	1977	2028	51
D6	IC-Diesel	Stork-Wartsila	TM620	7,850	34,477	6,433	2018	2023	1989	2028	39
D7	IC-Diesel	Stork-Wartsila	TM620	7,850	33,379	6,018	2016	2019	1989	2028	39
D8	IC-Diesel	Stork-Wartsila	TM620	7,850	16,041	3,046	2017	2023	1991	2028	37
D9	IC-Diesel	Stork-Wartsila	TM620	7,850	16,245	2,683	2015	2021	1991	2028	37
			Subtotal:	**93,750**	**110,730**						
Waiahi Power Station											
Lower	Hydro	Francis/Allis-Chalmers	Francis Turbine	800	3,427	8,182	n/a	n/a	1914	2051	50
Upper	Hydro	Canyon Hydro	Francis Turbine	745	3,298	8,182	n/a	n/a	1931/2017	2051	50
			Subtotal:	**1,545**	**6,725**						
			Grand Total:	**122,795**	**303,526**						

Kaua'i Island Utility Cooperative
Summary Schedule 6
Breakdown of Annual Depreciation Accrual Rates
By Net Salvage and Plant Components (1)

Account	Description	Breakdown of Depreciation Rate			Net Salvage Component	Plant Component	Total Accrual
		Net Salvage	Plant	Total			
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
	STEAM PRODUCTION PLANT						
311.00	STRUCTURES AND IMPROVEMENTS	0.00%	1.15%	1.15%	$0	$64,687	$64,687
312.00	BOILER PLANT EQUIPMENT	0.33%	2.78%	3.11%	52,938	450,643	503,581
313.00	ENGINE DRIVEN GENERATORS	n/a	n/a	n/a	n/a	n/a	n/a
314.00	TURBOGENERATOR UNITS	0.00%	3.07%	3.07%	0	86,166	86,166
315.00	ACCESSORY ELECTRICAL EQUIPMENT	0.00%	2.84%	2.84%	0	22,056	22,056
316.00	MISCELLANEOUS POWER EQUIPMENT	0.00%	4.34%	4.34%	0	29,017	29,017
	TOTAL STEAM PRODUCTION PLANT	**0.20%**	**2.50%**	**2.71%**	**$52,938**	**$652,570**	**$705,507**
	HYDRO PRODUCTION PLANT						
331.00	STRUCTURES AND IMPROVEMENTS	0.00%	2.85%	2.85%	$0	$28,694	$28,694
332.00	RESERVOIRS, DAMS AND WATERWAYS	0.00%	2.57%	2.57%	0	52,110	52,110
333.00	WATERWHEELS, TURBINES AND GOVERNORS	0.00%	4.03%	4.03%	0	78,868	78,868
334.00	ACCESSORY EQUIPMENT	0.00%	2.64%	2.64%	0	19,007	19,007
	TOTAL HYDRO PRODUCTION PLANT	**0.00%**	**3.13%**	**3.13%**	**$0**	**$178,679**	**$178,679**
	OTHER PRODUCTION PLANT						
341.00	STRUCTURES AND IMPROVEMENTS	0.19%	3.20%	3.39%	$36,019	$598,227	$634,247
342.00	FUEL HOLDERS	0.00%	3.13%	3.13%	0	154,257	154,257
343.00	PRIME MOVERS	0.24%	3.47%	3.71%	157,589	2,326,024	2,483,613
344.00	GENERATORS	0.00%	2.82%	2.82%	0	319,613	319,613
345.00	ACCESSORY ELECTRICAL EQUIPMENT	0.00%	1.66%	1.66%	0	159,484	159,484
346.00	MISCELLANEOUS EQUIPMENT	0.24%	7.76%	7.99%	5,569	180,894	186,463
	TOTAL OTHER PRODUCTION PLANT	**0.17%**	**3.28%**	**3.46%**	**$199,177**	**$3,738,499**	**$3,937,676**
	TOTAL PRODUCTION PLANT	**0.17%**	**3.14%**	**3.31%**	**$252,115**	**$4,569,747**	**$4,821,862**
	TRANSMISSION PLANT						
352.00	STRUCTURES AND IMPROVEMENTS	0.00%	1.19%	1.19%	$0	$3,138	$3,138
353.00	STATION EQUIPMENT	0.34%	1.90%	2.24%	91,518	511,290	602,808
354.00	TOWERS AND FIXTURES	0.44%	1.35%	1.79%	255	788	1,044
355.00	POLES AND FIXTURES	0.55%	0.55%	1.11%	169,144	168,021	337,166
356.00	OVERHEAD CONDUCTORS AND DEVICES	0.72%	1.22%	1.95%	149,935	253,959	403,894
357.00	UNDERGROUND CONDUIT	0.00%	1.34%	1.34%	0	119	119
358.00	UNDERGROUND CONDUCTORS	0.24%	1.88%	2.13%	1,205	9,263	10,468
	TOTAL TRANSMISSION PLANT	**0.52%**	**1.20%**	**1.72%**	**$412,058**	**$946,578**	**$1,358,635**
	DISTRIBUTION PLANT						
361.00	STRUCTURES AND IMPROVEMENTS	0.10%	1.73%	1.84%	$3,777	$63,217	$66,994
362.00	STATION EQUIPMENT	0.63%	3.12%	3.75%	127,419	632,307	759,726
363.00	STORAGE BATTERY EQUIPMENT (2)	0.00%	10.00%	10.00%	0	762,794	762,794
364.00	POLES, TOWERS AND FIXTURES	0.96%	1.43%	2.39%	354,420	528,954	883,374
365.00	OVERHEAD CONDUCTORS AND DEVICES	0.66%	1.49%	2.14%	260,288	586,867	847,155
366.00	UNDERGROUND CONDUIT	0.46%	1.20%	1.65%	40,859	106,869	147,727
367.00	UNDERGROUND CONDUCTORS AND DEVICES	0.80%	1.42%	2.22%	210,776	372,897	583,673
368.00	LINE TRANSFORMERS	0.83%	2.80%	3.64%	218,447	733,415	951,862
369.00	SERVICES	0.78%	0.66%	1.44%	53,548	44,989	98,537
370.00	METERS	0.00%	8.80%	8.80%	0	651,424	651,424
371.00	INSTALLATIONS ON CUSTOMER'S PREMISES	0.00%	10.00%	10.00%	0	2,914	2,914
372.00	LEASED PROPERTY	0.00%	5.51%	5.51%	0	1,030	1,030
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	0.43%	5.29%	5.72%	23,783	289,880	313,663
	TOTAL DISTRIBUTION PLANT	**0.68%**	**2.53%**	**3.21%**	**$1,293,317**	**$4,777,557**	**$6,070,874**
	GENERAL PLANT						
390.00	STRUCTURES AND IMPROVEMENTS	0.00%	1.54%	1.54%	$0	$180,858	$180,858
391.00	OFFICE FURNITURE AND EQUIPMENT	0.00%	3.61%	3.61%	0	77,589	77,589
391.10	COMPUTER EQUIPMENT	0.00%	17.76%	17.76%	0	1,795,877	1,795,877
393.00	STORES EQUIPMENT	0.00%	1.53%	1.53%	0	2,626	2,626
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	0.00%	3.60%	3.60%	0	70,454	70,454
395.00	LABORATORY EQUIPMENT	0.00%	2.06%	2.06%	0	16,921	16,921
396.00	POWER OPERATED EQUIPMENT	0.00%	1.26%	1.26%	0	3,243	3,243
397.00	COMMUNICATION EQUIPMENT	0.00%	7.91%	7.91%	0	343,262	343,262
398.00	MISCELLANEOUS EQUIPMENT	0.00%	8.05%	8.05%	0	108,737	108,737
	TOTAL GENERAL PLANT	**0.00%**	**7.90%**	**7.90%**	**$0**	**$2,599,566**	**$2,599,566**
TOTAL DEPRECIABLE PLANT		**0.44%**	**2.89%**	**3.32%**	**$1,957,490**	**$12,893,448**	**$14,850,938**

Notes:
(1) Numbers may not add due to rounding.
(2) KIUC is planning to fully retire battery storage equipment account in 2019; therefore, no change recommended to the depreciation parameters.

Kaua'i Island Utility Cooperative
Summary Schedule 7
Comparison of Proposed Depreciation Rates and RUS Guideline Rates
Based on Plant in Service at December 31, 2017 (1)

			Proposed		RUS Guideline		
Account	Description	Original Cost	Depreciation Rate	Annual Accrual	Depreciation Rate	Annual Accrual	Difference In Accrual
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
	STEAM PRODUCTION PLANT						
311.00	STRUCTURES AND IMPROVEMENTS	$5,627,209	1.15%	$64,687	3.10%	$174,443	($109,756)
312.00	BOILER PLANT EQUIPMENT	16,189,980	3.11%	503,581	3.10%	501,889	1,691
313.00	ENGINE DRIVEN GENERATORS (2)	5,556	n/a	n/a	3.10%	n/a	n/a
314.00	TURBOGENERATOR UNITS	2,802,766	3.07%	86,166	3.10%	86,886	(719)
315.00	ACCESSORY ELECTRICAL EQUIPMENT	776,822	2.84%	22,056	3.10%	24,081	(2,026)
316.00	MISCELLANEOUS POWER EQUIPMENT	668,853	4.34%	29,017	3.10%	20,734	8,282
	TOTAL STEAM PRODUCTION PLANT	**$26,071,186**	**2.71%**	**$705,507**	**3.10%**	**$808,035**	**($102,527)**
	HYDRO PRODUCTION PLANT						
331.00	STRUCTURES AND IMPROVEMENTS	$1,006,789	2.85%	$28,694	2.00%	$20,136	$8,559
332.00	RESERVOIRS, DAMS AND WATERWAYS	2,030,551	2.57%	52,110	2.00%	40,611	11,499
333.00	WATERWHEELS, TURBINES AND GOVERNORS	1,956,745	4.03%	78,868	2.00%	39,135	39,733
334.00	ACCESSORY EQUIPMENT	718,901	2.64%	19,007	2.00%	14,378	4,629
	TOTAL HYDRO PRODUCTION PLANT	**$5,712,986**	**3.13%**	**$178,679**	**2.00%**	**$114,260**	**$64,419**
	OTHER PRODUCTION						
341.00	STRUCTURES AND IMPROVEMENTS	$18,689,459	3.39%	$634,247	3.07%	$573,766	$60,480
342.00	FUEL HOLDERS	4,932,794	3.13%	154,257	3.07%	151,437	2,820
343.00	PRIME MOVERS	67,029,806	3.71%	2,483,613	3.07%	2,057,815	425,798
344.00	GENERATORS	11,321,990	2.82%	319,613	3.07%	347,585	(27,973)
345.00	ACCESSORY ELECTRICAL EQUIPMENT	9,587,188	1.66%	159,484	3.07%	294,327	(134,842)
346.00	MISCELLANEOUS EQUIPMENT	2,332,311	7.99%	186,463	3.07%	71,602	114,861
	TOTAL OTHER PRODUCTION PLANT	**$113,893,548**	**3.46%**	**$3,937,676**	**3.07%**	**$3,496,532**	**$441,144**
	TOTAL PRODUCTION PLANT	**$145,677,720**	**3.31%**	**$4,821,862**	**3.03%**	**$4,418,826**	**$403,036**
	TRANSMISSION PLANT						
352.00	STRUCTURES AND IMPROVEMENTS	$263,001	1.19%	$3,138	2.75%	$7,233	($4,095)
353.00	STATION EQUIPMENT	26,923,468	2.24%	602,808	2.75%	740,395	(137,588)
354.00	TOWERS AND FIXTURES	58,189	1.79%	1,044	2.75%	1,600	(557)
355.00	POLES AND FIXTURES	30,496,894	1.11%	337,166	2.75%	838,665	(501,499)
356.00	OVERHEAD CONDUCTORS AND DEVICES	20,750,050	1.95%	403,894	2.75%	570,626	(166,733)
357.00	UNDERGROUND CONDUIT	8,865	1.34%	119	2.75%	244	(125)
358.00	UNDERGROUND CONDUCTORS	492,187	2.13%	10,468	2.75%	13,535	(3,067)
	TOTAL TRANSMISSION PLANT	**$78,992,654**	**1.72%**	**$1,358,635**	**2.75%**	**$2,172,298**	**($813,663)**
	DISTRIBUTION PLANT						
361.00	STRUCTURES AND IMPROVEMENTS	$3,650,626	1.84%	$66,994	3.00%	$109,519	($42,525)
362.00	STATION EQUIPMENT	20,273,750	3.75%	759,726	3.20%	648,760	110,966
363.00	STORAGE BATTERY EQUIPMENT (3)	7,627,943	10.00%	762,794	10.00%	762,794	n/a
364.00	POLES, TOWERS AND FIXTURES	36,919,344	2.39%	883,374	4.00%	1,476,774	(593,399)
365.00	OVERHEAD CONDUCTORS AND DEVICES	39,514,451	2.14%	847,155	2.80%	1,106,405	(259,250)
366.00	UNDERGROUND CONDUIT	8,935,883	1.65%	147,727	2.30%	205,525	(57,798)
367.00	UNDERGROUND CONDUCTORS AND DEVICES	26,318,489	2.22%	583,673	2.90%	763,236	(179,563)
368.00	LINE TRANSFORMERS	26,179,832	3.64%	951,862	3.10%	811,575	140,287
369.00	SERVICES	6,828,967	1.44%	98,537	3.60%	245,843	(147,306)
370.00	METERS	7,398,700	8.80%	651,424	3.40%	251,556	399,868
371.00	INSTALLATIONS ON CUSTOMER'S PREMISES	29,138	10.00%	2,914	4.40%	1,282	1,632
372.00	LEASED PROPERTY	18,709	5.51%	1,030	4.10%	767	263
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	5,484,090	5.72%	313,663	4.30%	235,816	77,847
	TOTAL DISTRIBUTION PLANT	**$189,179,922**	**3.21%**	**$6,070,874**	**3.50%**	**$6,619,851**	**($548,978)**
	GENERAL PLANT						
390.00	STRUCTURES AND IMPROVEMENTS	$11,732,559	1.54%	$180,858	3.00%	$351,977	($171,119)
391.00	OFFICE FURNITURE AND EQUIPMENT	2,147,831	3.61%	77,589	6.00%	128,870	(51,280)
391.10	COMPUTER EQUIPMENT	10,109,329	17.76%	1,795,877	16.00%	1,617,493	178,384
393.00	STORES EQUIPMENT*	172,010	1.53%	2,626	6.00%	10,321	(7,695)
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	1,957,649	3.60%	70,454	6.00%	117,459	(47,005)
395.00	LABORATORY EQUIPMENT	822,994	2.06%	16,921	6.00%	49,380	(32,459)
396.00	POWER OPERATED EQUIPMENT	257,151	1.26%	3,243	16.00%	41,144	(37,901)
397.00	COMMUNICATION EQUIPMENT	4,338,795	7.91%	343,262	8.00%	347,104	(3,842)
398.00	MISCELLANEOUS EQUIPMENT	1,351,526	8.05%	108,737	6.00%	81,092	27,645
	TOTAL GENERAL PLANT	**$32,889,843**	**7.90%**	**$2,599,566**	**8.35%**	**$2,744,838**	**($145,272)**
TOTAL DEPRECIABLE PLANT		**$446,740,139**	**3.32%**	**$14,850,938**	**3.57%**	**$15,955,813**	**($1,104,876)**

Notes:
(1) Numbers may not add due to rounding.
(2) Plant account is nearly fully depreciated. Annual accrual is equal to the amount to be recovered.
(3) KIUC is planning to fully retire battery storage equipment account in 2019; therefore, assumed the same depreciation rate under RUS for comparison purposes.

Section 2
BACKGROUND ON DEPRECIATION

Introduction

This section of the report is intended to provide a brief synopsis of the meaning of depreciation and briefly describe the procedures and methodologies that are often used to determine annual depreciation accrual rates.

The National Association of Regulatory Utility Commissioners (NARUC) defines depreciation as follows:

> "'Depreciation,' as applied to depreciable utility plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, and changes in the demand and requirements of public authorities."

In order to account for the loss in service value, depreciation accounting has been established to recover the capital associated with the plant in service over the plant's useful life. Depreciation accounting is simply the process of charging the book cost of depreciable property to operations over the plant's useful life. This process charges a portion of the capital dollars of plant to depreciation expense on the income statement and the accumulation of the annual expenses into the accumulated provision for depreciation on the balance sheet. This accumulated provision for depreciation is an offset to plant in service in order to yield net plant. Therefore, over the useful life of any property, the original cost of the plant has been, in effect, amortized through the income statement, and accumulated on the balance sheet until such time as the accumulated provision for depreciation is equal to the original cost of the plant.

Life Analysis

The Forecast or Life Span method of estimating service lives is employed for those classes of property that are comprised of major single-location plant, such as an electric generation unit, which is expected to be retired as a single entity at a point in time. The Forecast method requires the estimation of the final retirement date of a unit of property. When using the Forecast method to estimate the average service life of single location plant, it is appropriate to adjust the estimated life span to reflect an appropriate level of interim retirements. Interim retirement activity represents that portion of retirement dollar activity that is anticipated to occur over the life of a plant account that employs the Forecast method of depreciation. An example of this would be a generating plant that has an expected life span of 35 years. During this period, but prior to the ultimate retirement of the entire plant, there will be the need to replace plant items such as turbine blades, tubing, or other units of property. In order to reflect the shorter life of these interim replacements, it is necessary to either adjust the plant dollars or to adjust the life span in order to recover 100 percent of the plant in service by the end of the overall plant life.

The Survivor Curve method is used to estimate the average service life and remaining life for mass property accounts (e.g., transmission, distribution, and general plant), which consist of a large number of property units that, even though similar, retire independent of each other at different ages. Survivor curves are used to show the statistical dispersion or frequency of retirements throughout the life of the

property. A survivor curve can be depicted by a graph showing the number or percentage of units surviving at the beginning of each age interval.

The most well-known and generally accepted survivor curves are the Iowa Survivor Curves developed at Iowa State University. As shown in Figure 2-1, the survivor curve begins with the installation of plant in service at age zero (100 percent surviving) and ends with the ultimate retirement of the units (0 percent surviving).

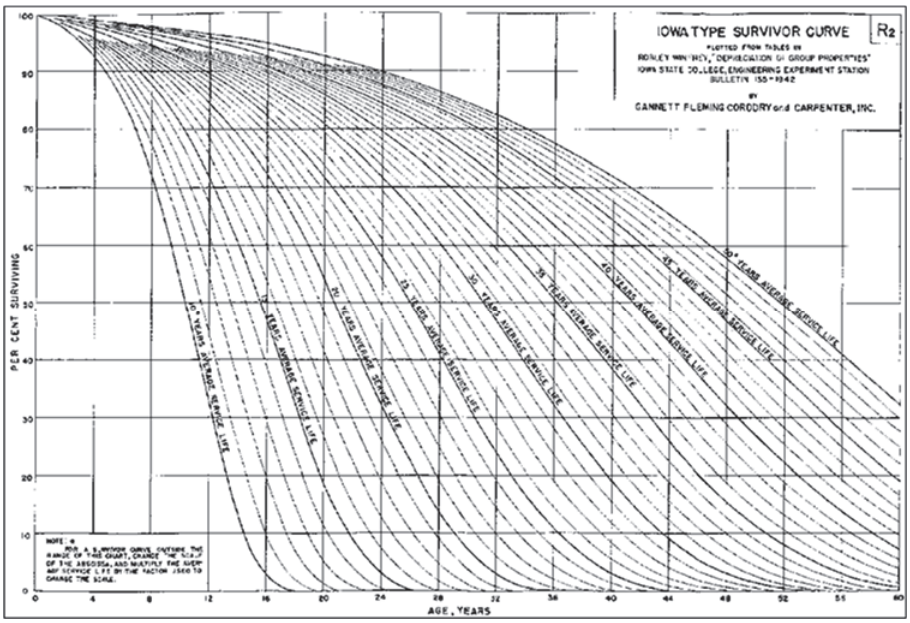


Figure 2-1: R2 Iowa Survivor Curve

In order to reflect the mortality characteristics of mass property accounts, it is not only necessary to establish an estimated average service life, but also the dispersion or survivor curve, which indicates the estimated pattern of retirements. Some units may retire as soon as they are placed in service, while others may have lives stretching many years in excess of the average life of all the units of property placed into service for that account. The pattern of retirements is an integral part of establishing the estimated remaining life associated with a particular plant account because the remaining life will either be extended or shortened in order to conform to the level of retirement activity that transpired earlier than, the same as, or later than the estimated average service life.

The development of the particular survivor curve and associated estimated average service life for each mass property plant account represents one of the more subjective areas of a depreciation analysis. There are various methods for determining the estimated average service life and dispersion characteristics, depending on the data available. In general, the most accurate and reliable method of life analysis of mass property units is the Actuarial method. However, this method can be performed only when sufficient detailed historic retirement experience has been accumulated. In particular, it is necessary to know the specific age or vintage of the property at the time of its retirement and the age of the surviving plant. (KIUC does not have vintage plant data.[1])

[1] At one time, Citizens/Kaua'i Electric (KIUC's predecessor) maintained vintage plant data. However, since Hurricane Iniki and with the change in utility ownership and subsequent changes in accounting systems, vintage plant data no longer exists.

When detailed vintage records are not available, the Simulated Plant Record (SPR) method can be used to estimate survivor curves and average service lives. As the name indicates, the SPR method relies on annual plant additions, retirements, and balances in order to identify a survivor curve and average service life that best describes or simulates historical experience.

There are, in general, two types of SPR methods: the Balances method and the Retirements method. In the Balances method, the SPR model determines the survivor curve and average service life that represent the property's retirement characteristics by retiring the vintage additions over time based on the retirement characteristics of successive curve types and calculating the simulated survivors. The survivor curve and average service life that produce the minimum sum of squared differences when compared to the actual balances are considered the "best fit" curve and average service life selection. In the Retirements method, the definition of "best fit" is that which best estimates the total quantity of retirements over some period of time. Both methods require that sufficient retirement experience be available in order to select a survivor curve and average service life which best describe the mortality characteristics of a plant account. The Balances method was used in this depreciation study.

Alex E. Bauhan developed a scale for interpreting the results of the SPR Balances method in 1947, which is shown in Table 2-1 below.[2]

Table 2-1
Scale for Evaluating Results of SPR Balances Model

	Conformance Index (CI)	Index of Variation (IV = 1000/CI)	Retirement Experience Index
Excellent	>75	0-13	>75
Good	50-75	13-20	50-75
Fair	25-50	20-40	33-50
Poor	0-25	>40	17-33
Valueless			0-17

The Conformance Index (CI) shown in Table 2-1 relates the sum of squared differences (SSD) between the simulated and actual balances to the size of the account:

$$CI = \frac{\text{Average Actual Balance}}{\sqrt{(\text{AverageSSD})}}$$

The index of variation (IV) shown in Table 2-1 above is equal to the reciprocal of the CI, multiplied by 1000. The index of variation is just another scale that can be used to evaluate the results of the SPR analysis. The highest ranking curves are those with the lowest index of variations.

The retirement experience index (REI) is the percent of additions from the oldest vintage (or oldest significant vintage) that would have retired by the end of the most recent test year if the additions had retired per the specified survivor curve. A retirement experience index of 100 percent indicates that a

[2] Alex E. Bauhan, "Life Analysis of Utility Plant for Depreciation Accounting Purposes by the Simulated Plant Record Method," 1947. See also Public Utility Depreciation Practices, NARUC, August 1996, page 96.

complete curve was used in the simulation. The higher the Retirement Experience Index, the greater is the assurance that a unique curve pattern was used in the simulation.

Net Salvage Analysis

The recovery of the original cost investment is adjusted for the estimated net salvage value of the plant. "Net salvage" is equal to the gross salvage for the property less its cost of removal.

"'Gross salvage' is defined as the amount recorded for property retired due to the sale, reimbursement, or reuse of the property. 'Cost of removal' refers to the costs incurred in connection with the retirement from service and the disposition of depreciable plant."

Due to the manner in which net salvage is calculated (gross salvage minus cost of removal), the resulting net salvage value can be either positive or negative. If gross salvage exceeds cost of removal, the net salvage is positive. On the other hand, if the cost of removal is greater than the gross salvage received in the process of retirement of an item of property, then the resulting net salvage value is negative.

Net salvage directly reduces (in the case of positive net salvage) or increases (in the case of negative net salvage) the dollars of plant to be depreciated over the service life of the plant. For example, if net salvage is a positive 10 percent, then the annual depreciation accrual rate over the plant's service life would need to recover 90 percent (i.e., 100 percent minus 10 percent) of the original cost of the plant. If net salvage is equal to negative 10 percent, then the annual depreciation accrual rate over the plant's service life would need to recover 110 percent (i.e., 100 percent plus 10 percent) of the original cost of the plant.

Generation Plant Dismantlement Costs

The recommended depreciation rates for production plant do not include any costs for generation plant dismantlement. We are not aware of any dismantlement cost estimates that have been prepared for KIUC's generating units, or the scope of any future dismantlement work. We recommend that KIUC develop estimates of future dismantlement costs for its generating units, which may be included in future depreciation studies. (Recommended net salvage rates in this study for production plant Accounts 312, 341, 343, and 346 reflect net salvage for interim retirements.)

Annual Depreciation Accrual

The annual depreciation accrual rates proposed in this study were developed based on the straight line, remaining life method. This method provides for the recovery of the undepreciated original cost of property (i.e., net plant), adjusted for net salvage, over the remaining life of the property. The formula for computing the remaining life depreciation rate is:

$$D = \frac{1 - NS - R}{RL}$$

where:
- D = annual depreciation accrual
- NS = estimated net salvage ratio
- R = depreciation reserve ratio
- RL = average remaining life

The annual depreciation accrual rate is calculated as a percentage of gross plant and is applied to the gross plant investment on the utility's books.

Following are two examples of depreciation accrual calculations. The first is based on the Forecast Remaining Life method, which was used for the production plant accounts, and the second shows the Survivor Curve Remaining Life method, which was used for the transmission, distribution, and general plant accounts.

Example No. 1

Forecast Method

Given:

Cost	$1,000
Retirement Date	10 years
Interim Retirement Rate	.005/year
Net Salvage	-10%
Depreciation Reserve	$475

Remaining Life Calculation:

Remaining Life (years)	Interim Retirement Rate	Adjusted Remaining Life (years)
(a)	(b)	(c)
10	.005	9.75

Columns (a), (b) : Estimated depreciation factors.
Column (c) : Column (a) x [1-[Column (a) x (Column (b))/2]].

Depreciation Accrual Rate Calculation:

Cost ($)	Net Salvage ($)	Depreciation Reserve ($)	Depreciable Balance ($)	Remaining Life (years)	Annual Accrual ($)	Annual Accrual (%)
(a)	(b)	(c)	(d)	(e)	(f)	(g)
1,000	-100	475	625	9.75	64.10	6.41

Columns (a), (c): Utility's books and records.
Column (b) : Estimated net salvage value.
Column (d) : Column (a) – [Column (b) + Column (c)].
Column (e) : Column (c) of remaining life calculation.
Column (f) : Column (d)/Column (e).
Column (g) : Column (f)/Column (a).

Example No. 2

Survivor Curve Method

Given: Cost (Mid-year Addition)

1995	$800
1998	$1,200
2000	$600
2003	$700
2004	$600

Estimated Average Service Life	30
Estimated Iowa Curve	R2
Net Salvage	5%
Depreciation Reserve.....	$500

Remaining Life Calculation:

Line No.	Year Installed	Age @ 12/31/04 (years)	Plant Investment ($)	Probable Life (years)	Remaining Life (years)	Weighted Dollar Years
	(a)	(b)	(c)	(d)	(e)	(f)
1	1995	9.5	$800	31.3	21.8	$17,440
2	1999	6.5	1,200	30.6	25.1	30,120
3	2000	4.5	600	30.5	26.0	15,600
4	2003	1.5	700	30.2	28.7	20,090
5	2004	.5	600	30.1	29.6	17,760
6	Total		$3,900			$101,010
7		Weighted Remaining Life				25.9 Years

Column (c) : Obtained from utility's books and records.
Column (d) : Probable life from R2-30 Iowa survivor curve at age given.
Column (e) : Column (d) – Column (b).
Column (f) : Column (c) x Column (e).
Line 7 : Line 6 [Column (f)/Column (c)].

Depreciation Accrual Rate Calculation:

Cost ($)	Net Salvage ($)	Depreciation Reserve ($)	Depreciable Balance ($)	Remaining Life (years)	Annual Accrual ($)	Annual Accrual (%)
(a)	(b)	(c)	(d)	(e)	(f)	(g)
3,900	195	500	3,205	25.9	123.75	3.17

Columns (a), (c): Utility's books and records.
Column (b) : Net salvage rate (5%) x Column (a).
Column (d) : Column (a) – Column (b) – Column (c).
Column (e) : Line 7 of remaining life calculation.
Column (f) : Column (d)/Column (e).
Column (g) : Column (f)/Column (a).

Section 3
DESCRIPTION OF THE SYSTEM

KIUC provides electric utility service to approximately 37,000 residential and commercial customers on the Island of Kaua'i. Total energy sales in 2017 were equal to 445,098 megawatt-hours (MWh) and annual revenues in 2017 were approximately $148 million.

KIUC is regulated by the Hawai'i PUC, which has authority over the rates that KIUC can charge customers – including the depreciation rates that are the subject of this depreciation study. In addition, since KIUC is a RUS borrower, the recommended depreciation rates are subject to approval by RUS.

A map of the KIUC system is shown in Figure 3-1.

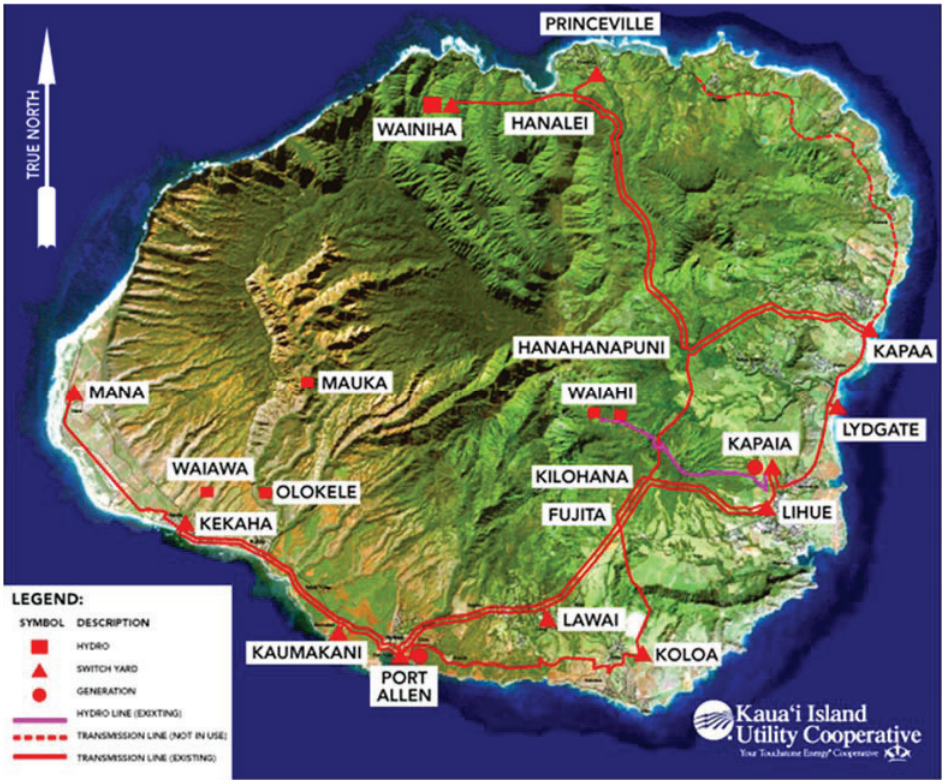


Figure 3-1: KIUC System Map

Generation Plant

Table 3-1 is a listing of KIUC's generating units, which are located at three sites on the island: Kapaia Power Station, Port Allen Power Station, and Waiahi Power Station. (KIUC's renewable energy resources are obtained through purchase power contracts with private developers.)

The **Kapaia Power Station** was originally built and operated by a private developer in 2002 but was subsequently purchased by KIUC in December 2003. The generating unit at Kapaia is a LM2500 steam-injected gas turbine unit (27,500 kilowatt (kW) nameplate rating). The Kapaia unit is the

cleanest and most efficient generating unit of KIUC's fossil fuel generating units and is run in cycling operation, except for scheduled maintenance. In order of energy production, the Kapaia Power Station generates most of KIUC's power, running an average of 7,900 hours per year. The Kapaia Power station is 16 years old (in 2018) and, according to KIUC staff, the combustion turbine is showing the need for more routine maintenance. There are no immediate concerns about the availability of parts or service affecting the generating life of the unit. The generating unit runs on naphtha, which is delivered by truck from Port Allen to Kapaia. There are six fuel tanks at the Kapaia Power Station (which are owned by KIUC): one 225,000 gallon and two 125,000 gallon naphtha fuel tanks with internal floating roofs and three smaller tanks for diesel fuel (alternate fuel).

The largest of the three power stations is the **Port Allen Power Station**, with a total generating capacity of 93,750 kW. The steam generating unit at Port Allen (10,000 nameplate rating) went into service in 1968. The steam boiler and generator had a major overhaul in 2016. There are two gas turbines at Port Allen (17,500 kW and 22,600 kW nameplate rating) that were installed in 1973 and 1977. A heat recovery steam generator unit operates in combination with the two gas turbines. There are also nine diesel generating units at Port Allen ranging in size from 2,000 kW to 7,850 kW nameplate rating. The oldest diesel generating units at Port Allen were installed in 1964; the newest units were installed in 1991. KIUC (or its predecessor, Kaua'i Electric) has not retired any of its units at Port Allen to date. The older units are maintained and kept in working order to meet capacity requirements. Fuel for the power station is delivered at Port Allen and stored in tanks located across the street from the power station. The storage tanks are not owned by KIUC. Nearly all of the power on the island was generated at the Port Allen Power Station until 2002 when the Kapaia Power Station went into service.

In order of generation, after the Kapaia Power Station, the D6 through D9 (Stork-Wartsila Diesel) generating units at Port Allen are run the most. Typically, KIUC has one of these units running 24 hours a day, and adds units as needed. Although moderately older in age (27 – 29 years), KIUC has maintained the units well and has found alternative parts suppliers to complement what the Original Equipment Manufacturer (OEM) can provide. (The OEM only made 30 of these generating units, of which KIUC has four units). As parts become scarce, KIUC may have to retire one or more of the Stork-Wartsila units in order to provide parts for the remaining units. That said, as new renewable energy projects are added to the KIUC system, the Stork-Wartsila units are dispatched less, theoretically extending their service life.

GT1 and GT2 at Port Allen are inefficient units and consequently are not dispatched very often. GT1 was overhauled in 2009. KIUC considered retiring the unit, but since support and parts are still available, it was less expensive to keep the generating unit than replace it with a new unit. GT2 was overhauled in 2011. The remaining units at Port Allen are the oldest and smallest of KIUC's non-hydroelectric generating units. D1 and D2 are each 54 years old and D3 through D5 are each 50 years old.

Table 3-1
Kaua'i Island Utility Cooperative
Generating Assets

Unit	Type	Manufacturer	Model	Size (kW)	2017 Gross Generation (MWh)	2017 Operating Hours	Major Overhaul		In Service Year	Estimated Retirement Year	Estimated Life Span (Years)
							Last	Next			
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(I)	(J)	(K)
Kapaia Power Station											
CT1	IC - Gas Turbine	General Electric (GE)	LM2500PH	27,500	186,071	7,941	2017	2022	2002	2042	40
			Subtotal:	27,500	186,071						
Port Allen Power Station											
D1	IC-Diesel	Electro-Motive Division (EMD)	567-D4, 16 cylinder	2,000	597	433	1993	n/a	1964	2028	64
D2	IC-Diesel	Electro-Motive Division (EMD)	567-D4, 16 cylinder	2,000	783	560	1993	2021	1964	2028	64
D3	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	1,477	769	2013	n/a	1968	2028	60
D4	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	649	450	1999	n/a	1968	2028	60
D5	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	1,432	761	2013	n/a	1968	2028	60
S1	Steam	General Electric (GE)	Straight-Condensing, Single Flow	10,000	1,846	609	2016	2026	1968	2028	60
GT1	IC-Gas Turbine	Hitachi/General Electric (GE)	MS5001R N/T	17,500	110	30	2009	2021	1973	2028	55
GT2	IC-Gas Turbine	John Brown / General Electric (GE)	MS5001P N/T	22,600	3,694	349	2011	2021	1977	2028	51
D6	IC-Diesel	Stork-Wartsila	TM620	7,850	34,477	6,433	2018	2023	1989	2028	39
D7	IC-Diesel	Stork-Wartsila	TM620	7,850	33,379	6,018	2016	2019	1989	2028	39
D8	IC-Diesel	Stork-Wartsila	TM620	7,850	16,041	3,046	2017	2023	1991	2028	37
D9	IC-Diesel	Stork-Wartsila	TM620	7,850	16,245	2,683	2015	2021	1991	2028	37
			Subtotal:	93,750	110,730						
Waiahi Power Station											
Lower	Hydro	Francis/Allis-Chalmers	Francis Turbine	800	3,427	8,182	n/a	n/a	1914	2051	50
Upper	Hydro	Canyon Hydro	Francis Turbine	745	3,298	8,182	n/a	n/a	1931/2017	2051	50
			Subtotal:	1,545	6,725						
			Grand Total:	122,795	303,526						

Corrosion is a major problem on the island of Kaua'i due to its proximity to the ocean and resulting exposure to the corrosive effects of a salt air environment. KIUC has a program underway to repaint all of the exterior surfaces of its generating units to help fight corrosion.

The **Waiahi Power Station** was acquired by KIUC's predecessor, Kaua'i Electric, in 2001. The Waiahi Power Station consists of two hydroelectric units that were originally built to serve the Lihue sugar plantation. The Lower Hydro unit (800 kW) was constructed in 1914 and the Upper Hydro unit (745 kW) was constructed in 1931. Since acquiring these hydro units, KIUC has made improvements to the hydro units and the ditch system that delivers water to the hydro units to increase the generation output. KIUC replaced the Lower Hydro runner in 2004 and upgraded the governor system and control system in 2007. KIUC upgraded the Upper Hydro governor system and control system in 2012, replaced the penstock in 2015, and replaced the turbine and generator in 2017 that included extensive foundation work. KIUC also plans to replace the Lower Hydro Penstock. Generation from the Waiahi Power Station averages about 1,500 kW per year.

Transmission and Distribution Plant

KIUC has five transmission switchyards (Port Allen, Kekaha, Koloa, Lihue, and Kapaa) and several other transmission and distribution substations, which are identified on the system map in Figure 3-1. Since 2013, the date of the last depreciation study, KIUC has upgraded a number of the existing substations. For example, replacement transformers were installed at the Princeville, Kapaa, and Koloa substations. The Lydgate substation was converted to a fully enclosed, indoor type substation to protect the substation facilities from ocean winds and corrosion, which is particularly troublesome on the east shore of the island.

KIUC has approximately 171 miles of 69/57.1 kilovolt (kV) transmission lines.[3] Approximately 60 percent of the transmission system is on steel structures; the remaining 40 percent is on wood pole structures. The transmission system is a looped system with at least two transmission lines feeding the major switchyards. The only exception is the transmission line serving the Princeville area, which is presently served by a radial feed. KIUC plans to complete construction of a second transmission line to the north side of the island, which was halted in 1989 for environmental reasons (potential harm to endangered or threatened birds).

Most of the existing transmission system was constructed during the early 1990's. According to KIUC, about 35 percent of the transmission and distribution system was destroyed during Hurricane Iniki in 1992. Some portions of the transmission system had been upgraded prior to Hurricane Iniki, but the remainder of the system, including the double circuit steel lines crossing the center of the island from Port Allen to Wainiha, was constructed or rebuilt during the 1993 – 1995 time period. The steel poles are designed to handle winds up to 125 miles per hour (mph).

In 2017, KIUC had approximately 1,328 miles of distribution lines, of which 316 miles (24 percent) are underground facilities. The older distribution system is base-rated at 5 Mega Volt Amps (MVA) and 7 MVA; KIUC has been converting the system to 10 MVA. Over half of the transmission and distribution plant is new since 1992 due to Hurricane Iniki, growth, and normal replacements.

Recent major transmission and distribution projects include lowering utility poles and moving some power lines underground along Kuhio Highway near Kealia Beach as part of KIUC's Habitat Conservation Plan to help remove obstacles encountered by native seabirds, relocating and undergrounding the transmission

[3] The transmission lines are insulated for 69-kV service but are operated at 57.1 kV.

line for the Kukui'ula development, and relocating and undergrounding transmission and distribution lines as part of the Kaumualii Highway road widening project in Lihue.

To address corrosion problems, KIUC is using stainless steel transformers and breakers, high-grade silicon polymer insulators for new installations and replacements, and has an ongoing program to replace a certain number of insulators each year. Steel poles and towers are either galvanized steel or painted steel.

Vegetation growth is another challenge for KIUC. KIUC utilizes an outside vendor who has four full time crews doing tree trimming work, which has helped to reduce outages. KIUC has a five-year test and treat program for its wood poles. It also has a full-time inspector who regularly inspects the poles to identify poles that need work or replacing.

General Plant

KIUC has two main distribution service centers, which are located at Eleele (near Port Allen) and Kapaa. Distribution line crews are based out of both service centers. Line trucks and yard inventories are stored at both service centers. The headquarters building in Lihue is leased under a 25-year lease that Citizens (Kaua'i Electric) entered into in 1994.

KIUC has a fiber network that connects major switchyards and substations. KIUC upgraded its Supervisory Control and Data Acquisition (SCADA) system in 2011 at a cost of $1.1 million; the SCADA system runs on the fiber network. KIUC also installed a radio system networked with fiber optics covering the entire island.

Other general plant facilities include office furniture and equipment; transportation equipment; stores equipment; tools, shop, and garage equipment; laboratory equipment; power-operated equipment; communications equipment; and other miscellaneous equipment.

Section 4
ANALYSIS

Plant Accounting Data

The first step in the depreciation study was to compile a depreciation data set consisting of the annual additions, retirements, transfers and adjustments, and balances by year for each depreciable plant account. The primary sources of data relied upon were:

- Depreciation plant database developed in the 2007 and 2012 Depreciation Studies, showing annual additions, retirements, and plant balances, by account, for the years 1933 through 2012.
- Plant in service and depreciation reserve schedules filed as part of KIUC's annual reports to the Hawai'i PUC for the years 2013 through 2017.

Depreciation study adjustments are typically made to the plant accounting data to make sure that additions and retirements are properly recorded in the correct activity year, with particular attention paid to any transfers and adjustments that were recorded on the books. A lot of work was done in the 2007 Depreciation Study to establish the depreciation plant database. For 2008 through 2017, there were no transfers or adjustments recorded in KIUC's plant accounts. Based on our review of the plant accounting data, only one depreciation study adjustment was made to reflect accounting in the appropriate vintage year. No other adjustments were necessary.

Field Review

NewGen staff performed a field review of the KIUC system for depreciation study purposes and interviewed KIUC staff about the plant facilities and factors affecting services lives and net salvage on September 25-27, 2018. NewGen's review of the plant facilities was limited to a visual and external observation for the purpose of the depreciation study, and the review was not of such depth as would be necessary to verify all real conditions with respect to safety or to conformance with codes, permits, rules, or regulations.

Life Analysis

The recommended average service lives were developed from 1) statistical life analyses, 2) information about the plant obtained from KIUC staff, 3) comparison data from other utilities, and 4) the consultant's knowledge and experience with similar facilities.

The SPR Balances method was used to estimate the survivor curves and average service lives for KIUC's transmission, distribution, and general plant accounts. A description of the SPR method is provided in Section 2, Background on Depreciation. An example of the SPR calculations and output is provided in Appendix A. Generally, we performed the SPR analyses over the entire history of the account, which in some cases dated back to the 1930's and then for increasing 15-year, 20-year, and 30-year bandwidths ending with the study year (2017). By varying the test periods analyzed, it is possible to detect trends or changes in life characteristics over the history of the plant account. The results of the SPR analyses are described in the individual account narratives. Copies of the SPR model output for each run performed are provided in the work papers accompanying this study report.

The Forecast (or Life Span) method was used to determine the average remaining life spans for KIUC's steam, hydro, and other production plant. The basis for these recommended life spans is discussed in the Account Narratives in Section 5. These life spans represent the overall life span of the generating units. However, as discussed in Section 2, when interim retirements are taken into consideration, the adjusted life span may be less than the overall life span of the generating unit. Appendix B shows the interim retirement rate (IRR) analysis for the steam, hydro, and other production plant accounts. The recommended IRR for each account was applied to the overall life span to determine the average service life for the plant account.

The average service lives used by other electric utilities in Hawai'i were also considered in assessing the reasonableness of the recommended average service lives. Depreciation statistics were obtained from the recent Hawai'i PUC decision approving new combined utility depreciation rates for Hawaiian Electric Company, Hawai'i Electric Light Company, and Maui Electric Company,[4] (hereinafter referred to as the "Hawaiian Electric companies"). The comparative data are shown in the account narratives for each plant account.

We also relied on industry statistics from an industry survey that was completed in 2012 by Tangibl LLC, a consulting firm that performs depreciation studies[5], (hereinafter referred to as the "2012 Industry Survey"). This survey provides data regarding the average service lives and net salvage rates by plant account for investor-owned electric utilities nationwide.

Net Salvage Analysis

Salvage and cost of removal data was available for KIUC for the past 20 years (1998 – 2017). KIUC does not recognize gross salvage on the retirement of plant. This is not unusual considering KIUC's location, since transportation costs typically would outweigh any salvage value for retired plant.

The percentage of net salvage to retirements was analyzed for each depreciable plant account on an annual, cumulative, and rolling band basis. A copy of the net salvage analyses is provided in Appendix C. We also reviewed the net salvage rates used by the Hawaiian Electric Companies and depreciation statistics reported in the 2012 Industry Survey. The basis for our recommended net salvage rates is summarized in the Account Narratives in Section 5.

Annual Depreciation Accrual Rates

The recommended annual depreciation accrual rates were calculated using the remaining life method of depreciation based on the recommended average service lives, survivor curves, and net salvage rates. These calculations are shown in Appendix D.

Theoretical Reserve

The theoretical reserve is an estimate of the accumulated depreciation reserve based on current depreciation parameters. Using the recommended survivor curves, average service lives and net salvage rates developed in the depreciation study and applying these factors to KIUC's estimated vintage surviving

[4] Hawaiian Electric Company, Inc., Hawai'i Electric Light Company, Inc., and Maui Electric Company, Limited. For Approval of Changes in Depreciation and Amortization Rates and CIAC Amortization Period - Hawaii Public Utilities Commission Docket 2016-0431, Decision and Order No. 35606 (July 30, 2018).

[5] Tangibl, LLC, Electric Company Depreciation Statistics, 2012.

plant balances, we determined the theoretical amount of accrued depreciation for each plant account. These calculations are shown with the annual depreciation accrual rates in Appendix D. (The theoretical reserve is shown in column H on the spreadsheets.)

For the plant accounts analyzed using the Forecast method (i.e., steam, hydro, and other production plant), the theoretical reserve was calculated using the prospective method. Under the prospective method, the future depreciation accruals, including net salvage, are estimated over the average remaining life for the plant account; the theoretical reserve is then equal to the plant balance as of the study date, less the future depreciation accruals. The calculation of the theoretical reserve for the steam, hydro and other production plant accounts is shown in Appendix B.[6]

Schedule 4, which is provided at the end of Section 1, is a comparison of the actual reserve and theoretical reserve as of December 31, 2017. KIUC's actual depreciation reserve is greater than the theoretical reserve by $23,617,188. The actual reserve ratio based on KIUC's depreciable plant investment and accumulated depreciation is equal to 53.26 percent. In comparison, the theoretical reserve ratio is 47.98 percent.

Under the remaining life method of depreciation, any depreciation reserve imbalances are automatically reflected in the depreciation accrual calculation. For example, if too much depreciation has been recognized in the past, the depreciable balance to be recovered through future depreciation rates (i.e., the numerator in the remaining life calculation) is less and therefore, the annual depreciation rate will be less, all other things being equal. Therefore, it is not necessary to make any accounting adjustments to the reserve for accumulated depreciation. Any reserve imbalances are corrected through future depreciation rates.

[6] The prospective method for calculating the theoretical reserve produced more accurate results than the retrospective method, which was used to calculate the theoretical reserve for production plant in the 2007 Depreciation Study. Under the retrospective method, the theoretical past accruals are estimated by applying the recommended depreciation rates to the annual historical plant balances. The theoretical reserve is then equal to the sum of the theoretical past accruals, total past retirements, and total past net salvage. The prospective method is more straightforward than the retrospective method and uses the recommended weighted average remaining lives and life spans, and net salvage rates developed for each production plant account.

Section 5
ACCOUNT NARRATIVES

The following account narratives explain the basis for the recommended average service life, survivor curve, and net salvage rate for each depreciable plant account.

Steam Production Plant

The Forecast (or Life Span) method was used to determine the remaining life for the steam production plant accounts. For depreciation study purposes, useful life spans were estimated to determine retirement years for the steam production units since there are no planned retirement years for Port Allen or Kapaia Power Station. The useful life spans for the production plant accounts are recommended to be extended by five years since the 2012 Depreciation Study. KIUC is balancing its power production resources with renewable energy (solar purchased power agreements). KIUC's units are operating at lower run hours, which is extending the useful life spans of these units.

A 2028 estimated retirement year was assumed for the Port Allen steam generating unit, which corresponds to an estimated remaining life span at December 31, 2017 equal to 10.5 years.[7]

The investment in the heat recovery system (HRS) at the Kapaia Power Station is also booked in the steam production plant accounts (Accounts 311, 312, and 316). A 2042 estimated retirement year was assumed for the Kapaia generating unit, which corresponds to a 24.5 year remaining life at December 31, 2017.

The weighted average life span and remaining life span were calculated for each steam production plant account based on the relative net plant investment at Kapaia and Port Allen. These life spans were then adjusted to reflect interim retirements as discussed in the account narratives below and shown in Appendix B.

Account 311 – Structures and Improvements

Investment at December 31, 2017: $5,627,209

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	49	Forecast	0%
2012 Recommended	52	Forecast	0%
Hawaiian Electric Companies	16	SQ	-15%
2012 Industry Survey	n/a	n/a	n/a
Recommended	58	Forecast	0%

The interim retirement rate (IRR) analysis indicated an average IRR of .0022. Applying this IRR rate to the 11.92-year remaining life span results in an adjusted remaining life equal to 11.76 years.

A zero percent net salvage rate is recommended based on historical net salvage experience.

[7] Based on a mid-year 2028 retirement date, the estimated remaining life span at December 31, 2017 is equal to 2028-2017-.5 years, or 10.5 years.

Account 312 – Boiler Plant Equipment

Investment at December 31, 2017: $16,189,980

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	27	Forecast	0%
2012 Recommended	32	Forecast	0%
Hawaiian Electric Companies	16	SQ	-15%
2012 Industry Survey	n/a	n/a	n/a
Recommended	50	Forecast	-5%

The IRR analysis indicated an average IRR of .0150 for Account 312. Applying this IRR rate to the 17.62-year remaining life span results in an adjusted remaining life of 15.29 years.

A -5% percent net salvage rate is recommended based on historical net salvage experience.

Account 313 – Engines and Engine Driven Generators

Investment at December 31, 2017: $5,556

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	n/a	n/a	n/a
2012 Recommended	n/a	n/a	n/a
Hawaiian Electric Companies	n/a	n/a	n/a
2012 Industry Survey	n/a	n/a	n/a
Recommended	n/a	n/a	n/a

There is minimal investment in this account and it is fully depreciated.

Account 314 – Turbogenerator Units

Investment at December 31, 2017: $2,802,766

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	50	Forecast	0%
2012 Recommended	52	Forecast	0%
Hawaiian Electric Companies	16	SQ	-15%
2012 Industry Survey	n/a	n/a	n/a
Recommended	57	Forecast	0%

The IRR analysis indicated a cumulative average IRR of .0019. Applying this IRR rate to the 12.56-year remaining life span, results in an adjusted remaining life of 12.41 years.

A zero percent net salvage rate is recommended based on historical net salvage experience.

Account 315 – Accessory Electric Equipment

Investment at December 31, 2017: $776,822

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	49	Forecast	0%
2012 Recommended	52	Forecast	0%
Hawaiian Electric Companies	16	SQ	-15%
2012 Industry Survey	n/a	n/a	n/a
Recommended	60	Forecast	0%

The IRR analysis indicated a cumulative average IRR of .0016 for Account 315. Applying this IRR rate to the 10.50-year remaining life span, results in an adjusted remaining life of 10.41 years.

A zero percent net salvage rate is recommended based on historical net salvage experience.

Account 316 – Misc. Power Plant Equipment

Investment at December 31, 2017: $668,853

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	36	Forecast	0%
2012 Recommended	35	Forecast	0%
Hawaiian Electric Companies	21	SQ	0%
2012 Industry Survey	n/a	n/a	n/a
Recommended	59	Forecast	0%

The IRR analysis indicated an average IRR of .0094 for Account 316. Applying this IRR to the 11.55-year remaining life span results in an adjusted remaining life equal to 10.92 years.

A zero percent net salvage rate is recommended based on historical net salvage experience.

Hydraulic Production Plant

The Forecast (or Life Span) method was used to determine the remaining life for the hydraulic production plant accounts. The Waiahi Hydro Power Station consists of two hydro units that were originally built to serve the Lihue sugar plantation. The Lower Hydro unit was constructed in 1914 and the Upper Hydro unit was constructed in 1931. The Upper Hydro unit has been completely upgraded since the last study, which included extensive foundation work, replacing a penstock, generator, and turbine. KIUC is also planning to remove and replace the penstock at the Lower Hydro power plant with a lined steel pipe, which is not reflected in the data of this study.

For depreciation study purposes, useful life spans were estimated to determine retirement years for these units since there are no planned retirement years for the Waiahi Hydro Power Station. The useful life spans of the production plant accounts are recommended to be extended for both the Lower and Upper Hydro units to 2051 given the recent upgrades, which corresponds to a remaining life span equal to

33.50 years. This remaining life span was then adjusted to reflect interim retirements as discussed in the account narratives below and shown in Appendix B.

Account 331 – Structures and Improvements

Investment at December 31, 2017: $1,006,789

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	Forecast	0%
2012 Recommended	35	Forecast	0%
Hawaiian Electric Companies	51	SQ	0%
2012 Industry Survey	n/a	n/a	n/a
Recommended	50	Forecast	0%

No adjustment was made to the remaining life span of 33.50 years to reflect interim retirements. There was only one retirement in 2014, which was a terminal retirement and not an interim retirement.

A zero percent net salvage rate is recommended for Account 331 based on historical net salvage experience.

Account 332 – Reservoirs, Dams, and Waterways

Investment at December 31, 2017: $2,030,551

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	Forecast	0%
2012 Recommended	35	Forecast	0%
Hawaiian Electric Companies	51	SQ	0%
2012 Industry Survey	n/a	n/a	n/a
Recommended	50	Forecast	0%

No adjustment was made to the remaining life span of 33.50 years to reflect interim retirements since there has been zero retirement experience to date.

In addition, a zero percent net salvage rate is recommended for Account 332.

Account 333 – Water Wheels, Turbines, and Generators

Investment at December 31, 2017: $1,956,745

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	Forecast	0%
2012 Recommended	26	Forecast	0%
Hawaiian Electric Companies	51	SQ	0%
2012 Industry Survey	n/a	n/a	n/a
Recommended	50	Forecast	0%

The IRR analysis indicated an average IRR of .0183 for Account 333. Applying this IRR to the 33.50-year remaining life span results in an adjusted remaining life equal to 23.23 years.

A zero percent net salvage rate is recommended for Account 333 based on historical net salvage experience.

Account 334 – Accessory Electrical Equipment

Investment at December 31, 2017: $718,901

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	29	n/a	n/a
2012 Recommended	n/a	n/a	n/a
Hawaiian Electric Companies	51	SQ	0%
2012 Industry Survey	n/a	n/a	n/a
Recommended	50	Forecast	0%

No adjustment was made to the remaining life span of 33.50 years to reflect interim retirements since there has been zero retirement experience to date.

In addition, a zero percent net salvage rate is recommended for Account 334.

Other Production Plant

The Forecast method was used to determine the remaining life span for the Other Production Plant accounts. The table below shows the generating units that are included in other production plant:

Unit(s)	Type	Manufacturer	Nameplate	In Service	Age in 2017
Port Allen Power Station					
D1 and D2	IC-Diesel	EMD	2,000 kW each	1964	53
D3, D4 and D5	IC-Diesel	EMD	2,750 kW each	1968	49
GT1	IC-Gas Turbine	Hitachi/GE	17,500 kW	1973	44
GT2	IC-Gas Turbine	John Brown/GE	22,600 kW	1977	40
D6 and D7	IC-Diesel	Stork-Wartsila	7,850 kW each	1989	28
D8 and D9	IC-Diesel	Stork-Wartsila	7,850 kW each	1991	26
Kapaia Power Station					
CT-1	IC-Gas Turbine	GE LM2500	27,500 kW	2002	15

For depreciation study purposes, useful life spans were estimated to determine retirement years for the other production units since there are no planned retirement years for Port Allen or Kapaia Power Station. KIUC is balancing its power production resources with renewable energy (solar purchased power agreements). KIUC's units are operating at lower run hours, which is extending the useful life spans of the Port Allen and Kapaia generating units. The useful life spans of the production plant accounts are recommended to be extended by five years since the 2012 Depreciation Study.

A 2028 estimated retirement year was assumed for all of the Port Allen generating units, which corresponds to an estimated remaining life span at December 31, 2017 equal to 10.5 years. The expected life span of the Kapaia generating unit is recommended to be extended to 40 years, which corresponds to a 2042 estimated retirement year and a 24.5 year remaining life at December 31, 2017.

KIUC does not breakout the investment in Accounts 341 through 346 by individual generating unit; however, because the Kapaia generating unit is relatively new, KIUC was able to separate the investment by account for the Kapaia generating unit from the other production plant investment. The weighted average life span and remaining life span were then calculated for each other production plant account based on the relative net plant investment at Port Allen and Kapaia. This analysis is shown in Appendix B. These life spans were then adjusted to reflect interim retirements as discussed in the account narratives below and shown in Appendix B.

Note: The increase in depreciation rates for Other Production Plant is due to a change in the methodology we used to calculate the average remaining lives. For the 2012 and 2017 Depreciation Studies, we used the Forecast (or Life Span) method to determine the estimated average life span and remaining life span for Accounts 341 – 346. In the 2007 Depreciation Study, we used a SQ survivor curve to calculate the estimated remaining lives for Account 341 – 346. Although the method used in the 2007 study is acceptable and correct, on further analysis, we believe the Forecast method is more accurate than applying a SQ survivor curve to plant account data that includes multiple generating units with varying life estimates. (The SQ curve is suitable for calculating the remaining life span for a single generating unit.) The Forecast method was used in the 2007, 2012, and 2017 depreciation studies to estimate the life spans for Steam and Hydro Production Plant. The weighted average remaining life span for each production plant account was estimated based on the relative net plant investment at Kapaia and Port Allen for each account. These calculations are shown in Exhibit B, Life Span and Interim Retirement Rate Analysis.

Account 341 – Structures & Improvements

Investment at December 31, 2017: $18,689,459

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	SQ	0%
2012 Recommended	41	Forecast	0%
Hawaiian Electric Companies	31	SQ	-5%
2012 Industry Survey	n/a	n/a	n/a
Recommended	47	Forecast	-3%

The IRR analysis indicated an average IRR of .0049 for Account 341. Applying this IRR rate to the 16.21 average remaining life span for Account 341 resulted in an adjusted remaining life span equal to 15.57 years.

A -3 percent net salvage rate is recommended Account 341 based on historical net salvage experience for the past five years, which is expected to continue in the future.

Account 342 – Fuel Holders, Products, and Accessories

Investment at December 31, 2017: $4,932,794

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	SQ	0%
2012 Recommended	40	Forecast	0%
Hawaiian Electric Companies	31	SQ	-5%
2012 Industry Survey	n/a	n/a	n/a
Recommended	45	Forecast	0%

The IRR analysis indicated an average IRR of .0009 for Account 342. Applying this IRR to the 17.74-year average remaining life span for Account 342 resulted in an adjusted remaining life span of 17.59 years.

A zero percent net salvage rate is recommended for Account 342 based on historical net salvage experience.

Account 343 – Prime Movers

Investment at December 31, 2017: $67,029,806

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	31	SQ	0%
2012 Recommended	35	Forecast	0%
Hawaiian Electric Companies	31	SQ	-5%
2012 Industry Survey	n/a	n/a	n/a
Recommended	48	Forecast	-3%

The IRR analysis indicated an average IRR of .0108 for Account 343. Applying this IRR to the 13.79-year average remaining life span for Account 343 resulted in an adjusted remaining life span of 12.76 years.

A -3 percent net salvage rate is recommended for Account 343 based on the historical net salvage experience. In 2011, KIUC recorded $30,000 of gross salvage from the sale of equipment; however, this is the only occurrence of gross salvage over the entire period analyzed (1998 – 2017). Cost of removal experience has generally been zero, with the exception of the last four years (2014 – 2017). A similar pattern of cost of removal experience was observed for other production plant Accounts 341 and 346 with cost of removal recorded in each of the past five years. KIUC staff informed us that KIUC is being more diligent about recording net salvage and the net salvage experience of recent years is expected to continue in the future. Taking all of this into consideration, we recommend a -3 percent net salvage rate for Account 343 based on recent historical net salvage experience. This net salvage rate is reasonable compared to the net salvage rate (-5 percent) used by the Hawaiian Electric companies.

Account 344 – Generators

Investment at December 31, 2017: $11,321,990

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	SQ	0%
2012 Recommended	39	Forecast	0%
Hawaiian Electric Companies	31	SQ	-5%
2012 Industry Survey	n/a	n/a	n/a
Recommended	45	Forecast	0%

The IRR indicated an average IRR of .0027 for Account 344. Applying this IRR to the 19.82-year average remaining life span for Account 344 resulted in an adjusted remaining life span of 19.29 years.

A zero percent net salvage rate is recommended Account 344 based on historical net salvage experience.

Account 345 – Accessory Electric Equipment

Investment at December 31, 2017: $9,587,188

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	SQ	0%
2012 Recommended	40	Forecast	0%
Hawaiian Electric Companies	31	SQ	-5%
2012 Industry Survey	n/a	n/a	n/a
Recommended	44	Forecast	0%

The IRR analysis indicated an average IRR of .0016 for Account 345. Applying this IRR to the 19.69-year average remaining life span for Account 345 resulted in an adjusted remaining life span of 19.38 years.

A zero percent net salvage rate is recommended for Account 345 based on historical net salvage experience.

Account 346 – Misc. Power Plant Equipment

Investment at December 31, 2017: $2,332,311

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	34	SQ	0%
2012 Recommended	35	Forecast	0%
Hawaiian Electric Companies	31	SQ	0%
2012 Industry Survey	n/a	n/a	n/a
Recommended	44	Forecast	-3%

The IRR analysis indicated an average IRR of .0362 for Account 346. Applying this IRR to the 19.34-year average remaining life span for Account 346 resulted in an adjusted remaining life span equal to 12.56 years.

A -3 percent net salvage rate is recommended for Account 346 based on the historical net salvage experience for the past five years, which is expected to continue in the future.

Transmission Plant

Account 352 – Structures & Improvements

Investment at December 31, 2017: $263,001

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	40	R5	0%
2012 Recommended	51	R0.5	0%
Hawaiian Electric Companies	79	R4	-5%
2012 Industry Survey	57	n/a	-9%
Recommended	57	R4	0%

Account 352 includes foundations and control houses. The SPR analysis relies upon account activity and retirements in order to provide meaningful results. Retirements have been minimal; there are only two years with retirements (1992 and 2008). The data for Hawaiian Electric companies and the 2012 Industry Survey support a high mode survivor curve and longer average service life than existing 40-year average service life. Recommend R4-57 survivor curve.

A zero percent net salvage rate is recommended for this Account 352 based on the historical net salvage experience.

Account 353 – Transmission Station Equipment

Investment at December 31, 2017: $26,923,468

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	30	S2	-4%
2012 Recommended	38	R0.5	-5%
Hawaiian Electric Companies	55	R3	-30%
2012 Industry Survey	49	n/a	-8%
Recommended	40	R0.5	-10%

Account 353, Transmission Station Equipment, includes items such as bus compartments, control equipment, conversion equipment (transformers), fences, fixed and synchronous condensers, general station equipment, platforms, primary and secondary voltage connections, switching equipment, SCADA, and tools.

KIUC's station equipment is affected by corrosion. The transformers observed during our field review appeared to be in good condition, which is due to maintenance and a paint coating system that KIUC implemented to mitigate corrosion issues. A process was designed for vendors to follow that ensures all new parts are painted under the specific process with the same type of paint and that the paint adheres well to the edges of the equipment. Some of the more recent equipment acquired have curved edges (corners) that prevent the exposure of sharp corners and reduces the likelihood of corrosion issues. However, maintenance of the assets can be also done by sanding down and repainting when corrosion

becomes an issue. In addition, the porcelain insulators don't hold up well with corrosion and salt. Many of these have been replaced with polymer insulators that withstand the natural elements better.

Account 353 also includes investment in the SCADA system, which was last updated in 2011 and is now out of date. The vendor does not support the software as of a year ago. The SCADA system runs on Windows XP and cannot be changed without a major upgrade. KIUC staff indicated that a workaround solution is possible until the system is replaced.

Based on the SPR analysis, the lower mode curves provided a better fit than the existing S2 curve. The R0.5-40 curve produced a good fit for the 15- and 20-year experience bands. We recommend the R0.5-40 based on the SPR results. A 40-year average service life is reasonable compared to depreciation statistics reported in the 2012 Industry Survey. KIUC's Substation Operations Supervisor said that a 40-year average service life was appropriate for KIUC plant.

A -10 percent net salvage rate is recommended for this account based on historical experience. There has been more net salvage activity recorded in recent years. This net salvage rate is well below (i.e., less negative) than the negative net salvage rates for Hawaiian Electric companies, but it is very similar to the average net salvage levels in the 2012 Industry Survey.

Account 354 – Towers and Fixtures

Investment at December 31, 2017: $58,189

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	50	R2	-15%
2012 Recommended	50	R2	-15%
Hawaiian Electric Companies	60	R4	-30%
2012 Industry Survey	60	n/a	-19%
Recommended	50	R2	-15%

There have been zero retirements in Account 354 to date. No change is recommended to the existing R2-50 survivor curve.

A -15 percent net salvage rate is recommended at this time. Since there have been zero retirements to date, there is no historical data to rely upon to estimate net salvage. There will likely be negative net salvage (i.e., cost of removal exceeding gross salvage) when the transmission towers are retired. The existing -15 percent net salvage rate is conservative compared to the negative net salvage rates for other electric utilities in Hawai'i. No change is recommended to the existing net salvage rate.

Account 355 – Poles and Fixtures

Investment at December 31, 2017: $30,496,894

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	41	S2.5	-20%
2012 Recommended	56	R2	-20%
Hawaiian Electric Companies	58	R1.5	-60%
2012 Industry Survey	51	n/a	-25%
Recommended	56	R2	-20%

Account 355 includes items such as crossarms/braces, extension arms, wood poles, steel poles, racks, reinforcing, and stubbing.

KIUC's steel transmission poles were constructed in the early 1990's. Some portions of the transmission system had been upgraded prior to Hurricane Iniki, but the remainder of the system (including the double circuit steel lines crossing the center of the island from Port Allen to Wainiha) was constructed or rebuilt during the 1993 – 1995 time period following Hurricane Iniki. The steel poles are designed to handle winds up to 125 mph. Transmission towers and fixtures consist of 20 percent on steel structures and 80 percent on wood structures.

KIUC has implemented maintenance and preventative programs for these assets. The steel structures are painted at the foundation portion only to keep from corroding. The wood pole inspection program is done every year or two. This is a test and treat program that sends a full-time inspector out to inspect and identify poles that need work or replacing. KIUC is experiencing termite issues on the wood poles, which are typically treated at the base of the pole. However, the termites are now damaging the pole from the top down. The vegetation growth is a challenge and KIUC has a contract with a vendor for four full-time crews to provide tree trimming service and prevent outages. Additionally, there are helicopter inspections performed on the cross-island transmission system twice a year. In situations where roads have been washed out in recent storms, the inspections are done by helicopter.

The SPR analysis produced excellent to good curve fits; however, many of the survivor curves have very long average service lives compared to industry data. The R2-56 curve provides an excellent to good fit across all bands and is reasonable compared to survivor curves used by the Hawaiian Electric companies and shown in the 2012 Industry Survey. A R2-56 survivor curve is recommended for this account.

No change is recommended to the existing -20 percent net salvage rate for Account 355 based on historical net salvage experience.

Account 356 – Overhead Conductors and Devices

Investment at December 31, 2017: $20,750,050

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	R2	-15%
2012 Recommended	42	R2	-20%
Hawaiian Electric Companies	45	R2	-55%
2012 Industry Survey	54	n/a	-17%
Recommended	44	R2	-20%

Account 356 includes items such as circuit breakers, conductors, ground wires and ground clamps, insulators, lightning arrestors, switches, and other line devices.

The SPR analysis generally provides excellent to good curve fits across all bands. Many low modal curves have very long average service lives compared to industry data. The existing R2 curve provides an excellent fit in the 15 and 20 year experience bands and is high ranked in all bands. Recommended R2-44 survivor curve is also reasonable compared with survivor curve and average service life used by Hawaiian Electric companies for this plant account.

Recommend increasing the net salvage rate from -15 percent to -20 percent based on historical experience. The recommended -20 percent net salvage rate is much lower than the comparison Hawaiian utilities, although Kaua‘i has less urban density than the other islands, which could account for less negative net salvage experience. The recommended -20 percent net salvage rate is similar to the 2012 Industry Survey.

Account 357 – Underground Conduit

Investment at December 31, 2017: $8,865

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	R3	0%
2012 Recommended	60	R3	0%
Hawaiian Electric Companies	60	R3	0%
2012 Industry Survey	55	n/a	-2%
Recommended	60	R3	0%

This account includes items such as conduit and manholes.

Account 357 is a relatively new plant account established in 2005. There have been zero retirements; therefore, the SPR results are meaningless. The existing curve was recommended in 2007 study based on a comparison with other Hawaiian electric utilities. Current comparison data for the Hawaiian Electric companies indicates a R3-60 survivor curve and the 2012 Industry Survey indicates a 55-year average service life. We recommend using a R3-60 survivor curve for Account 357 based on a comparison with the Hawaiian Electric companies.

A zero percent net salvage rate is recommended for Account 357 based on the net salvage experience of the Hawaiian Electric companies.

Account 358 – Underground Conductors and Devices

Investment at December 31, 2017: $492,187

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	35	R3	0%
2012 Recommended	50	R3	-10%
Hawaiian Electric Companies	65	R2	-20%
2012 Industry Survey	46	n/a	-5%
Recommended	50	R3	-10%

This account includes items such as conductors and other line devices.

Account 358 is a newer plant account established in 2005. There were retirements in 2008 and 2011. Limited experience in this account results in SPR results that are fair to poor. The existing survivor curve was recommended based on a comparison to other Hawaiian electric utilities. The 2012 Study recommended increasing the average service life from 35 to 50 years based on comparison with Hawaiian Electric companies. The Hawaiian Electric companies currently use an R2-65 survivor curve; however, if applied to KIUC, this would represent a significant change in the average service life from the existing average service life for KIUC. We recommend retaining the existing R3 survivor curve and increasing the average service life from 35 to 50 years.

Although there were only two years with retirements in this account, there was negative net salvage recorded in each year. A -10 percent net salvage rate is recommended for Account 358.

Distribution Plant

Account 361 – Structures and Improvements

Investment at December 31, 2017: $3,650,626

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	40	R5	0%
2012 Recommended	50	R3	-5%
Hawaiian Electric Companies	55	R3	-10%
2012 Industry Survey	53	n/a	-13%
Recommended	55	R2	-5%

An R2-55 survivor curve is recommended for Account 361 based on the results of the SPR analysis and a comparison of depreciation data for the Hawaiian Electric companies and the 2012 Industry Survey.

A -5 percent net salvage rate is recommended for this account based on historical experience.

Account 362 – Station Equipment

Investment at December 31, 2017: $20,273,750

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	30	R0.5	-10%
2012 Recommended	33	R0.5	-20%
Hawaiian Electric Companies	55	R2	-30%
2012 Industry Survey	46	n/a	-11%
Recommended	30	R0.5	-15%

Account 362, Distribution Station Equipment, includes items such as bus compartments, conduit, control equipment, conversion equipment, fences, fixed and synchronous condensers, general station equipment, primary and secondary voltage connections, switchboards, and switching equipment.

Similar to Account 353, KIUC's station equipment is affected by corrosion. The transformers appear to be in good condition, which has been in part due to maintenance and a paint coating system that was implemented to mitigate corrosion issues. A process has been designed for vendors to follow that ensures all new parts are painted under the specific process with the same type of paint and that the paint adheres well to the edges of the equipment. Some of the more recent equipment acquired have curved edges (corners) that prevent the exposure of sharp corners and reduces the likelihood of corrosion issues. However, maintenance of the assets can be also done by sanding down and repainting when corrosion becomes an issue. In addition, the porcelain insulators do not hold up well with corrosion and salt. Many of these have been replaced with polymer insulators that withstand the natural elements better.

The existing R0.5-30 survivor curve produced a reasonable fit compared to other highly ranked survivor curves based on the SPR results. No change to the existing R0.5-30 is recommended for Account 362.

Recent net salvage experience supports a higher negative net salvage rate than the existing -10 percent. Note: In 2008, KIUC received an insurance reimbursement equal to $200,000, which is excluded from the net salvage analysis because it is not salvage. Recommend increasing the negative net salvage rate from -10 percent to -15 based on historical experience.

Account 363 – Storage Battery Equipment

Investment at December 31, 2017: $7,627,943

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	10	n/a	0%
2012 Recommended	20	SQ	0%
Hawaiian Electric Companies	10	R2	0%
2012 Industry Survey	19	n/a	3%
Recommended	10	n/a	0%

The battery storage equipment account includes items such as batteries and inverters.

Account 363 was established in 2011 to record investment in battery storage equipment coupled with new solar generation projects. KIUC is planning to retire the assets in this account next year and there are no known plans to acquire new battery storage equipment. Since the reserve for accumulated depreciation is less than the gross plant investment, it is assumed that KIUC will take a loss on early retirement for this equipment. For purposes of the depreciation study, we recommend no change to the existing depreciation parameters for this account. KIUC is using a depreciation rate equal to 10 percent (1/10 years).

Account 364 – Poles, Towers, and Fixtures

Investment at December 31, 2017: $36,919,344

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	37	S1.5	-10%
2012 Recommended	55	R1	-25%
Hawaiian Electric Companies	45	R2	-60%
2012 Industry Survey	46	n/a	-51%
Recommended	44	R2	-25%

Account 364 includes items such as brackets, crossarms/braces, extension arms, wood poles, transformer racks, and platforms.

KIUC has implemented maintenance and preventative programs for these assets. The wood pole inspection program is done every year or two. This is a test and treat program that sends a full-time inspector out to inspect and identify poles that need work or replacing. KIUC is experiencing termite issues on the wood poles, which are typically treated at the base of the pole; however, the termites are now damaging the pole from the top down. Vegetation growth is a challenge and KIUC has a contract with a vendor for four full-time crews to provide tree trimming service to prevent outages. KIUC indicated,

during the interviews, that the older poles have lasted longer than the newer poles since the treatment is no longer the same.

The recommended R2-44 survivor curve had the highest retirement experience index of the top-ranked curves and an excellent index of variation in the SPR analyses and is consistent with the 2012 Industry Survey and the Hawaiian Electric companies.

Net salvage experience in recent years has ranged from -20 percent to -30 percent. We recommend changing the net salvage rate for Account 364 from -10 percent to -25 percent based on the shrinking band analysis over recent years. The recommended -25 percent net salvage rate is conservative compared to the Hawaiian Electric companies, although Kaua'i has less urban density than the other islands, which may result in lower negative net salvage (i.e., cost of removal) when retiring poles.

Account 365 – Overhead Conductors and Devices

Investment at December 31, 2017: $39,514,451

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	36	R2	-20%
2012 Recommended	36	R2	-20%
Hawaiian Electric Companies	53	R2	-55%
2012 Industry Survey	47	n/a	-36%
Recommended	44	R1	-20%

Account 365 includes items such as circuit breakers, conductors, ground wires and ground clamps, insulators, lightning arrestors, splices, switches, and other line devices.

KIUC staff said during interviews, that conductors are not replaced very often unless there is an overload or an undersized related issue. Based on the results of the SPR analysis, we recommend an R1-44 survivor curve, which had good to excellent SPR results and is reasonable compared to the Hawaiian Electric companies and industry statistics.

In addition, we recommend no change to the existing -20 percent net salvage rate based on an analysis of the historic net salvage experience.

Account 366 – Underground Conduit

Investment at December 31, 2017: $8,935,883

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	50	R0.5	-30%
2012 Recommended	63	R1	-20%
Hawaiian Electric Companies	60	S5	-30%
2012 Industry Survey	55	n/a	-12%
Recommended	58	R1.5	-20%

Account 366 includes items such as conduit, manholes, and ventilating equipment.

KIUC has about 316 miles of underground distribution conduit (24 percent of total distribution lines). Most of KIUC's experience has been with the distribution underground conduit and indicated that the newer conduit is doing well, but the older conduit is fading quickly.

The R1.5 survivor curve provided a highly ranked curve fit across all experience bands in the SPR analysis. The average service life for this curve is 58 years, which is in the same range as the Hawaiian Electric companies and the industry statistics. Based on the results of the SPR analysis, we recommend a R1.5-58 survivor curve for this account.

Based on the historical net salvage experience, we recommend reducing the negative net salvage rate from -30 percent to -20 percent for Account 366.

Account 367 – Underground Conductors and Devices

Investment at December 31, 2017: $26,318,489

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	34	R2.5	-10%
2012 Recommended	41	R1.5	-20%
Hawaiian Electric Companies	55	R3	-70%
2012 Industry Survey	43	n/a	-20%
Recommended	43	R1.5	-25%

Account 367 includes items such as conductors, switchgears, lightning arrestors, switches, and other line devices.

The SPR analysis produced good curve fits in all experience bands. Based on the results of the SPR analysis, the R1.5-43 produced the best results for Account 367 and is reasonable compared to Hawaiian Electric Companies and industry statistics.

Net salvage for this account has ranged from -20 percent to -30 percent. We recommend increasing the net salvage rate for Account 367 from -10 percent to -25 percent based on historical experience.

Account 368 – Line Transformers

Investment at December 31, 2017: $26,179,832

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	30	R0.5	-18%
2012 Recommended	29	L1.5	-18%
Hawaiian Electric Companies	30	L1	-30%
2012 Industry Survey	39	n/a	-9%
Recommended	32	L1	-18%

Account 368 includes items such as transformer cut-out boxes, transformer lightning arrestors, line transformers, and capacitors.

KIUC performs testing, maintenance, and preventative practices to ensure the transformers operate optimally. KIUC tests any new transformer before placing it in service. This test is also applied to any transformer pulled from the field to determine if its condition is usable again. If the transformer fails, a vendor comes in twice a year to test the oil, remove the oil and carcass, and dispose the transformer. KIUC staff indicated, during the site interview, that they do have some corrosion issues with the padmount and pole-top transformers; however, it is mostly the enclosure that is corroded and internally the equipment experiences no corrosion issues. There were 32 transformers damaged in the recent April 2018 storms. The lightning arrestors have helped to prevent damage during lightning storms and have been in use for the last 15 years.

The recommended L1-32 survivor curve was one of the highest ranked survivor curves in the SPR analysis and is similar to the survivor curve used by the Hawaiian Electric companies.

Based on an analysis of the historical net salvage data, we recommend no change to the existing -18 percent net salvage rate.

Account 369 – Services

Investment at December 31, 2017: $6,828,967

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	41	R3	-38%
2012 Recommended	53	R2	-25%
Hawaiian Electric Companies	65 OH, 65 UG	R3 OH, S2 UN	-60% OH, -70% UG
2012 Industry Survey	42	n/a	-35%
Recommended	50	R2	-25%

Account 369 includes items such as cables and wires.

KIUC indicated that there have been some service size changes due to upgrading some of the houses on the island.

The SPR analysis produced good to fair curve fits for the 15- and 20-year experience bands. The R2-60 had the best results. The total retirements equal 8 percent of the total additions over the 85-year life of the account, which supports a longer average service life. Analysis of historical data supports the R2-60

and is reasonable compared to Hawaiian Electric Companies. However, KIUC staff said in interviews that a 40-year average service life is more reasonable for KIUC services. The 2012 Industry Survey indicates an average service life equal to 42 years. Based on the average service life for KIUC conductor, a 60-year average service life for services seems long. The recommended average service life for KIUC overhead and underground distribution conductor is 44 and 43 years, respectively. By comparison, the Hawaiian Electric companies use an average service life of 53 and 55 years, respectively, for overhead and underground conductor. Considering all of this information, we recommend an R2-50 survivor curve for Account 369.

Based on an analysis of the historical net salvage data, we recommend changing the net salvage rate for Account 369 from -38 percent to -25 percent.

Account 370 – Meters

Investment at December 31, 2017: $7,398,700

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	20	R2.5	-2%
2012 Recommended	15	S2	-1%
Hawaiian Electric Companies	32	R0.5	0%
2012 Industry Survey	30	n/a	-6%
Recommended	15	S2	0%

Account 370 includes items such as current limiting devices, meters, and instrument transformers.

KIUC replaced old conventional meters with new smart meters in 2013. There are approximately 2,000 customers who “opted-out,” i.e., have not switched over to the new smart meters. The SPR analysis indicates poor results. KIUC staff said the manufacturer's recommendation for the new meters is a useful life of 20 years; however, based on our experience performing depreciation studies, a 15-year average service life is more appropriate for smart meters due to the electronics and changes/improvements in technology. We recommend a S2-15 year survivor curve for Account 370.

We also recommend reducing the net salvage rate for Account 370 from -2 percent to zero percent based on historical net salvage experience.

Account 371 – Installations on Customer's Premises

Investment at December 31, 2017: $29,138

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	10	n/a	n/a
2012 Recommended	n/a	n/a	n/a
Hawaiian Electric Companies	n/a	n/a	n/a
2012 Industry Survey	28	n/a	-13%
Recommended	10	n/a	0%

This is a new account established in 2014, which has no other years of accounting activity. We recommend no change to the existing depreciation parameters. KIUC is using a depreciation rate equal to 10 percent (1/10 years).

Recommend zero percent net salvage rate based on historical experience.

Account 372 – Leased Property on Customer Premises

Investment at December 31, 2017: $18,709

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	10	S2	0%
2012 Recommended	10	S2	0%
Hawaiian Electric Companies	n/a	n/a	n/a
2012 Industry Survey	25	n/a	-21%
Recommended	10	S2	0%

Account 372 is used to record investment in residential meter base surge arrestors. There have been limited plant additions and no retirements in this account; as a result, the SPR analysis produced meaningless results. KIUC staff said that a 10-year average service life is appropriate for this equipment. No change is recommended to the existing S2-10 survivor curve for this account. In addition, no change is recommended to the existing zero percent net salvage rate for Account 372.

Account 373 – Street Lighting and Signal Systems

Investment at December 31, 2012: $5,484,090

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	25	SQ	-7%
2012 Recommended	25	SC	-10%
Hawaiian Electric Companies	45	O1	-30%
2012 Industry Survey	29	n/a	-12%
Recommended	20	SQ	-7%

This account includes items such as conductors, lamps, and ornamental lamp posts.

KIUC replaced approximately 90 percent of its streetlights with new Light Emitting Diode (LED) lights in 2017. KIUC is able to dim the lights remotely to help protect the Shearwater birds. However, there has been an issue with the new LED lights and a defective node that is keeping the lights on during the day. The defective nodes are being sent back and replaced by the manufacturer.

The results of the SPR analyses will not produce meaningful results as the new LED lights were just installed in 2017. We recommend an SQ-20 based on the expected life of the LED lamps. (The SQ curve results in plant being fully depreciated at the average service life. Under the existing SC curve, the plant is not fully depreciated until 200 percent of the average service life. The SQ survivor curve is more appropriate for the LED light fixtures which are expected to be replaced in 20 years.)

We recommend no change to the existing net salvage rate from -7 percent.

General Plant

Account 390 – Structures and Improvements

Investment at December 31, 2017: $11,732,559

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	36	L1.5	0%
2012 Recommended	42	L2	-3%
Hawaiian Electric Companies	50	R3	-30%
2012 Industry Survey	44	n/a	-9%
Recommended	46	R2	0%

We recommend the R2-46 survivor curve for Account 390 based on the results of the SPR analysis. This is also reasonable compared to industry data.

Recommend no change to the net salvage rate of zero percent based on historical experience.

Account 391 – Office Furniture and Equipment

Investment at December 31, 2017: $2,147,831

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	26	L3	0%
2012 Recommended	20	SQ	0%
Hawaiian Electric Companies	15	SQ	0%
2012 Industry Survey	19	n/a	1%
Recommended	20	SQ	0%

Account 391 includes the investment in office furniture and equipment such as bookcases and shelves, desks, chairs, desk equipment, drafting room equipment, filing and storage cabinets, mechanical office equipment (accounting machines), safes, and tables. This account excludes computer equipment. The investment in computer equipment is recorded separately in Account 391.1, discussed in the next account narrative.

It is very expensive to acquire and ship furniture and large office equipment to Kauai. When the furniture or office equipment is not in use, it is stored in the basement. It often gets reused later if it is still usable (out to the production and transmission/distribution offices). The conference and training rooms tend to get updated more frequently than other spaces and individual workspaces.

The SPR analysis provided poor curve fits. The Hawaiian Electric companies shown in the table above amortize the investment in Account 391 over 15 years. We recommend using a SQ curve, which is equivalent to straight line amortization, and reducing the average service life from 26 years to 20 years for Account 391.0.

We recommend no change at this time to the existing zero percent net salvage rate for Account 391.0 based on historical experience.

Account 391.1 – Computer Equipment

Investment at December 31, 2017: $10,109,329

	Average Service Life (Years) [3]	Survivor Curve	Net Salvage
Existing	4.5	SQ	0%
2012 Recommended	6.5	SQ	0%
Hawaiian Electric Companies	10	SQ	0%
2012 Industry Survey	6	n/a	0%
Recommended	4.5	SQ	0%

This account includes items such as desktop computers, laptops, printers, monitors, network servers, routers, and switches.

The results of the SPR analysis for Account 391.1 did not provide good curve fits, with very high (poor) index of variation for curves and experience bands analyzed.

The existing depreciation rate for Account 391.1 was developed assuming a 4.5 year average service life. This average service life was based on information provided at the time by KIUC's Information Services

Supervisor that 25 percent of KIUC's investment in computer equipment was 3-year equipment (e.g., workstations, laptops, monitors, and keyboards) and 75 percent was 5-year equipment (e.g., printers, network servers, routers, and switches). Technology limits the useful life of the equipment especially as it is continually changing at a faster pace. Recommend no change to the existing SQ-4.5.

Recommend no change to the existing zero percent net salvage rate based on an analysis of historical net salvage experience.

Account 393 – Stores Equipment

Investment at December 31, 2017: $172,010

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	21	R4	0%
2012 Recommended	21	SQ	0%
Hawaiian Electric Companies	25	SQ	0%
2012 Industry Survey	23	n/a	1%
Recommended	25	SQ	0%

Stores equipment includes warehouse equipment such as cranes, hoists, shelving, etc. The SPR analysis produced poor curve fits. There have been limited retirements in this account, with the exception of a large retirement in 2002 that represented nearly one-fourth of the plant investment at the time. (Citizens processed a large amount of retirements in 2002 to clean up the general plant accounts prior to the sale of Kaua'i Electric to KIUC in November 2002). There has overall been very limited activity in this account.

Recommend using a SQ survivor curve, which is equivalent to straight line amortization and increasing the average service life to 25 years. This is comparable to the Hawaiian Electric Companies and industry data.

We recommend no change to the existing zero percent net salvage rate for Account 393 based on historical net salvage experience.

Account 394 – Tools, Shop and Garage Equipment

Investment at December 31, 2017: $1,957,649

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	15	S6	0%
2012 Recommended	15	S6	0%
Hawaiian Electric Companies	25	SQ	0%
2012 Industry Survey	21	n/a	1%
Recommended	15	SQ	0%

Account 394 includes items such as tools and equipment utilized in construction and repair work and in the shop and garage.

The SPR analyses produced poor index of variation results for all survivor curves and bands. A large amount of retirements in 2002, representing approximately half of the plant investment at the time, may be causing the poor curve fits. According to KIUC staff, in 2002, Citizens cleaned up its fixed asset accounts prior to the sale of Kaua'i Electric to KIUC in November 2002.

KIUC staff indicated that the average service life for tools, shop, and garage equipment should be in the range of 10 to 15 years. We recommend reducing the average service life from 21 years to 15 years. An SQ-15 survivor curve is recommended for Account 394.

We recommend no change to the existing zero percent net salvage rate.

Account 395 – Laboratory Equipment

Investment at December 31, 2017: $822,994

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	19	S6	0%
2012 Recommended	15	SQ	0%
Hawaiian Electric Companies	15	SQ	0%
2012 Industry Survey	20	n/a	0%
Recommended	15	SQ	0%

Account 395 includes items such as meter testing equipment, frequency changers, voltmeters, current batteries, ammeters, galvanometers, millivolt meters, testing resistors, testing panels, synchronous timers, portable loading devices, etc.

There has been no activity in this account since 2014. The SPR analysis only produced fair curve fits and the results indicated lower mode curves with average service lives that are longer than is reasonable given the nature of the equipment. We recommend a SQ-15 survivor curve for Account 395 based on a comparison with the Hawaiian Electric Companies.

The net salvage experience for Account 395 supports continued use of a zero percent net salvage rate.

Account 396 – Power Operated Equipment

Investment at December 31, 2017: $257,151

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	13	S6	0%
2012 Recommended	15	SQ	0%
Hawaiian Electric Companies	16	SQ	0%
2012 Industry Survey	16	n/a	8%
Recommended	15	SQ	0%

Account 396 includes items such as hoists, air compressors, hydraulic equipment, pipe cleaning machines, wire drum pullers, wire tensioners, and other power equipment.

There has not been any new activity in this account since 2012. The SPR analysis produced curves with excellent (low) index of variation; however, the average service lives were unreasonable (too long) given the nature of the equipment in the account. We recommend using a SQ survivor curve for Account 396 and increasing the average service life to 15 years, which is comparable to Hawaiian Electric Companies and industry data. We recommend no change to the existing zero percent net salvage rate for Account 396.

Account 397 – Communication Equipment

Investment at December 31, 2017: $4,338,795

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	16	R5	0%
2012 Recommended	16	SQ	0%
Hawaiian Electric Companies	15	SQ	0%
2012 Industry Survey	16	n/a	0%
Recommended	15	SQ	0%

Account 397 includes items such as generators, antennas, testing equipment, communications equipment, fiber optic terminals, base stations, fiber optic cable, radio equipment, telecommunications equipment, two-way radios, telephone instruments, satellite phones, pagers, phone systems, and public address systems.

Account 397 includes the following types of plant. Life estimates are based on discussions with KIUC staff:

- **Telephone system:** Telephone system main service is VOIP (cloud-based system) – hardware is now on the cloud and no longer on plant assets. The handsets are the only physical assets (old assets to be closed in 2018). The handsets have a 3-year contract warranty. This useful life should be decreased from 15 years to a much lower life (3-5 years).
- **Radio system:** New equipment in 2011 (staff are estimating new equipment in 2021). Recommend a 10-year useful life for the equipment.
- **Fiber network:** The fiber network was replaced in 2017 to modernize the grid. Recommend 10 years for equipment, 20 to 30 years for fiber cable.

The SPR analyses did not provide meaningful results as evidenced by the poor index of variation for all survivor curves and bands. Based on the nature of the property, which is subject to changes in technology, we recommend a 15-year average service life for Account 397 based on Hawaiian Electric Companies. However, we recommend using a SQ curve for Account 397, which is equivalent to straight line amortization.

A zero percent net salvage rate is appropriate for Account 397 based on the historic net salvage experience of KIUC and comparisons with other utilities.

Account 398 – Miscellaneous Equipment

Investment at December 31, 2017: $1,351,526

	Average Service Life (Years)	Survivor Curve	Net Salvage
Existing	22	S3	0%
2012 Recommended	15	SQ	0%
Hawaiian Electric Companies	15	SQ	0%
2012 Industry Survey	18	n/a	1%
Recommended	15	SQ	0%

SPR analysis produced fair curve fits for 15, 20, and 30 year bands, but the average service lives are too long for this type of property. The nature of the property recorded in Account 398 (televisions, projectors, VCRs, cameras, appliances, and handhelds for meter reading) supports use of a lower average service life. The existing 22-year average service life was based on a comparison with the Hawaiian Electric companies. These companies currently amortize the investment in Acct 398 over 15 years. We recommend using a SQ-15 curve and zero percent net salvage rate for Account 398 based on a comparison with the Hawaiian Electric companies.

Appendix A
SIMULATED PLANT RECORD (SPR) METHOD – ACCOUNT 364

Kaua'i Island Utility Cooperative
Simulated Plant Record Life Analysis

Historical Plant Data

Account	364
Description	Poles, Towers and Fixtures
Existing ASL	37
Existing Survivor Curve	S1.5
End of Year Study Balance	$36,919,344

Year ending December 31

Year	Additions	Retirements	Calculated Balance
			(0)
1900	0	0	(0)
1901	0	0	(0)
1902	0	0	(0)
1903	0	0	(0)
1904	0	0	(0)
1905	0	0	(0)
1906	0	0	(0)
1907	0	0	(0)
1908	0	0	(0)
1909	0	0	(0)
1910	0	0	(0)
1911	0	0	(0)
1912	0	0	(0)
1913	0	0	(0)
1914	0	0	(0)
1915	0	0	(0)
1916	0	0	(0)
1917	0	0	(0)
1918	0	0	(0)
1919	0	0	(0)
1920	0	0	(0)
1921	0	0	(0)
1922	0	0	(0)
1923	0	0	(0)
1924	0	0	(0)
1925	0	0	(0)
1926	0	0	(0)
1927	0	0	(0)
1928	0	0	(0)
1929	0	0	(0)
1930	0	0	(0)
1931	0	0	(0)
1932	0	0	(0)
1933	1,126	0	1,126
1934	513	0	1,639
1935	1,644	0	3,283
1936	2,004	0	5,287
1937	1,856	0	7,143
1938	709	0	7,852
1939	1,923	0	9,775
1940	1,706	0	11,481
1941	1,731	0	13,212
1942	1,377	0	14,589
1943	11,126	871	24,844
1944	473	0	25,317
1945	1,406	0	26,723
1946	2,695	0	29,418
1947	5,876	0	35,294
1948	16,614	0	51,908

Kaua'i Island Utility Cooperative
Simulated Plant Record Life Analysis

Historical Plant Data

Account	364
Description	Poles, Towers and Fixtures
Existing ASL	37
Existing Survivor Curve	S1.5
End of Year Study Balance	$36,919,344

Year ending December 31

Year	Additions	Retirements	Calculated Balance
1949	24,205	877	75,236
1950	81,663	1,612	155,287
1951	84,819	6,993	233,113
1952	37,312	9,661	260,764
1953	58,606	6,472	312,898
1954	58,475	6,483	364,890
1955	40,521	9,390	396,021
1956	13,800	2,896	406,925
1957	40,609	5,429	442,105
1958	31,758	6,009	467,854
1959	27,210	6,795	488,269
1960	601,268	3,683	1,085,854
1961	123,770	11,929	1,197,695
1962	92,109	13,522	1,276,282
1963	88,823	10,415	1,354,690
1964	111,686	22,431	1,443,945
1965	104,678	21,808	1,526,815
1966	164,847	17,879	1,673,783
1967	171,368	10,092	1,835,059
1968	109,011	33,136	1,910,934
1969	159,337	23,691	2,046,580
1970	188,685	31,259	2,204,006
1971	143,877	26,701	2,321,182
1972	197,053	30,719	2,487,516
1973	120,768	21,193	2,587,091
1974	201,933	14,307	2,774,717
1975	324,851	11,952	3,087,616
1976	149,238	11,062	3,225,792
1977	111,644	36,731	3,300,705
1978	252,004	9,723	3,542,986
1979	153,081	27,557	3,668,510
1980	344,253	37,580	3,975,183
1981	365,429	25,415	4,315,197
1982	662,817	24,086	4,953,928
1983	1,088,210	60,929	5,981,209
1984	370,324	39,112	6,312,421
1985	434,788	26,243	6,720,966
1986	312,775	22,226	7,011,515
1987	255,649	24,542	7,242,622
1988	509,267	16,839	7,735,050
1989	849,961	42,365	8,542,646
1990	548,692	45,622	9,045,716
1991	321,781	18,914	9,348,583
1992	421,731	704,967	9,065,347
1993	16,421,065	29,455	25,456,957
1994	5,435,349	61,447	30,830,859
1995	617,138	28,104	31,419,893
1996	1,178,900	14,230	32,584,563
1997	464,375	81,462	32,967,475
1998	755,859	21,079	33,702,255

Kaua'i Island Utility Cooperative
Simulated Plant Record Life Analysis

Historical Plant Data

Account	364
Description	Poles, Towers and Fixtures
Existing ASL	37
Existing Survivor Curve	S1.5
End of Year Study Balance	$36,919,344

Year ending December 31

Year	Additions	Retirements	Calculated Balance
1999	399,704	25,906	34,076,053
2000	587,795	87,951	34,575,897
2001	(3,621)	164,756	34,407,520
2002	144,586	77,865	34,474,241
2003	699,730	803,817	34,370,154
2004	9,071	449,279	33,929,947
2005	149,925	318,205	33,761,667
2006	487,457	245,800	34,003,324
2007	364,150	215,743	34,151,732
2008	485,420	231,736	34,405,416
2009	264,371	236,331	34,433,456
2010	243,335	211,706	34,465,085
2011	379,879	248,047	34,596,917
2012	528,597	230,755	34,894,759
2013	1,278,517	360,141	35,813,135
2014	579,034	307,879	36,084,290
2015	620,804	257,757	36,447,337
2016	558,043	320,758	36,684,622
2017	775,490	540,768	36,919,344

Kaua'i Island Utility Cooperative
Simulated Plant Record Life Analysis
Account **364**
Description **Poles, Towers and Fixtures**

Parameters	
End of Test Period	**2017**
Interval Length (Years)	**4**
Beginning of Test Period	**1988**

	Start	End
ASL Range	**20**	**100**
Processing Curve:	17	

Installation Year	Additions ($)	Age (years)	Age % of ASL (%)	Percent Surviving (%)	2017 Simulated Balances ($)	Age (years)	Age % of ASL (%)	Percent Surviving (%)	2013 Simulated Balances ($)	Age (years)	Age % of ASL (%)	Percent Surviving (%)	2009 Simulated Balances ($)	Age (years)	Age % of ASL (%)	Percent Surviving (%)	2005 Simulated Balances ($)
1933	1,126	84.5	134	30.03%	338	80.5	128	33.46%	377	76.5	121	37.53%	423	72.5	115	41.07%	462
1934	513	83.5	133	30.59%	157	79.5	126	34.62%	178	75.5	120	38.12%	196	71.5	113	42.25%	217
1935	1,644	82.5	131	31.74%	522	78.5	125	35.20%	579	74.5	118	39.29%	646	70.5	112	42.84%	704
1936	2,004	81.5	129	32.88%	659	77.5	123	36.36%	729	73.5	117	39.88%	799	69.5	110	44.03%	882
1937	1,856	80.5	128	33.46%	621	76.5	121	37.53%	697	72.5	115	41.07%	762	68.5	109	44.63%	828
1938	709	79.5	126	34.62%	245	75.5	120	38.12%	270	71.5	113	42.25%	300	67.5	107	45.82%	325
1939	1,923	78.5	125	35.20%	677	74.5	118	39.29%	756	70.5	112	42.84%	824	66.5	106	46.42%	893
1940	1,706	77.5	123	36.36%	620	73.5	117	39.88%	680	69.5	110	44.03%	751	65.5	104	47.61%	812
1941	1,731	76.5	121	37.53%	650	72.5	115	41.07%	711	68.5	109	44.63%	773	64.5	102	48.81%	845
1942	1,377	75.5	120	38.12%	525	71.5	113	42.25%	582	67.5	107	45.82%	631	63.5	101	49.40%	680
1943	11,126	74.5	118	39.29%	4,372	70.5	112	42.84%	4,767	66.5	106	46.42%	5,164	62.5	99	50.60%	5,630
1944	473	73.5	117	39.88%	189	69.5	110	44.03%	208	65.5	104	47.61%	225	61.5	98	51.20%	242
1945	1,406	72.5	115	41.07%	577	68.5	109	44.63%	627	64.5	102	48.81%	686	60.5	96	52.39%	737
1946	2,695	71.5	113	42.25%	1,139	67.5	107	45.82%	1,235	63.5	101	49.40%	1,331	59.5	94	53.58%	1,444
1947	5,876	70.5	112	42.84%	2,518	66.5	106	46.42%	2,727	62.5	99	50.60%	2,973	58.5	93	54.18%	3,184
1948	16,614	69.5	110	44.03%	7,316	65.5	104	47.61%	7,910	61.5	98	51.20%	8,506	57.5	91	55.37%	9,200
1949	24,205	68.5	109	44.63%	10,802	64.5	102	48.81%	11,813	60.5	96	52.39%	12,681	56.5	90	55.97%	13,547
1950	81,663	67.5	107	45.82%	37,418	63.5	101	49.40%	40,343	59.5	94	53.58%	43,758	55.5	88	57.16%	46,675
1951	84,819	66.5	106	46.42%	39,370	62.5	99	50.60%	42,917	58.5	93	54.18%	45,955	54.5	87	57.75%	48,983
1952	37,312	65.5	104	47.61%	17,764	61.5	98	51.20%	19,102	57.5	91	55.37%	20,660	53.5	85	58.94%	21,990
1953	58,606	64.5	102	48.81%	28,603	60.5	96	52.39%	30,704	56.5	90	55.97%	32,800	52.5	83	60.12%	35,232
1954	58,475	63.5	101	49.40%	28,888	59.5	94	53.58%	31,333	55.5	88	57.16%	33,422	51.5	82	60.71%	35,498
1955	40,521	62.5	99	50.60%	20,503	58.5	93	54.18%	21,954	54.5	87	57.75%	23,401	50.5	80	61.88%	25,075
1956	13,800	61.5	98	51.20%	7,065	57.5	91	55.37%	7,641	53.5	85	58.94%	8,133	49.5	79	62.47%	8,621
1957	40,609	60.5	96	52.39%	21,275	56.5	90	55.97%	22,728	52.5	83	60.12%	24,413	48.5	77	63.64%	25,843
1958	31,758	59.5	94	53.58%	17,017	55.5	88	57.16%	18,152	51.5	82	60.71%	19,279	47.5	75	64.80%	20,580
1959	27,210	58.5	93	54.18%	14,742	54.5	87	57.75%	15,714	50.5	80	61.88%	16,838	46.5	74	65.38%	17,791
1960	601,268	57.5	91	55.37%	332,934	53.5	85	58.94%	354,357	49.5	79	62.47%	375,606	45.5	72	66.54%	400,090
1961	123,770	56.5	90	55.97%	69,270	52.5	83	60.12%	74,407	48.5	77	63.64%	78,766	44.5	71	67.12%	83,072
1962	92,109	55.5	88	57.16%	52,646	51.5	82	60.71%	55,916	47.5	75	64.80%	59,690	43.5	69	68.27%	62,878
1963	88,823	54.5	87	57.75%	51,295	50.5	80	61.88%	54,965	46.5	74	65.38%	58,076	42.5	67	69.41%	61,649
1964	111,686	53.5	85	58.94%	65,822	49.5	79	62.47%	69,769	45.5	72	66.54%	74,317	41.5	66	69.97%	78,151
1965	104,678	52.5	83	60.12%	62,929	48.5	77	63.64%	66,616	44.5	71	67.12%	70,258	40.5	64	71.11%	74,431
1966	164,847	51.5	82	60.71%	100,072	47.5	75	64.80%	106,827	43.5	69	68.27%	112,533	39.5	63	71.67%	118,141
1967	171,368	50.5	80	61.88%	106,046	46.5	74	65.38%	112,047	42.5	67	69.41%	118,941	38.5	61	72.79%	124,732
1968	109,011	49.5	79	62.47%	68,098	45.5	72	66.54%	72,537	41.5	66	69.97%	76,279	37.5	60	73.34%	79,951
1969	159,337	48.5	77	63.64%	101,400	44.5	71	67.12%	106,944	40.5	64	71.11%	113,297	36.5	58	74.45%	118,623
1970	188,685	47.5	75	64.80%	122,275	43.5	69	68.27%	128,806	39.5	63	71.67%	135,225	35.5	56	75.54%	142,540
1971	143,877	46.5	74	65.38%	94,073	42.5	67	69.41%	99,861	38.5	61	72.79%	104,722	34.5	55	76.09%	109,475
1972	197,053	45.5	72	66.54%	131,121	41.5	66	69.97%	137,886	37.5	60	73.34%	144,523	33.5	53	77.17%	152,068
1973	120,768	44.5	71	67.12%	81,057	40.5	64	71.11%	85,872	36.5	58	74.45%	89,909	32.5	52	77.71%	93,846
1974	201,933	43.5	69	68.27%	137,850	39.5	63	71.67%	144,719	35.5	56	75.54%	152,548	31.5	50	78.77%	159,071
1975	324,851	42.5	67	69.41%	225,469	38.5	61	72.79%	236,446	34.5	55	76.09%	247,176	30.5	48	79.83%	259,325
1976	149,238	41.5	66	69.97%	104,428	37.5	60	73.34%	109,454	33.5	53	77.17%	115,168	29.5	47	80.35%	119,916
1977	111,644	40.5	64	71.11%	79,384	36.5	58	74.45%	83,117	32.5	52	77.71%	86,756	28.5	45	81.39%	90,866
1978	252,004	39.5	63	71.67%	180,604	35.5	56	75.54%	190,374	31.5	50	78.77%	198,514	27.5	44	81.90%	206,399
1979	153,081	38.5	61	72.79%	111,422	34.5	55	76.09%	116,478	30.5	48	79.83%	122,203	26.5	42	82.92%	126,936
1980	344,253	37.5	60	73.34%	252,482	33.5	53	77.17%	265,663	29.5	47	80.35%	276,614	25.5	40	83.93%	288,914
1981	365,429	36.5	58	74.45%	272,055	32.5	52	77.71%	283,968	28.5	45	81.39%	297,419	24.5	39	84.42%	308,502
1982	662,817	35.5	56	75.54%	500,718	31.5	50	78.77%	522,127	27.5	44	81.90%	542,867	23.5	37	85.41%	566,085
1983	1,088,210	34.5	55	76.09%	828,008	30.5	48	79.83%	868,707	26.5	42	82.92%	902,355	22.5	36	85.89%	934,685
1984	370,324	33.5	53	77.17%	285,783	29.5	47	80.35%	297,563	25.5	40	83.93%	310,794	21.5	34	86.85%	321,638
1985	434,788	32.5	52	77.71%	337,865	28.5	45	81.39%	353,870	24.5	39	84.42%	367,057	20.5	33	87.33%	379,687
1986	312,775	31.5	50	78.77%	246,385	27.5	44	81.90%	256,172	23.5	37	85.41%	267,129	19.5	31	88.26%	276,068
1987	255,649	30.5	48	79.83%	204,082	26.5	42	82.92%	211,987	22.5	36	85.89%	219,582	18.5	29	89.18%	227,998
1988	509,267	29.5	47	80.35%	409,206	25.5	40	83.93%	427,402	21.5	34	86.85%	442,314	17.5	28	89.64%	456,497
1989	849,961	28.5	45	81.39%	691,775	24.5	39	84.42%	717,554	20.5	33	87.33%	742,245	16.5	26	90.53%	769,478
1990	548,692	27.5	44	81.90%	449,395	23.5	37	85.41%	468,616	19.5	31	88.26%	484,298	15.5	25	90.97%	499,145
1991	321,781	26.5	42	82.92%	266,824	22.5	36	85.89%	276,384	18.5	29	89.18%	286,977	14.5	23	91.84%	295,508
1992	421,731	25.5	40	83.93%	353,938	21.5	34	86.85%	366,286	17.5	28	89.64%	378,031	13.5	21	92.68%	390,860
1993	16,421,065	24.5	39	84.42%	13,862,992	20.5	33	87.33%	14,340,023	16.5	26	90.53%	14,866,154	12.5	20	93.09%	15,287,026
1994	5,435,349	23.5	37	85.41%	4,642,114	19.5	31	88.26%	4,797,457	15.5	25	90.97%	4,944,537	11.5	18	93.91%	5,104,173
1995	617,138	22.5	36	85.89%	530,072	18.5	29	89.18%	550,388	14.5	23	91.84%	566,749	10.5	17	94.31%	581,992
1996	1,178,900	21.5	34	86.85%	1,023,910	17.5	28	89.64%	1,056,742	13.5	21	92.68%	1,092,604	9.5	15	95.08%	1,120,933
1997	464,375	20.5	33	87.33%	405,525	16.5	26	90.53%	420,403	12.5	20	93.09%	432,305	8.5	13	95.84%	445,043
1998	755,859	19.5	31	88.26%	667,151	15.5	25	90.97%	687,605	11.5	18	93.91%	709,804	7.5	12	96.20%	727,166
1999	399,704	18.5	29	89.18%	356,472	14.5	23	91.84%	367,068	10.5	17	94.31%	376,941	6.5	10	96.92%	387,389
2000	587,795	17.5	28	89.64%	526,887	13.5	21	92.68%	544,768	9.5	15	95.08%	558,893	5.5	9	97.27%	571,718
2001	(3,621)	16.5	26	90.53%	(3,278)	12.5	20	93.09%	(3,371)	8.5	13	95.84%	(3,470)	4.5	7	97.94%	(3,546)
2002	144,586	15.5	25	90.97%	131,530	11.5	18	93.91%	135,776	7.5	12	96.20%	139,098	3.5	6	98.26%	142,070
2003	699,730	14.5	23	91.84%	642,597	10.5	17	94.31%	659,880	6.5	10	96.92%	678,171	2.5	4	98.88%	691,900
2004	9,071	13.5	21	92.68%	8,407	9.5	15	95.08%	8,625	5.5	9	97.27%	8,823	1.5	2	99.47%	9,023
2005	149,925	12.5	20	93.09%	139,571	8.5	13	95.84%	143,684	4.5	7	97.94%	146,831	0.5	1	99.74%	149,536
2006	487,457	11.5	18	93.91%	457,756	7.5	12	96.20%	468,953	3.5	6	98.26%	478,975				
2007	364,150	10.5	17	94.31%	343,412	6.5	10	96.92%	352,931	2.5	4	98.88%	360,076				
2008	485,420	9.5	15	95.08%	461,552	5.5	9	97.27%	472,144	1.5	2	99.47%	482,823				
2009	264,371	8.5	13	95.84%	253,365	4.5	7	97.94%	258,914	0.5	1	99.74%	263,683				
2010	243,335	7.5	12	96.20%	234,098	3.5	6	98.26%	239,100								
2011	379,879	6.5	10	96.92%	368,175	2.5	4	98.88%	375,628								
2012	528,597	5.5	9	97.27%	514,140	1.5	2	99.47%	525,769								
2013	1,278,517	4.5	7	97.94%	1,252,128	0.5	1	99.74%	1,275,193								
2014	579,034	3.5	6	98.26%	568,959												
2015	620,804	2.5	4	98.88%	613,857												
2016	558,043	1.5	2	99.47%	555,058												
2017	775,490	0.5	1	99.74%	773,474												
Simulated Balances					36,971,207				35,686,813				34,461,517				33,918,570
Actual Balances					36,919,344				35,813,135				34,433,456				33,761,667
Diff Squared					2689808721				15957234554				7.87E+08				2.46E+10

SSD	5.97752E+11
Mean SD (MSD)	74719048541
SQRT(MSD)	273,348
Avg Actual Balance	30,287,775
Conformance Index = Avg Actual Balance/SQRT(MSD)	110.80
Index of Variation = 1000/CI	9.0
Retirement Experience Index	28.0

Age (years)	Age % of ASL (%)	Percent Surviving (%)	2001 Simulated Balances ($)	Age (years)	Age % of ASL (%)	Percent Surviving (%)	1997 Simulated Balances ($)	Age (years)	Age % of ASL (%)	Percent Surviving (%)	1993 Simulated Balances ($)	Age (years)	Age % of ASL (%)	Percent Surviving (%)	1989 Simulated Balances ($)
68.5	109	44.63%	503	64.5	102	48.81%	550	60.5	96	52.39%	590	56.5	90	55.97%	630
67.5	107	45.82%	235	63.5	101	49.40%	253	59.5	94	53.58%	275	55.5	88	57.16%	293
66.5	106	46.42%	763	62.5	99	50.60%	832	58.5	93	54.18%	891	54.5	87	57.75%	949
65.5	104	47.61%	954	61.5	98	51.20%	1,026	57.5	91	55.37%	1,110	53.5	85	58.94%	1,181
64.5	102	48.81%	906	60.5	96	52.39%	972	56.5	90	55.97%	1,039	52.5	83	60.12%	1,116
63.5	101	49.40%	350	59.5	94	53.58%	380	55.5	88	57.16%	405	51.5	82	60.71%	430
62.5	99	50.60%	973	58.5	93	54.18%	1,042	54.5	87	57.75%	1,111	50.5	80	61.88%	1,190
61.5	98	51.20%	873	57.5	91	55.37%	945	53.5	85	58.94%	1,005	49.5	79	62.47%	1,066
60.5	96	52.39%	907	56.5	90	55.97%	969	52.5	83	60.12%	1,041	48.5	77	63.64%	1,102
59.5	94	53.58%	738	55.5	88	57.16%	787	51.5	82	60.71%	836	47.5	75	64.80%	892
58.5	93	54.18%	6,028	54.5	87	57.75%	6,425	50.5	80	61.88%	6,885	46.5	74	65.38%	7,275
57.5	91	55.37%	262	53.5	85	58.94%	279	49.5	79	62.47%	295	45.5	72	66.54%	315
56.5	90	55.97%	787	52.5	83	60.12%	845	48.5	77	63.64%	895	44.5	71	67.12%	944
55.5	88	57.16%	1,540	51.5	82	60.71%	1,636	47.5	75	64.80%	1,746	43.5	69	68.27%	1,840
54.5	87	57.75%	3,393	50.5	80	61.88%	3,636	46.5	74	65.38%	3,842	42.5	67	69.41%	4,078
53.5	85	58.94%	9,791	49.5	79	62.47%	10,379	45.5	72	66.54%	11,055	41.5	66	69.97%	11,625
52.5	83	60.12%	14,551	48.5	77	63.64%	15,404	44.5	71	67.12%	16,246	40.5	64	71.11%	17,211
51.5	82	60.71%	49,574	47.5	75	64.80%	52,921	43.5	69	68.27%	55,747	39.5	63	71.67%	58,525
50.5	80	61.88%	52,488	46.5	74	65.38%	55,458	42.5	67	69.41%	58,870	38.5	61	72.79%	61,736
49.5	79	62.47%	23,308	45.5	72	66.54%	24,828	41.5	66	69.97%	26,109	37.5	60	73.34%	27,365
48.5	77	63.64%	37,296	44.5	71	67.12%	39,335	40.5	64	71.11%	41,672	36.5	58	74.45%	43,631
47.5	75	64.80%	37,894	43.5	69	68.27%	39,918	39.5	63	71.67%	41,907	35.5	56	75.54%	44,174
46.5	74	65.38%	26,494	42.5	67	69.41%	28,124	38.5	61	72.79%	29,494	34.5	55	76.09%	30,832
45.5	72	66.54%	9,183	41.5	66	69.97%	9,656	37.5	60	73.34%	10,121	33.5	53	77.17%	10,650
44.5	71	67.12%	27,256	40.5	64	71.11%	28,875	36.5	58	74.45%	30,233	32.5	52	77.71%	31,556
43.5	69	68.27%	21,680	39.5	63	71.67%	22,760	35.5	56	75.54%	23,991	31.5	50	78.77%	25,017
42.5	67	69.41%	18,886	38.5	61	72.79%	19,805	34.5	55	76.09%	20,704	30.5	48	79.83%	21,721
41.5	66	69.97%	420,731	37.5	60	73.34%	440,982	33.5	53	77.17%	464,005	29.5	47	80.35%	483,131
40.5	64	71.11%	88,007	36.5	58	74.45%	92,144	32.5	52	77.71%	96,179	28.5	45	81.39%	100,735
39.5	63	71.67%	66,012	35.5	56	75.54%	69,583	31.5	50	78.77%	72,558	27.5	44	81.90%	75,440
38.5	61	72.79%	64,651	34.5	55	76.09%	67,585	30.5	48	79.83%	70,907	26.5	42	82.92%	73,653
37.5	60	73.34%	81,913	33.5	53	77.17%	86,189	29.5	47	80.35%	89,742	25.5	40	83.93%	93,732
36.5	58	74.45%	77,931	32.5	52	77.71%	81,343	28.5	45	81.39%	85,196	24.5	39	84.42%	88,371
35.5	56	75.54%	124,532	31.5	50	78.77%	129,857	27.5	44	81.90%	135,015	23.5	37	85.41%	140,789
34.5	55	76.09%	130,392	30.5	48	79.83%	136,801	26.5	42	82.92%	142,100	22.5	36	85.89%	147,191
33.5	53	77.17%	84,125	29.5	47	80.35%	87,593	25.5	40	83.93%	91,487	21.5	34	86.85%	94,679
32.5	52	77.71%	123,818	28.5	45	81.39%	129,683	24.5	39	84.42%	134,515	20.5	33	87.33%	139,144
31.5	50	78.77%	148,635	27.5	44	81.90%	154,539	23.5	37	85.41%	161,148	19.5	31	88.26%	166,541
30.5	48	79.83%	114,856	26.5	42	82.92%	119,304	22.5	36	85.89%	123,579	18.5	29	89.18%	128,315
29.5	47	80.35%	158,336	25.5	40	83.93%	165,377	21.5	34	86.85%	171,146	17.5	28	89.64%	176,634
28.5	45	81.39%	98,292	24.5	39	84.42%	101,955	20.5	33	87.33%	105,463	16.5	26	90.53%	109,332
27.5	44	81.90%	165,389	23.5	37	85.41%	172,463	19.5	31	88.26%	178,234	15.5	25	90.97%	183,698
26.5	42	82.92%	269,370	22.5	36	85.89%	279,021	18.5	29	89.18%	289,715	14.5	23	91.84%	298,327
25.5	40	83.93%	125,248	21.5	34	86.85%	129,618	17.5	28	89.64%	133,774	13.5	21	92.68%	138,314
24.5	39	84.42%	94,252	20.5	33	87.33%	97,495	16.5	26	90.53%	101,072	12.5	20	93.09%	103,934
23.5	37	85.41%	215,227	19.5	31	88.26%	222,429	15.5	25	90.97%	229,248	11.5	18	93.91%	236,649
22.5	36	85.89%	131,484	18.5	29	89.18%	136,524	14.5	23	91.84%	140,582	10.5	17	94.31%	144,363
21.5	34	86.85%	298,994	17.5	28	89.64%	308,582	13.5	21	92.68%	319,054	9.5	15	95.08%	327,326
20.5	33	87.33%	319,118	16.5	26	90.53%	330,827	12.5	20	93.09%	340,192	8.5	13	95.84%	350,216
19.5	31	88.26%	585,029	15.5	25	90.97%	602,965	11.5	18	93.91%	622,432	7.5	12	96.20%	637,656
18.5	29	89.18%	970,509	14.5	23	91.84%	999,358	10.5	17	94.31%	1,026,236	6.5	10	96.92%	1,054,682
17.5	28	89.64%	331,951	13.5	21	92.68%	343,216	9.5	15	95.08%	352,115	5.5	9	97.27%	360,196
16.5	26	90.53%	393,618	12.5	20	93.09%	404,762	8.5	13	95.84%	416,688	4.5	7	97.94%	425,814
15.5	25	90.97%	284,531	11.5	18	93.91%	293,718	7.5	12	96.20%	300,902	3.5	6	98.26%	307,333
14.5	23	91.84%	234,775	10.5	17	94.31%	241,090	6.5	10	96.92%	247,772	2.5	4	98.88%	252,788
13.5	21	92.68%	471,989	9.5	15	95.08%	484,226	5.5	9	97.27%	495,339	1.5	2	99.47%	506,542
12.5	20	93.09%	791,263	8.5	13	95.84%	814,577	4.5	7	97.94%	832,418	0.5	1	99.74%	847,751
11.5	18	93.91%	515,260	7.5	12	96.20%	527,864	3.5	6	98.26%	539,145				
10.5	17	94.31%	303,456	6.5	10	96.92%	311,867	2.5	4	98.88%	318,180				
9.5	15	95.08%	400,994	5.5	9	97.27%	410,197	1.5	2	99.47%	419,475				
8.5	13	95.84%	15,737,456	4.5	7	97.94%	16,082,134	0.5	1	99.74%	16,378,370				
7.5	12	96.20%	5,229,023	3.5	6	98.26%	5,340,774								
6.5	10	96.92%	598,124	2.5	4	98.88%	610,232								
5.5	9	97.27%	1,146,657	1.5	2	99.47%	1,172,592								
4.5	7	97.94%	454,790	0.5	1	99.74%	463,168								
3.5	6	98.26%	742,707												
2.5	4	98.88%	395,231												
1.5	2	99.47%	584,650												
0.5	1	99.74%	(3,612)												
			33,917,327				33,010,670				26,012,099				8,600,627
			34,407,520				32,967,475				25,456,957				8,542,646
			2.40E+11				1.87E+09				3.08E+11				3.36E+09

Kaua'i Island Utility Cooperative
Depreciation Study as of December 31, 2017
SPR Balances Analysis

Account **364**
Description **Poles, Towers and Fixtures**

Summaries	Band	Interval	Rank	Curve	ASL	REI	IV
Band 1	15-year	4-year	1	R1	55	18	2.4
Band 1	15-year	4-year	2	R0.5	65	13	2.8
Band 1	15-year	4-year	3	S-.5	63	15	3.0
Band 1	15-year	4-year	4	SC	77	9	4.2
Band 1	15-year	4-year	5	L0	70	13	4.2
Band 1	15-year	4-year	6	R1.5	49	23	6.0
Band 1	15-year	4-year	7	L0.5	61	17	7.7
Band 1	15-year	4-year	8	S0	53	21	8.7
Band 1	15-year	4-year	9	R2	44	28	10.8
Band 1	15-year	4-year	10	L1	53	22	12.8
Band 2	20-year	4-year	1	L0	71	16	6.0
Band 2	20-year	4-year	2	R1.5	49	30	6.8
Band 2	20-year	4-year	3	S-.5	63	19	6.8
Band 2	20-year	4-year	4	R1	55	25	6.8
Band 2	20-year	4-year	5	L0.5	61	22	7.5
Band 2	20-year	4-year	6	S0	53	27	7.9
Band 2	20-year	4-year	7	R0.5	66	18	9.0
Band 2	20-year	4-year	8	R2	44	36	9.8
Band 2	20-year	4-year	9	SC	79	12	10.4
Band 2	20-year	4-year	10	L1	53	28	11.5
Band 3	30-year	4-year	1	S-.5	63	28	9.0
Band 3	30-year	4-year	2	R1	55	37	9.1
Band 3	30-year	4-year	3	L0	70	22	9.2
Band 3	30-year	4-year	4	R1.5	49	44	9.9
Band 3	30-year	4-year	5	R0.5	66	27	10.3
Band 3	30-year	4-year	6	L0.5	60	30	10.4
Band 3	30-year	4-year	7	SC	79	19	11.2
Band 3	30-year	4-year	8	S0	53	38	11.5
Band 3	30-year	4-year	9	R2	44	53	12.6
Band 3	30-year	4-year	10	S6	31	91	13.2

	Curve	ASL
Existing:	**S1.5**	**37**
Selection:	**R2**	**44**

Appendix B
LIFE SPAN AND INTERIM RETIREMENT RATE ANALYSIS

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Life Span (years)*	57.97	11.92
Plant Classification:	Steam Production Plant	IRR	0.0022	0.0022
Account Number:	311	Adjusted Life Span (years)	54.27	11.76
Plant Account:	Structures and Improvements			
End of Year Study Balance:	$5,627,209	* See separate worksheet for calculation of life spans for steam production plant accounts		

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
311	1968	$0	$0	$0	$0	$0	$0	--	--	
311	1969	0	671,608	0	0	671,608	335,804	0.0000	0.0000	
311	1970	671,608	951	2,253	0	670,306	670,957	0.0034	0.0022	
311	1971	670,306	8,364	0	0	678,670	674,488	0.0000	0.0013	
311	1972	678,670	0	0	0	678,670	678,670	0.0000	0.0010	0.0010
311	1973	678,670	5,268	0	0	683,938	681,304	0.0000	0.0007	0.0007
311	1974	683,938	4,530	0	0	688,468	686,203	0.0000	0.0006	0.0007
311	1975	688,468	0	0	0	688,468	688,468	0.0000	0.0005	0.0000
311	1976	688,468	51,334	0	0	739,802	714,135	0.0000	0.0004	0.0000
311	1977	739,802	0	0	0	739,802	739,802	0.0000	0.0004	0.0000
311	1978	739,802	104,048	0	0	843,850	791,826	0.0000	0.0003	0.0000
311	1979	843,850	91,119	0	0	934,969	889,410	0.0000	0.0003	0.0000
311	1980	934,969	101,931	0	0	1,036,900	985,935	0.0000	0.0003	0.0000
311	1981	1,036,900	32,359	0	0	1,069,259	1,053,080	0.0000	0.0002	0.0000
311	1982	1,069,259	2,376	0	0	1,071,635	1,070,447	0.0000	0.0002	0.0000
311	1983	1,071,635	14,638	0	0	1,086,273	1,078,954	0.0000	0.0002	0.0000
311	1984	1,086,273	24,503	0	0	1,110,776	1,098,525	0.0000	0.0002	0.0000
311	1985	1,110,776	28,894	10,773	0	1,128,897	1,119,837	0.0096	0.0009	0.0020
311	1986	1,128,897	7,375	0	0	1,136,272	1,132,585	0.0000	0.0009	0.0020
311	1987	1,136,272	5,861	0	0	1,142,133	1,139,203	0.0000	0.0008	0.0019
311	1988	1,142,133	5,475	0	0	1,147,608	1,144,871	0.0000	0.0007	0.0019
311	1989	1,147,608	86,569	0	0	1,234,177	1,190,893	0.0000	0.0007	0.0019
311	1990	1,234,177	0	0	0	1,234,177	1,234,177	0.0000	0.0007	0.0000
311	1991	1,234,177	105,517	16,822	0	1,322,872	1,278,525	0.0132	0.0014	0.0028
311	1992	1,322,872	3,529	0	0	1,326,401	1,324,637	0.0000	0.0013	0.0027
311	1993	1,326,401	268,044	0	0	1,594,445	1,460,423	0.0000	0.0013	0.0026
311	1994	1,594,445	1,516,110	0	0	3,110,555	2,352,500	0.0000	0.0011	0.0022
311	1995	3,110,555	771,045	0	0	3,881,600	3,496,078	0.0000	0.0010	0.0017
311	1996	3,881,600	142,690	0	0	4,024,290	3,952,945	0.0000	0.0009	0.0000
311	1997	4,024,290	76,783	0	0	4,101,073	4,062,682	0.0000	0.0008	0.0000
311	1998	4,101,073	738,663	0	0	4,839,736	4,470,405	0.0000	0.0007	0.0000
311	1999	4,839,736	0	6,718	0	4,833,018	4,836,377	0.0014	0.0008	0.0003
311	2000	4,833,018	9,371	0	0	4,842,389	4,837,704	0.0000	0.0007	0.0003
311	2001	4,842,389	841	0	0	4,843,230	4,842,810	0.0000	0.0006	0.0003
311	2002	4,843,230	(57,642)	0	0	4,785,588	4,814,409	0.0000	0.0006	0.0003
311	2003	4,785,588	38,395	17,406	0	4,806,577	4,796,082	0.0036	0.0008	0.0010
311	2004	4,806,577	341,102	30,557	0	5,117,122	4,961,849	0.0062	0.0012	0.0020
311	2005	5,117,122	126,155	530	0	5,242,747	5,179,934	0.0001	0.0011	0.0020
311	2006	5,242,747	120,510	0	0	5,363,257	5,303,002	0.0000	0.0010	0.0019
311	2007	5,363,257	70,710	0	0	5,433,967	5,398,612	0.0000	0.0010	0.0019
311	2008	5,433,967	74,315	4,793	0	5,503,490	5,468,729	0.0009	0.0010	0.0014
311	2009	5,503,490	55,789	18,563	0	5,540,716	5,522,103	0.0034	0.0011	0.0009
311	2010	5,540,716	119,492	86,171	0	5,574,037	5,557,376	0.0155	0.0019	0.0040
311	2011	5,574,037	7,623	17,334	0	5,564,325	5,569,181	0.0031	0.0019	0.0046
311	2012	5,564,325	13,466	2,030	0	5,575,761	5,570,043	0.0004	0.0019	0.0047
311	2013	5,575,761	28,531	0	0	5,604,292	5,590,027	0.0000	0.0018	0.0045
311	2014	5,604,292	71,067	35,876	0	5,639,483	5,621,887	0.0064	0.0020	0.0051
311	2015	5,639,483	0	0	0	5,639,483	5,639,483	0.0000	0.0019	0.0020
311	2016	5,639,483	0	0	0	5,639,483	5,639,483	0.0000	0.0018	0.0014
311	2017	5,639,483	58,175	70,449	0	5,627,209	5,633,346	0.0125	0.0022	0.0038
							Average	0.0022		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Life Span (years)*	49.82	17.62
Plant Classification:	Steam Production Plant	IRR	0.0150	0.0150
Account Number:	312	Adjusted Life Span (years)	31.20	15.29
Plant Account:	Boiler Plant Equipment			
End of Year Study Balance:	$16,189,980			

* See separate worksheet for calculation of life spans for steam production plant accounts

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
312	1968	$0	$0	$0	$0	$0	$0	--	--	
312	1969	0	1,166,024	0	0	1,166,024	583,012	0.0000	0.0000	
312	1970	1,166,024	20,376	6,000	0	1,180,400	1,173,212	0.0051	0.0034	
312	1971	1,180,400	683	122	0	1,180,961	1,180,681	0.0001	0.0021	
312	1972	1,180,961	0	0	0	1,180,961	1,180,961	0.0000	0.0015	0.0015
312	1973	1,180,961	49,225	20,253	0	1,209,933	1,195,447	0.0169	0.0050	0.0050
312	1974	1,209,933	76,523	17,470	0	1,268,986	1,239,460	0.0141	0.0067	0.0073
312	1975	1,268,986	20,379	0	0	1,289,365	1,279,176	0.0000	0.0056	0.0062
312	1976	1,289,365	0	0	0	1,289,365	1,289,365	0.0000	0.0048	0.0061
312	1977	1,289,365	55,122	0	0	1,344,487	1,316,926	0.0000	0.0042	0.0060
312	1978	1,344,487	2,478,620	0	0	3,823,107	2,583,797	0.0000	0.0034	0.0023
312	1979	3,823,107	75,832	0	0	3,898,939	3,861,023	0.0000	0.0026	0.0000
312	1980	3,898,939	255,974	0	0	4,154,913	4,026,926	0.0000	0.0021	0.0000
312	1981	4,154,913	17,998	0	0	4,172,911	4,163,912	0.0000	0.0017	0.0000
312	1982	4,172,911	33,324	0	0	4,206,235	4,189,573	0.0000	0.0015	0.0000
312	1983	4,206,235	285,702	5,286	0	4,486,651	4,346,443	0.0012	0.0015	0.0003
312	1984	4,486,651	22,991	0	0	4,509,642	4,498,147	0.0000	0.0013	0.0002
312	1985	4,509,642	101,012	1,533	0	4,609,121	4,559,382	0.0003	0.0012	0.0003
312	1986	4,609,121	107,133	968	0	4,715,286	4,662,204	0.0002	0.0011	0.0003
312	1987	4,715,286	139,855	0	0	4,855,141	4,785,214	0.0000	0.0010	0.0003
312	1988	4,855,141	7,454	798	0	4,861,797	4,858,469	0.0002	0.0009	0.0001
312	1989	4,861,797	32,538	0	0	4,894,335	4,878,066	0.0000	0.0008	0.0001
312	1990	4,894,335	69,322	0	0	4,963,657	4,928,996	0.0000	0.0008	0.0001
312	1991	4,963,657	1,455,274	2,459,698	0	3,959,233	4,461,445	0.5513	0.0353	0.1029
312	1992	3,959,233	558,164	0	0	4,517,397	4,238,315	0.0000	0.0333	0.1053
312	1993	4,517,397	248,041	8,396	0	4,757,042	4,637,220	0.0018	0.0315	0.1066
312	1994	4,757,042	300,672	0	0	5,057,714	4,907,378	0.0000	0.0296	0.1065
312	1995	5,057,714	42,292	0	0	5,100,006	5,078,860	0.0000	0.0280	0.1058
312	1996	5,100,006	(339)	0	0	5,099,667	5,099,837	0.0000	0.0265	0.0004
312	1997	5,099,667	0	0	0	5,099,667	5,099,667	0.0000	0.0251	0.0003
312	1998	5,099,667	6,613	0	0	5,106,280	5,102,974	0.0000	0.0239	0.0000
312	1999	5,106,280	0	0	0	5,106,280	5,106,280	0.0000	0.0228	0.0000
312	2000	5,106,280	48,666	0	0	5,154,946	5,130,613	0.0000	0.0218	0.0000
312	2001	5,154,946	23,933	0	0	5,178,879	5,166,912	0.0000	0.0209	0.0000
312	2002	5,178,879	38,379	0	0	5,217,258	5,198,068	0.0000	0.0200	0.0000
312	2003	5,217,258	5,760,786	0	0	10,978,044	8,097,651	0.0000	0.0188	0.0000
312	2004	10,978,044	603,102	315,186	0	11,265,960	11,122,002	0.0283	0.0195	0.0091
312	2005	11,265,960	1,274,569	94,592	0	12,445,938	11,855,949	0.0080	0.0187	0.0099
312	2006	12,445,938	166,467	92,226	0	12,520,179	12,483,058	0.0074	0.0178	0.0103
312	2007	12,520,179	110,548	51,802	0	12,578,925	12,549,552	0.0041	0.0169	0.0099
312	2008	12,578,925	363,795	152,146	0	12,790,574	12,684,749	0.0120	0.0166	0.0116
312	2009	12,790,574	2,296,051	140,328	0	14,946,297	13,868,435	0.0101	0.0161	0.0084
312	2010	14,946,297	314,524	26,081	0	15,234,740	15,090,518	0.0017	0.0152	0.0069
312	2011	15,234,740	103,529	29,899	0	15,308,371	15,271,555	0.0020	0.0143	0.0058
312	2012	15,308,371	38,646	20,147	0	15,326,869	15,317,620	0.0013	0.0135	0.0051
312	2013	15,326,869	714,019	785,254	0	15,255,634	15,291,252	0.0514	0.0157	0.0134
312	2014	15,255,634	713,209	129,616	0	15,839,227	15,547,431	0.0083	0.0153	0.0130
312	2015	15,839,227	73,922	68,569	0	15,844,581	15,841,904	0.0043	0.0147	0.0134
312	2016	15,844,581	194,422	229,130	0	15,809,872	15,827,226	0.0145	0.0147	0.0158
312	2017	15,809,872	713,917	333,809	0	16,189,980	15,999,926	0.0209	0.0150	0.0197
							Average	0.0150		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Life Span (years)*	57.06	12.56
Plant Classification:	Steam Production Plant	IRR	0.0019	0.0019
Account Number:	314	Adjusted Life Span (years)	53.97	12.41
Plant Account:	Turbogenerator Units			
End of Year Study Balance:	$2,802,766	* See separate worksheet for calculation of life spans for steam production plant accounts		

Year ending December 31

Account	Year	BOY Balance	Addition	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
314	1968	$0	$0	$0	$0	$0	$0	--	--	
314	1969	0	1,256,863	0	0	$1,256,863	628,432	0.0000	0.0000	
314	1970	1,256,863	9,430	0	0	$1,266,293	1,261,578	0.0000	0.0000	
314	1971	1,266,293	0	0	0	$1,266,293	1,266,293	0.0000	0.0000	
314	1972	1,266,293	0	3,233	0	$1,263,060	1,264,677	0.0026	0.0007	0.0007
314	1973	1,263,060	0	0	0	$1,263,060	1,263,060	0.0000	0.0006	0.0006
314	1974	1,263,060	0	0	0	$1,263,060	1,263,060	0.0000	0.0005	0.0005
314	1975	1,263,060	0	0	0	$1,263,060	1,263,060	0.0000	0.0004	0.0005
314	1976	1,263,060	0	0	0	$1,263,060	1,263,060	0.0000	0.0003	0.0005
314	1977	1,263,060	36,051	0	0	$1,299,111	1,281,086	0.0000	0.0003	0.0000
314	1978	1,299,111	6,118	0	0	$1,305,229	1,302,170	0.0000	0.0003	0.0000
314	1979	1,305,229	227	0	0	$1,305,456	1,305,343	0.0000	0.0002	0.0000
314	1980	1,305,456	1,034	0	0	$1,306,490	1,305,973	0.0000	0.0002	0.0000
314	1981	1,306,490	10	0	0	$1,306,500	1,306,495	0.0000	0.0002	0.0000
314	1982	1,306,500	1,658	0	0	$1,308,158	1,307,329	0.0000	0.0002	0.0000
314	1983	1,308,158	0	2,215	0	$1,305,943	1,307,051	0.0017	0.0003	0.0003
314	1984	1,305,943	2,955	0	0	$1,308,898	1,307,421	0.0000	0.0003	0.0003
314	1985	1,308,898	0	0	0	$1,308,898	1,308,898	0.0000	0.0003	0.0003
314	1986	1,308,898	0	0	0	$1,308,898	1,308,898	0.0000	0.0002	0.0003
314	1987	1,308,898	1,876	0	0	$1,310,774	1,309,836	0.0000	0.0002	0.0003
314	1988	1,310,774	12,987	0	0	$1,323,761	1,317,268	0.0000	0.0002	0.0000
314	1989	1,323,761	0	0	0	$1,323,761	1,323,761	0.0000	0.0002	0.0000
314	1990	1,323,761	0	0	0	$1,323,761	1,323,761	0.0000	0.0002	0.0000
314	1991	1,323,761	0	0	0	$1,323,761	1,323,761	0.0000	0.0002	0.0000
314	1992	1,323,761	203,341	0	0	$1,527,102	1,425,432	0.0000	0.0002	0.0000
314	1993	1,527,102	33,274	0	0	$1,560,376	1,543,739	0.0000	0.0002	0.0000
314	1994	1,560,376	21,030	0	0	$1,581,406	1,570,891	0.0000	0.0002	0.0000
314	1995	1,581,406	1,459	0	0	$1,582,865	1,582,136	0.0000	0.0002	0.0000
314	1996	1,582,865	0	0	0	$1,582,865	1,582,865	0.0000	0.0001	0.0000
314	1997	1,582,865	0	0	0	$1,582,865	1,582,865	0.0000	0.0001	0.0000
314	1998	1,582,865	0	0	0	$1,582,865	1,582,865	0.0000	0.0001	0.0000
314	1999	1,582,865	0	0	0	$1,582,865	1,582,865	0.0000	0.0001	0.0000
314	2000	1,582,865	0	0	0	$1,582,865	1,582,865	0.0000	0.0001	0.0000
314	2001	1,582,865	134,420	0	0	$1,717,285	1,650,075	0.0000	0.0001	0.0000
314	2002	1,717,285	0	0	0	$1,717,285	1,717,285	0.0000	0.0001	0.0000
314	2003	1,717,285	0	0	0	$1,717,285	1,717,285	0.0000	0.0001	0.0000
314	2004	1,717,285	2,462	4,707	0	$1,715,040	1,716,162	0.0027	0.0002	0.0006
314	2005	1,715,040	31,369	5,230	0	$1,741,179	1,728,109	0.0030	0.0003	0.0012
314	2006	1,741,179	8,912	1,319	0	$1,748,772	1,744,976	0.0008	0.0003	0.0013
314	2007	1,748,772	76,615	0	0	$1,825,387	1,787,080	0.0000	0.0003	0.0013
314	2008	1,825,387	935,681	136,100	0	$2,624,969	2,225,178	0.0612	0.0027	0.0160
314	2009	2,624,969	0	0	0	$2,624,969	2,624,969	0.0000	0.0025	0.0141
314	2010	2,624,969	0	0	0	$2,624,969	2,624,969	0.0000	0.0024	0.0125
314	2011	2,624,969	0	0	0	$2,624,969	2,624,969	0.0000	0.0023	0.0114
314	2012	2,624,969	0	0	0	$2,624,969	2,624,969	0.0000	0.0022	0.0107
314	2013	2,624,969	0	0	0	$2,624,969	2,624,969	0.0000	0.0022	0.0000
314	2014	2,624,969	0	0	0	$2,624,969	2,624,969	0.0000	0.0021	0.0000
314	2015	2,624,969	0	0	0	$2,624,969	2,624,969	0.0000	0.0020	0.0000
314	2016	2,624,969	158,467	0	0	$2,783,436	2,704,202	0.0000	0.0019	0.0000
314	2017	2,783,436	19,330	0	0	2,802,766	2,793,101	0.0000	0.0019	0.0000
							Average	0.0019		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Life Span (years)*	60.00	10.50
Plant Classification:	Steam Production Plant	IRR	0.0016	0.0016
Account Number:	315	Adjusted Life Span (years)	57.12	10.41
Plant Account:	Accessory Electric Equipment			
End of Year Study Balance:	$776,822			

* See separate worksheet for calculation of life spans for steam production plant accounts

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
315	1968	$0	$0	$0	$0	$0	$0	--	--	
315	1969	0	415,474	0	0	415,474	207,737	0.0000	0.0000	
315	1970	415,474	992	0	0	416,466	415,970	0.0000	0.0000	
315	1971	416,466	0	0	0	416,466	416,466	0.0000	0.0000	
315	1972	416,466	0	0	0	416,466	416,466	0.0000	0.0000	0.0000
315	1973	416,466	359	0	0	416,825	416,646	0.0000	0.0000	0.0000
315	1974	416,825	0	0	0	416,825	416,825	0.0000	0.0000	0.0000
315	1975	416,825	0	0	0	416,825	416,825	0.0000	0.0000	0.0000
315	1976	416,825	491	0	0	417,316	417,071	0.0000	0.0000	0.0000
315	1977	417,316	0	0	0	417,316	417,316	0.0000	0.0000	0.0000
315	1978	417,316	0	0	0	417,316	417,316	0.0000	0.0000	0.0000
315	1979	417,316	16,794	0	0	434,110	425,713	0.0000	0.0000	0.0000
315	1980	434,110	1,333	0	0	435,443	434,777	0.0000	0.0000	0.0000
315	1981	435,443	0	0	0	435,443	435,443	0.0000	0.0000	0.0000
315	1982	435,443	4,396	0	0	439,839	437,641	0.0000	0.0000	0.0000
315	1983	439,839	28,824	0	0	468,663	454,251	0.0000	0.0000	0.0000
315	1984	468,663	5,232	0	0	473,895	471,279	0.0000	0.0000	0.0000
315	1985	473,895	3,614	0	0	477,509	475,702	0.0000	0.0000	0.0000
315	1986	477,509	2,265	0	0	479,774	478,642	0.0000	0.0000	0.0000
315	1987	479,774	0	0	0	479,774	479,774	0.0000	0.0000	0.0000
315	1988	479,774	0	0	0	479,774	479,774	0.0000	0.0000	0.0000
315	1989	479,774	0	0	0	479,774	479,774	0.0000	0.0000	0.0000
315	1990	479,774	7,181	0	0	486,955	483,365	0.0000	0.0000	0.0000
315	1991	486,955	0	0	0	486,955	486,955	0.0000	0.0000	0.0000
315	1992	486,955	33,918	0	0	520,873	503,914	0.0000	0.0000	0.0000
315	1993	520,873	18,045	0	0	538,918	529,896	0.0000	0.0000	0.0000
315	1994	538,918	9,162	0	0	548,080	543,499	0.0000	0.0000	0.0000
315	1995	548,080	160	0	0	548,240	548,160	0.0000	0.0000	0.0000
315	1996	548,240	0	0	0	548,240	548,240	0.0000	0.0000	0.0000
315	1997	548,240	0	0	0	548,240	548,240	0.0000	0.0000	0.0000
315	1998	548,240	17,795	781	0	565,254	556,747	0.0014	0.0001	0.0003
315	1999	565,254	4,872	0	0	570,126	567,690	0.0000	0.0001	0.0003
315	2000	570,126	2,898	0	0	573,024	571,575	0.0000	0.0001	0.0003
315	2001	573,024	826	0	0	573,850	573,437	0.0000	0.0001	0.0003
315	2002	573,850	0	0	0	573,850	573,850	0.0000	0.0000	0.0003
315	2003	573,850	0	0	0	573,850	573,850	0.0000	0.0000	0.0000
315	2004	573,850	0	0	0	573,850	573,850	0.0000	0.0000	0.0000
315	2005	573,850	27,696	4,086	0	597,460	585,655	0.0070	0.0003	0.0014
315	2006	597,460	5,487	2,960	0	599,987	598,724	0.0049	0.0004	0.0024
315	2007	599,987	2,669	770	0	601,886	600,937	0.0013	0.0005	0.0027
315	2008	601,886	176,789	5,188	0	773,488	687,687	0.0075	0.0007	0.0043
315	2009	773,488	0	0	0	773,488	773,488	0.0000	0.0007	0.0040
315	2010	773,488	0	0	0	773,488	773,488	0.0000	0.0006	0.0026
315	2011	773,488	0	0	0	773,488	773,488	0.0000	0.0006	0.0017
315	2012	773,488	0	0	0	773,488	773,488	0.0000	0.0006	0.0014
315	2013	773,488	0	0	0	773,488	773,488	0.0000	0.0006	0.0000
315	2014	773,488	0	0	0	773,488	773,488	0.0000	0.0006	0.0000
315	2015	773,488	0	0	0	773,488	773,488	0.0000	0.0005	0.0000
315	2016	773,488	32,116	28,781	0	776,822	775,155	0.0371	0.0016	0.0074
315	2017	776,822	0	0	0	776,822	776,822	0.0000	0.0016	0.0074
							Average	0.0016		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Life Span (years)*	58.50	11.55
Plant Classification:	Steam Production Plant	IRR	0.0094	0.0094
Account Number:	316	Adjusted Life Span (years)	42.42	10.92
Plant Account:	Misc. Power Plant Equipment			
End of Year Study Balance:	$668,853			

* See separate worksheet for calculation of life spans for steam production plant accounts

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
316	1968	$0	$0	$0		$0	$0	--	--	
316	1969	0	101,766	0	0	101,766	50,883	0.0000	0.0000	
316	1970	101,766	47	0	0	101,813	101,790	0.0000	0.0000	
316	1971	101,813	0	0	0	101,813	101,813	0.0000	0.0000	
316	1972	101,813	0	0	0	101,813	101,813	0.0000	0.0000	0.0000
316	1973	101,813	0	0	0	101,813	101,813	0.0000	0.0000	0.0000
316	1974	101,813	558	0	0	102,371	102,092	0.0000	0.0000	0.0000
316	1975	102,371	0	0	0	102,371	102,371	0.0000	0.0000	0.0000
316	1976	102,371	0	0	0	102,371	102,371	0.0000	0.0000	0.0000
316	1977	102,371	0	0	0	102,371	102,371	0.0000	0.0000	0.0000
316	1978	102,371	2,446	0	0	104,817	103,594	0.0000	0.0000	0.0000
316	1979	104,817	0	0	0	104,817	104,817	0.0000	0.0000	0.0000
316	1980	104,817	1,772	0	0	106,589	105,703	0.0000	0.0000	0.0000
316	1981	106,589	121	0	0	106,710	106,650	0.0000	0.0000	0.0000
316	1982	106,710	514	0	0	107,224	106,967	0.0000	0.0000	0.0000
316	1983	107,224	2,463	0	0	109,687	108,456	0.0000	0.0000	0.0000
316	1984	109,687	0	0	0	109,687	109,687	0.0000	0.0000	0.0000
316	1985	109,687	6,501	418	0	115,770	112,729	0.0037	0.0002	0.0008
316	1986	115,770	31,759	0	0	147,529	131,650	0.0000	0.0002	0.0007
316	1987	147,529	72	0	0	147,601	147,565	0.0000	0.0002	0.0007
316	1988	147,601	2,605	0	0	150,206	148,904	0.0000	0.0002	0.0006
316	1989	150,206	7,602	0	0	157,808	154,007	0.0000	0.0002	0.0006
316	1990	157,808	9	0	0	157,817	157,813	0.0000	0.0002	0.0000
316	1991	157,817	796	0	0	158,613	158,215	0.0000	0.0002	0.0000
316	1992	158,613	0	0	0	158,613	158,613	0.0000	0.0002	0.0000
316	1993	158,613	23,903	0	0	182,516	170,565	0.0000	0.0001	0.0000
316	1994	182,516	13,578	0	0	196,094	189,305	0.0000	0.0001	0.0000
316	1995	196,094	517	0	0	196,611	196,353	0.0000	0.0001	0.0000
316	1996	196,611	4,136	0	0	200,747	198,679	0.0000	0.0001	0.0000
316	1997	200,747	0	0	0	200,747	200,747	0.0000	0.0001	0.0000
316	1998	200,747	49,920	0	0	250,667	225,707	0.0000	0.0001	0.0000
316	1999	250,667	(69,877)	0	0	180,790	215,729	0.0000	0.0001	0.0000
316	2000	180,790	0	0	0	180,790	180,790	0.0000	0.0001	0.0000
316	2001	180,790	452	0	0	181,242	181,016	0.0000	0.0001	0.0000
316	2002	181,242	63,321	0	0	244,563	212,902	0.0000	0.0001	0.0000
316	2003	244,563	(1,772)	0	0	242,791	243,677	0.0000	0.0001	0.0000
316	2004	242,791	54,375	63,594	0	233,572	238,181	0.2670	0.0122	0.0602
316	2005	233,572	13,218	0	0	246,790	240,181	0.0000	0.0117	0.0570
316	2006	246,790	3,000	137	0	249,653	248,221	0.0006	0.0112	0.0539
316	2007	249,653	5,456	0	0	255,109	252,381	0.0000	0.0107	0.0521
316	2008	255,109	403,239	363	0	657,985	456,547	0.0008	0.0100	0.0446
316	2009	657,985	195	14,640	0	643,540	650,762	0.0225	0.0112	0.0082
316	2010	643,540	19,280	0	0	662,819	653,180	0.0000	0.0102	0.0067
316	2011	662,819	840	0	0	663,659	663,239	0.0000	0.0094	0.0056
316	2012	663,659	30,491	35,516	0	658,634	661,147	0.0537	0.0127	0.0164
316	2013	658,634	0	0	0	658,634	658,634	0.0000	0.0118	0.0153
316	2014	658,634	0	0	0	658,634	658,634	0.0000	0.0110	0.0108
316	2015	658,634	6,666	2,206	0	663,094	660,864	0.0033	0.0106	0.0114
316	2016	663,094	5,759	0	0	668,853	665,973	0.0000	0.0100	0.0114
316	2017	668,853	0	0	0	668,853	668,853	0.0000	0.0094	0.0007
							Average	0.0094		

Kaua'i Island Utility Cooperative

Weighted Average Life Span and Remaining Life
Steam Production Plant

Kapaia Plant

In Service Year	2002
Estimated Life Span (years)	40
Estimated Retirement Year	2042
Depreciation Study Year	2017
Remaining Life Span at 12/31/17 (years)	24.5

Port Allen Steam Plant

In Service Year	1968
Estimated Life Span (years)	60
Estimated Retirement Year	2028
Depreciation Study Year	2017
Remaining Life Span at 12/31/17 (years)	10.5

							Based on Gross Plant %							Based on Net Plant %	
		Gross Plant			Relative Percent		Average	Average	Net Plant					Average	Average
Account	Description	Balance at 12/31/17	Kapaia Plant	Port Allen Units	Kapaia	Port Allen	Life Span*	Remaining Life Span	Balance at 12/31/17	Kapaia Plant	Port Allen Units	Kapaia	Port Allen	Life Span*	Remaining Life Span
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)
311	Structures and Improvements	$5,627,209	$129,927	$5,497,282	2.31%	97.69%	59.54	10.82	$760,964	$77,392	$683,571	10.17%	89.83%	57.97	11.92
312	Boiler Plant Equipment	16,189,980	6,646,531	9,543,449	41.05%	58.95%	51.79	16.25	6,891,016	3,506,666	3,384,351	50.89%	49.11%	49.82	17.62
313	Engine Driven Generators	5,556	0	5,556	0.00%	100.00%	60.00	10.50	0	0	0	N/A	N/A	N/A	N/A
314	Turbogenerator Units	2,802,766	158,467	2,644,299	5.65%	94.35%	58.87	11.29	1,069,338	157,088	912,250	14.69%	85.31%	57.06	12.56
315	Accessory Electrical Equipment	776,822	0	776,822	0.00%	100.00%	60.00	10.50	229,641	0	229,641	0.00%	100.00%	60.00	10.50
316	Miscellaneous Power Equipment	668,853	39,097	629,756	5.85%	94.15%	58.83	11.32	316,950	23,833	293,117	7.52%	92.48%	58.50	11.55
	Total	$26,071,186	$6,974,021	$19,097,165					$9,267,909	$3,764,979	$5,502,930				

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Estimated Retirement Year		2051
Plant Classification:	Hydro Production Plant	Study Year ended Dec. 31		2017
Account Number:	331	Life Span (years)	50.00	33.50
Plant Account:	Structures and Improvements	IRR	0.0000	0.0000
End of Year Study Balance:	$1,006,789	Adjusted Life Span (years)	50.00	33.50

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
331	2001	($0)	$0	$0	$0	($0)	($0)			
331	2002	(0)	0	0	0	(0)	(0)			
331	2003	(0)	0	0	0	(0)	(0)			
331	2004	(0)	0	0	0	(0)	(0)			
331	2005	(0)	0	0	0	(0)	(0)			
331	2006	(0)	12,172	0	0	12,172	6,086	0.0000	0.0000	0.0000
331	2007	12,172	0	0	0	12,172	12,172	0.0000	0.0000	0.0000
331	2008	12,172	0	0	0	12,172	12,172	0.0000	0.0000	0.0000
331	2009	12,172	0	0	0	12,172	12,172	0.0000	0.0000	0.0000
331	2010	12,172	41,321	0	0	53,493	32,832	0.0000	0.0000	0.0000
331	2011	53,493	0	0	0	53,493	53,493	0.0000	0.0000	0.0000
331	2012	53,493	0	0	0	53,493	53,493	0.0000	0.0000	0.0000
331	2013	53,493	0	0	0	53,493	53,493	0.0000	0.0000	0.0000
331	2014	53,493	132,994	0	53,493	132,994	93,244	0.0000	0.0000	0.0000
331	2015	132,994	19,610	0	0	152,604	142,799	0.0000	0.0000	0.0000
331	2016	152,604	585,634	0	0	738,238	445,421	0.0000	0.0000	0.0000
331	2017	738,238	268,551	0	0	1,006,789	872,513	0.0000	0.0000	0.0000
							Average	0.0000		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Estimated Retirement Year		2051
Plant Classification:	Hydro Production Plant	Study Year ended Dec. 31		2017
Account Number:	332	Life Span (years)	50.00	33.50
Plant Account:	Reservoirs, Dams and Waterways	IRR	0.0000	0.0000
End of Year Study Balance:	$2,030,551	Adjusted Life Span (years)	50.00	33.50

Year ending December 31

		BOY		Interim	Terminal	EOY	Average	Retirement Ratio		
Account	Year	Balance	Additions	Retirements	Retirements	Balance	Balance	Annual	Cumulative	5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
332	2001	$0	$0	$0	$0	$0	$0			
332	2002	0	0	0	0	0	0			
332	2003	0	0	0	0	0	0			
332	2004	0	207,355	0	0	207,355	103,678	0.0000	0.0000	
332	2005	207,355	0	0	0	207,355	207,355	0.0000	0.0000	0.0000
332	2006	207,355	0	0	0	207,355	207,355	0.0000	0.0000	0.0000
332	2007	207,355	258,409	0	0	465,764	336,560	0.0000	0.0000	0.0000
332	2008	465,764	0	0	0	465,764	465,764	0.0000	0.0000	0.0000
332	2009	465,764	0	0	0	465,764	465,764	0.0000	0.0000	0.0000
332	2010	465,764	0	0	0	465,764	465,764	0.0000	0.0000	0.0000
332	2011	465,764	0	0	0	465,764	465,764	0.0000	0.0000	0.0000
332	2012	465,764	0	0	0	465,764	465,764	0.0000	0.0000	0.0000
332	2013	465,764	0	0	0	465,764	465,764	0.0000	0.0000	0.0000
332	2014	465,764	0	0	0	465,764	465,764	0.0000	0.0000	0.0000
332	2015	465,764	1,564,787	0	0	2,030,551	1,248,158	0.0000	0.0000	0.0000
332	2016	2,030,551	0	0	0	2,030,551	2,030,551	0.0000	0.0000	0.0000
332	2017	2,030,551	0	0	0	2,030,551	2,030,551	0.0000	0.0000	0.0000
							Average	0.0000		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Estimated Retirement Year		2051
Plant Classification:	Hydro Production Plant	Study Year ended Dec. 31		2017
Account Number:	333	Life Span (years)	50.00	33.50
Plant Account:	Water Wheels, Turbines & Generators	IRR	0.0183	0.0183
End of Year Study Balance:	$1,956,745	Adjusted Life Span (years)	27.13	23.23

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Cumulative	5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
333	2001	$0	$0	$0	$0	$0	$0			
333	2002	0	0	0	0	0	0			
333	2003	0	268,646	0	0	268,646	134,323	0.0000	0.0000	
333	2004	268,646	115,760	0	0	384,406	326,526	0.0000	0.0000	
333	2005	384,406	0	0	0	384,406	384,406	0.0000	0.0000	0.0000
333	2006	384,406	15,173	31,704	0	367,875	376,140	0.0843	0.0260	0.0260
333	2007	367,875	262,511	38,478	0	591,908	479,891	0.0802	0.0413	0.0413
333	2008	591,908	0	0	0	591,908	591,908	0.0000	0.0306	0.0325
333	2009	591,908	0	0	0	591,908	591,908	0.0000	0.0243	0.0289
333	2010	591,908	0	751	0	591,156	591,532	0.0013	0.0204	0.0270
333	2011	591,156	0	0	0	591,156	591,156	0.0000	0.0174	0.0138
333	2012	591,156	0	0	0	591,156	591,156	0.0000	0.0152	0.0003
333	2013	591,156	95,030	19,714	0	666,472	628,814	0.0314	0.0171	0.0068
333	2014	666,472	0	0	0	666,472	666,472	0.0000	0.0152	0.0067
333	2015	666,472	0	0	0	666,472	666,472	0.0000	0.0137	0.0063
333	2016	666,472	0	0	0	666,472	666,472	0.0000	0.0124	0.0061
333	2017	666,472	1,356,977	66,705	0	1,956,745	1,311,609	0.0509	0.0183	0.0219
							Average	0.0183		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC	Estimated Retirement Year		2051
Plant Classification:	Hydro Production Plant	Study Year ended Dec. 31		2017
Account Number:	334	Life Span (years)	50.00	33.50
Plant Account:	Accessory Electric Equipment-Water	IRR	0.0000	0.0000
End of Year Study Balance:	$718,901	Adjusted Life Span (years)	50.00	33.50

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Cumulative	5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
334	2013	0	410,032	0	0	410,032	205,016	0.0000	0.0000	0.0000
334	2014	410,032	0	0	0	410,032	410,032	0.0000	0.0000	0.0000
334	2015	410,032	110,048	0	0	520,080	465,056	0.0000	0.0000	0.0000
334	2016	520,080	61,917	0	0	581,996	551,038	0.0000	0.0000	0.0000
334	2017	581,996	136,905	0	0	718,901	650,449	0.0000	0.0000	0.0000
							Average	0.0000		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC			
Plant Classification:	Other Production Plant	Life Span (years)	46.52	16.21
Account Number:	341	IRR	0.0049	0.0049
Plant Account:	Structures and Improvements	Adjusted Life Span (years)	41.22	15.57
End of Year Study Balance:	$18,689,459			

* See separate worksheet for calculation of average remaining life spans for other production plant accounts

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
341	1964	$0	$33,562	$0	$0	$33,562	$16,781	0.0000	0.0000	
341	1965	33,562	1,651	0	0	35,213	34,388	0.0000	0.0000	
341	1966	35,213	0	0	0	35,213	35,213	0.0000	0.0000	
341	1967	35,213	0	0	0	35,213	35,213	0.0000	0.0000	
341	1968	35,213	0	0	0	35,213	35,213	0.0000	0.0000	0.0000
341	1969	35,213	0	0	0	35,213	35,213	0.0000	0.0000	0.0000
341	1970	35,213	0	0	0	35,213	35,213	0.0000	0.0000	0.0000
341	1971	35,213	0	0	0	35,213	35,213	0.0000	0.0000	0.0000
341	1972	35,213	0	0	0	35,213	35,213	0.0000	0.0000	0.0000
341	1973	35,213	21,344	0	0	56,557	45,885	0.0000	0.0000	0.0000
341	1974	56,557	25,874	0	0	82,431	69,494	0.0000	0.0000	0.0000
341	1975	82,431	11,027	0	0	93,458	87,945	0.0000	0.0000	0.0000
341	1976	93,458	0	0	0	93,458	93,458	0.0000	0.0000	0.0000
341	1977	93,458	12,173	0	0	105,631	99,545	0.0000	0.0000	0.0000
341	1978	105,631	0	0	0	105,631	105,631	0.0000	0.0000	0.0000
341	1979	105,631	0	0	0	105,631	105,631	0.0000	0.0000	0.0000
341	1980	105,631	1,311	0	0	106,942	106,287	0.0000	0.0000	0.0000
341	1981	106,942	630	0	0	107,572	107,257	0.0000	0.0000	0.0000
341	1982	107,572	49,275	0	0	156,847	132,210	0.0000	0.0000	0.0000
341	1983	156,847	0	0	0	156,847	156,847	0.0000	0.0000	0.0000
341	1984	156,847	2,420	0	0	159,267	158,057	0.0000	0.0000	0.0000
341	1985	159,267	4,513	0	0	163,780	161,524	0.0000	0.0000	0.0000
341	1986	163,780	0	0	0	163,780	163,780	0.0000	0.0000	0.0000
341	1987	163,780	0	0	0	163,780	163,780	0.0000	0.0000	0.0000
341	1988	163,780	0	0	0	163,780	163,780	0.0000	0.0000	0.0000
341	1989	163,780	0	0	0	163,780	163,780	0.0000	0.0000	0.0000
341	1990	163,780	5,497,129	0	0	5,660,909	2,912,345	0.0000	0.0000	0.0000
341	1991	5,660,909	14,418	0	0	5,675,327	5,668,118	0.0000	0.0000	0.0000
341	1992	5,675,327	149,580	0	0	5,824,907	5,750,117	0.0000	0.0000	0.0000
341	1993	5,824,907	366,951	0	0	6,191,858	6,008,383	0.0000	0.0000	0.0000
341	1994	6,191,858	909,953	0	0	7,101,811	6,646,835	0.0000	0.0000	0.0000
341	1995	7,101,811	83,670	0	0	7,185,481	7,143,646	0.0000	0.0000	0.0000
341	1996	7,185,481	813	0	0	7,186,294	7,185,888	0.0000	0.0000	0.0000
341	1997	7,186,294	30,724	0	0	7,217,018	7,201,656	0.0000	0.0000	0.0000
341	1998	7,217,018	38,300	0	0	7,255,319	7,236,169	0.0000	0.0000	0.0000
341	1999	7,255,319	0	0	0	7,255,319	7,255,319	0.0000	0.0000	0.0000
341	2000	7,255,319	0	0	0	7,255,318	7,255,318	0.0000	0.0000	0.0000
341	2001	7,255,318	2,734,749	0	0	9,990,067	8,622,692	0.0000	0.0000	0.0000
341	2002	9,990,067	1,687,512	1,454	0	11,676,125	10,833,096	0.0001	0.0000	0.0000
341	2003	11,676,125	6,534,266	0	0	18,210,391	14,943,258	0.0000	0.0000	0.0000
341	2004	18,210,391	0	0	0	18,210,391	18,210,391	0.0000	0.0000	0.0000
341	2005	18,210,391	0	0	0	18,210,391	18,210,391	0.0000	0.0000	0.0000
341	2006	18,210,391	125,093	37,276	0	18,298,208	18,254,300	0.0020	0.0002	0.0005
341	2007	18,298,208	14,639	6,300	0	18,306,547	18,302,377	0.0003	0.0003	0.0005
341	2008	18,306,547	271,379	118,800	0	18,459,126	18,382,836	0.0065	0.0008	0.0018
341	2009	18,459,126	82,190	5,022	0	18,536,293	18,497,710	0.0003	0.0008	0.0018
341	2010	18,536,293	123,023	31,869	0	18,627,447	18,581,870	0.0017	0.0009	0.0022
341	2011	18,627,447	284,787	123,355	0	18,627,447	18,627,447	0.0066	0.0013	0.0031
341	2012	18,627,447	427,772	0	0	18,627,447	18,627,447	0.0000	0.0012	0.0030
341	2013	18,627,447	213,726	4,887	0	18,627,447	18,627,447	0.0003	0.0011	0.0018
341	2014	18,627,447	581,216	1,094,475	0	18,627,447	18,627,447	0.0588	0.0046	0.0135
341	2015	18,627,447	38,119	10,275	0	18,627,447	18,627,447	0.0006	0.0044	0.0132
341	2016	18,627,447	79,095	354,784	0	18,627,447	18,627,447	0.0190	0.0052	0.0157
341	2017	18,627,447	29,633	4,560	0	18,689,459	18,658,453	0.0002	0.0049	0.0158
							Average	0.0049		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC			
Plant Classification:	Other Production Plant	Life Span (years)	45.31	17.74
Account Number:	342	IRR	0.0009	0.0009
Plant Account:	Fuel Holders, Products and Accessories	Adjusted Life Span (years)	44.36	17.59
End of Year Study Balance:	$4,932,794			

* See separate worksheet for calculation of average remaining life spans for other production plant accounts

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
342	1964	($0)	$4,707	$0	$0	$4,707	$2,353	0.0000	0.0000	
342	1965	4,707	0	0	0	4,707	4,707	0.0000	0.0000	
342	1966	4,707	0	0	0	4,707	4,707	0.0000	0.0000	
342	1967	4,707	0	0	0	4,707	4,707	0.0000	0.0000	
342	1968	4,707	0	0	0	4,707	4,707	0.0000	0.0000	0.0000
342	1969	4,707	0	0	0	4,707	4,707	0.0000	0.0000	0.0000
342	1970	4,707	542	0	0	5,249	4,978	0.0000	0.0000	0.0000
342	1971	5,249	0	0	0	5,249	5,249	0.0000	0.0000	0.0000
342	1972	5,249	0	0	0	5,249	5,249	0.0000	0.0000	0.0000
342	1973	5,249	15,302	0	0	20,551	12,900	0.0000	0.0000	0.0000
342	1974	20,551	10	0	0	20,561	20,556	0.0000	0.0000	0.0000
342	1975	20,561	18,386	0	0	38,947	29,754	0.0000	0.0000	0.0000
342	1976	38,947	0	0	0	38,947	38,947	0.0000	0.0000	0.0000
342	1977	38,947	60,840	0	0	99,787	69,367	0.0000	0.0000	0.0000
342	1978	99,787	0	0	0	99,787	99,787	0.0000	0.0000	0.0000
342	1979	99,787	0	0	0	99,787	99,787	0.0000	0.0000	0.0000
342	1980	99,787	1,491	0	0	101,278	100,533	0.0000	0.0000	0.0000
342	1981	101,278	0	0	0	101,278	101,278	0.0000	0.0000	0.0000
342	1982	101,278	0	0	0	101,278	101,278	0.0000	0.0000	0.0000
342	1983	101,278	31,334	0	0	132,612	116,945	0.0000	0.0000	0.0000
342	1984	132,612	0	0	0	132,612	132,612	0.0000	0.0000	0.0000
342	1985	132,612	2,805	0	0	135,417	134,015	0.0000	0.0000	0.0000
342	1986	135,417	0	0	0	135,417	135,417	0.0000	0.0000	0.0000
342	1987	135,417	0	0	0	135,417	135,417	0.0000	0.0000	0.0000
342	1988	135,417	82,067	0	0	217,484	176,451	0.0000	0.0000	0.0000
342	1989	217,484	7,627	0	0	225,111	221,298	0.0000	0.0000	0.0000
342	1990	225,111	33,349	0	0	258,460	241,786	0.0000	0.0000	0.0000
342	1991	258,460	65,320	0	0	323,780	291,120	0.0000	0.0000	0.0000
342	1992	323,780	4,271	0	0	328,051	325,915	0.0000	0.0000	0.0000
342	1993	328,051	4,067	0	0	332,118	330,084	0.0000	0.0000	0.0000
342	1994	332,118	610,106	1,912	0	940,312	636,215	0.0030	0.0005	0.0010
342	1995	940,312	695,897	0	0	1,636,209	1,288,260	0.0000	0.0004	0.0007
342	1996	1,636,209	4,629	0	0	1,640,838	1,638,523	0.0000	0.0003	0.0005
342	1997	1,640,838	39,662	0	0	1,680,500	1,660,669	0.0000	0.0002	0.0003
342	1998	1,680,500	5,697	0	0	1,686,197	1,683,348	0.0000	0.0002	0.0003
342	1999	1,686,197	(1,061)	0	0	1,685,136	1,685,667	0.0000	0.0002	0.0000
342	2000	1,685,136	25,562	0	0	1,710,699	1,697,918	0.0000	0.0001	0.0000
342	2001	1,710,699	6,348	0	0	1,717,046	1,713,872	0.0000	0.0001	0.0000
342	2002	1,717,046	395,295	5,259	0	2,107,082	1,912,064	0.0028	0.0004	0.0006
342	2003	2,107,082	1,860,642	0	0	3,967,724	3,037,403	0.0000	0.0004	0.0005
342	2004	3,967,724	0	0	0	3,967,724	3,967,724	0.0000	0.0003	0.0004
342	2005	3,967,724	82,303	0	0	4,050,027	4,008,876	0.0000	0.0003	0.0004
342	2006	4,050,027	160,075	4,124	0	4,205,978	4,128,003	0.0010	0.0004	0.0006
342	2007	4,205,978	82,334	0	0	4,288,311	4,247,145	0.0000	0.0003	0.0002
342	2008	4,288,311	0	0	0	4,288,311	4,288,311	0.0000	0.0003	0.0002
342	2009	4,288,311	60,104	5,893	0	4,342,523	4,315,417	0.0014	0.0004	0.0005
342	2010	4,342,523	96,514	23,907	0	4,415,130	4,378,826	0.0055	0.0008	0.0016
342	2011	4,415,130	20,244	5,136	0	4,430,237	4,422,683	0.0012	0.0009	0.0016
342	2012	4,430,237	0	0	0	4,430,237	4,430,237	0.0000	0.0008	0.0016
342	2013	4,430,237	17,441	24,943	0	4,422,735	4,426,486	0.0056	0.0011	0.0027
342	2014	4,422,735	258,132	0	0	4,680,867	4,551,801	0.0000	0.0011	0.0024
342	2015	4,680,867	229,896	0	0	4,910,763	4,795,815	0.0000	0.0010	0.0013
342	2016	4,910,763	15,760	0	0	4,926,523	4,918,643	0.0000	0.0009	0.0011
342	2017	4,926,523	10,871	4,600	0	4,932,794	4,929,659	0.0009	0.0009	0.0013
						..	Average	0.0009		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC			
Plant Classification:	Other Production Plant	Life Span (years)	48.18	13.79
Account Number:	343	IRR	0.0108	0.0108
Plant Account:	Prime Movers	Adjusted Life Span (years)	35.61	12.76
End of Year Study Balance:	$67,029,806			

* See separate worksheet for calculation of average remaining life spans for other production plant accounts

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
343	1964	0	283,310	0	0	283,310	141,655	0.0000	0.0000	
343	1965	283,310	83	0	0	283,393	283,352	0.0000	0.0000	
343	1966	283,393	0	0	0	283,393	283,393	0.0000	0.0000	
343	1967	283,393	0	0	0	283,393	283,393	0.0000	0.0000	
343	1968	283,393	0	0	0	283,393	283,393	0.0000	0.0000	0.0000
343	1969	283,393	1,018,134	0	0	1,301,527	792,460	0.0000	0.0000	0.0000
343	1970	1,301,527	67,095	0	0	1,368,622	1,335,075	0.0000	0.0000	0.0000
343	1971	1,368,622	0	0	0	1,368,622	1,368,622	0.0000	0.0000	0.0000
343	1972	1,368,622	0	0	0	1,368,622	1,368,622	0.0000	0.0000	0.0000
343	1973	1,368,622	1,203,104	0	0	2,571,726	1,970,174	0.0000	0.0000	0.0000
343	1974	2,571,726	31,568	0	0	2,603,294	2,587,510	0.0000	0.0000	0.0000
343	1975	2,603,294	32,858	0	0	2,636,152	2,619,723	0.0000	0.0000	0.0000
343	1976	2,636,152	15,721	15,728	0	2,636,145	2,636,149	0.0060	0.0010	0.0014
343	1977	2,636,145	2,388,875	0	0	5,025,020	3,830,583	0.0000	0.0008	0.0012
343	1978	5,025,020	2,041	0	0	5,027,061	5,026,041	0.0000	0.0006	0.0009
343	1979	5,027,061	92,048	0	0	5,119,109	5,073,085	0.0000	0.0005	0.0008
343	1980	5,119,109	269,121	0	0	5,388,230	5,253,670	0.0000	0.0004	0.0007
343	1981	5,388,230	67,013	0	0	5,455,243	5,421,737	0.0000	0.0004	0.0000
343	1982	5,455,243	84,295	0	0	5,539,538	5,497,391	0.0000	0.0003	0.0000
343	1983	5,539,538	8,253	0	0	5,547,791	5,543,665	0.0000	0.0003	0.0000
343	1984	5,547,791	203,047	0	0	5,750,838	5,649,315	0.0000	0.0003	0.0000
343	1985	5,750,838	182,539	0	0	5,933,377	5,842,108	0.0000	0.0002	0.0000
343	1986	5,933,377	325,236	0	0	6,258,613	6,095,995	0.0000	0.0002	0.0000
343	1987	6,258,613	44,357	253,975	0	6,048,995	6,153,804	0.0413	0.0036	0.0087
343	1988	6,048,995	2,103,162	800,731	0	7,351,426	6,700,211	0.1195	0.0130	0.0346
343	1989	7,351,426	1,281,724	0	0	8,633,150	7,992,288	0.0000	0.0119	0.0322
343	1990	8,633,150	7,659,927	527,840	0	15,765,237	12,199,194	0.0433	0.0156	0.0404
343	1991	15,765,237	14,565,695	0	0	30,330,932	23,048,085	0.0000	0.0128	0.0282
343	1992	30,330,932	0	0	0	30,330,932	30,330,932	0.0000	0.0103	0.0166
343	1993	30,330,932	1,541,349	0	0	31,872,281	31,101,607	0.0000	0.0086	0.0050
343	1994	31,872,281	1,309,335	0	0	33,181,616	32,526,949	0.0000	0.0073	0.0041
343	1995	33,181,616	2,311,466	0	0	35,493,082	34,337,349	0.0000	0.0063	0.0000
343	1996	35,493,082	242,787	0	0	35,735,869	35,614,476	0.0000	0.0055	0.0000
343	1997	35,735,869	1,441,990	0	0	37,177,859	36,456,864	0.0000	0.0049	0.0000
343	1998	37,177,859	1,120,309	1,364,795	0	36,933,373	37,055,616	0.0368	0.0082	0.0078
343	1999	36,933,373	238,331	0	0	37,171,704	37,052,539	0.0000	0.0074	0.0076
343	2000	37,171,704	1,445,231	0	0	38,616,935	37,894,319	0.0000	0.0068	0.0074
343	2001	38,616,935	1,943,865	56	0	40,560,744	39,588,839	0.0000	0.0062	0.0073
343	2002	40,560,744	702,817	533,885	0	40,729,676	40,645,210	0.0131	0.0068	0.0099
343	2003	40,729,676	9,523,668	34,833	0	50,218,511	45,474,093	0.0008	0.0063	0.0028
343	2004	50,218,511	652,603	266,621	0	50,604,494	50,411,502	0.0053	0.0062	0.0039
343	2005	50,604,494	1,246,931	795,865	0	51,055,559	50,830,026	0.0157	0.0069	0.0072
343	2006	51,055,559	1,858,104	822,587	0	52,091,076	51,573,318	0.0159	0.0076	0.0103
343	2007	52,091,076	1,252,082	140,467	0	53,202,691	52,646,883	0.0027	0.0072	0.0082
343	2008	53,202,691	1,132,993	506,621	0	53,829,063	53,515,877	0.0095	0.0074	0.0098
343	2009	53,829,063	4,008,879	813,115	0	57,024,827	55,426,945	0.0147	0.0078	0.0117
343	2010	57,024,827	6,887,611	2,507,991	0	61,404,447	59,214,637	0.0424	0.0100	0.0176
343	2011	61,404,447	3,856,935	1,006,121	0	64,255,260	62,829,854	0.0160	0.0104	0.0175
343	2012	64,255,260	1,489,985	175,631	0	65,569,615	64,912,437	0.0027	0.0099	0.0169
343	2013	65,569,615	2,243,336	1,093,216	0	66,719,735	66,144,675	0.0165	0.0103	0.0181
343	2014	66,719,735	1,633,695	1,244,984	0	67,108,446	66,914,090	0.0186	0.0108	0.0188
343	2015	67,108,446	1,122,821	1,846,106	0	66,385,161	66,746,803	0.0277	0.0117	0.0164
343	2016	66,385,161	718,884	119,327	0	66,984,718	66,684,939	0.0018	0.0112	0.0135
343	2017	66,984,718	315,798	270,710	0	67,029,806	67,007,262	0.0040	0.0108	0.0137
							Average	0.0108		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC			
Plant Classification:	Other Production Plant	Life Span (years)	44.82	19.82
Account Number:	344	IRR	0.0027	0.0027
Plant Account:	Generators	Adjusted Life Span (years)	42.09	19.29
End of Year Study Balance:	$11,321,990			

* See separate worksheet for calculation of average remaining life spans for other production plant accounts

Year ending December 31

		BOY		Interim	Terminal	EOY	Average	Retirement Ratio		
Account	Year	Balance	Additions	Retirements	Retirements	Balance	Balance	Annual	Cumulative	5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
344	1964	$0	$51,862	$0	$0	$51,862	$25,931	0.0000	0.0000	
344	1965	51,862	0	0	0	51,862	51,862	0.0000	0.0000	
344	1966	51,862	0	0	0	51,862	51,862	0.0000	0.0000	
344	1967	51,862	0	0	0	51,862	51,862	0.0000	0.0000	
344	1968	51,862	0	0	0	51,862	51,862	0.0000	0.0000	0.0000
344	1969	51,862	0	0	0	51,862	51,862	0.0000	0.0000	0.0000
344	1970	51,862	783	0	0	52,645	52,254	0.0000	0.0000	0.0000
344	1971	52,645	0	0	0	52,645	52,645	0.0000	0.0000	0.0000
344	1972	52,645	0	0	0	52,645	52,645	0.0000	0.0000	0.0000
344	1973	52,645	470,103	0	0	522,748	287,697	0.0000	0.0000	0.0000
344	1974	522,748	240	0	0	522,988	522,868	0.0000	0.0000	0.0000
344	1975	522,988	0	0	0	522,988	522,988	0.0000	0.0000	0.0000
344	1976	522,988	0	0	0	522,988	522,988	0.0000	0.0000	0.0000
344	1977	522,988	639,774	0	0	1,162,762	842,875	0.0000	0.0000	0.0000
344	1978	1,162,762	18,786	0	0	1,181,548	1,172,155	0.0000	0.0000	0.0000
344	1979	1,181,548	0	0	0	1,181,548	1,181,548	0.0000	0.0000	0.0000
344	1980	1,181,548	28,166	0	0	1,209,714	1,195,631	0.0000	0.0000	0.0000
344	1981	1,209,714	38,765	0	0	1,248,479	1,229,097	0.0000	0.0000	0.0000
344	1982	1,248,479	0	17,651	0	1,230,828	1,239,654	0.0142	0.0019	0.0029
344	1983	1,230,828	0	0	0	1,230,828	1,230,828	0.0000	0.0017	0.0029
344	1984	1,230,828	280,937	0	0	1,511,765	1,371,297	0.0000	0.0015	0.0028
344	1985	1,511,765	73,672	0	0	1,585,437	1,548,601	0.0000	0.0013	0.0027
344	1986	1,585,437	116,242	0	0	1,701,679	1,643,558	0.0000	0.0012	0.0025
344	1987	1,701,679	14	0	0	1,701,693	1,701,686	0.0000	0.0011	0.0000
344	1988	1,701,693	0	0	0	1,701,693	1,701,693	0.0000	0.0010	0.0000
344	1989	1,701,693	0	0	0	1,701,693	1,701,693	0.0000	0.0009	0.0000
344	1990	1,701,693	316,194	0	0	2,017,887	1,859,790	0.0000	0.0008	0.0000
344	1991	2,017,887	1,658	0	0	2,019,545	2,018,716	0.0000	0.0007	0.0000
344	1992	2,019,545	79	0	0	2,019,624	2,019,585	0.0000	0.0007	0.0000
344	1993	2,019,624	57,314	0	0	2,076,938	2,048,281	0.0000	0.0006	0.0000
344	1994	2,076,938	5,044	0	0	2,081,982	2,079,460	0.0000	0.0006	0.0000
344	1995	2,081,982	66,568	0	0	2,148,550	2,115,266	0.0000	0.0005	0.0000
344	1996	2,148,550	12,133	0	0	2,160,683	2,154,617	0.0000	0.0005	0.0000
344	1997	2,160,683	0	0	0	2,160,683	2,160,683	0.0000	0.0005	0.0000
344	1998	2,160,683	17,588	2,222	0	2,176,049	2,168,366	0.0010	0.0005	0.0002
344	1999	2,176,049	0	0	0	2,176,049	2,176,049	0.0000	0.0005	0.0002
344	2000	2,176,049	0	0	0	2,176,049	2,176,049	0.0000	0.0005	0.0002
344	2001	2,176,049	235,265	0	0	2,411,314	2,293,682	0.0000	0.0004	0.0002
344	2002	2,411,314	110,441	0	0	2,521,755	2,466,535	0.0000	0.0004	0.0002
344	2003	2,521,755	6,771,969	0	0	9,293,725	5,907,740	0.0000	0.0004	0.0000
344	2004	9,293,725	2,000	1,507	0	9,294,217	9,293,971	0.0002	0.0003	0.0001
344	2005	9,294,217	161,611	0	0	9,455,828	9,375,022	0.0000	0.0003	0.0001
344	2006	9,455,828	209,074	52,307	0	9,612,595	9,534,211	0.0055	0.0009	0.0015
344	2007	9,612,595	487,191	5,252	0	10,094,534	9,853,564	0.0005	0.0009	0.0013
344	2008	10,094,534	319,151	0	0	10,413,684	10,254,109	0.0000	0.0008	0.0012
344	2009	10,413,684	0	0	0	10,413,684	10,413,684	0.0000	0.0007	0.0012
344	2010	10,413,684	438,212	0	0	10,851,897	10,632,791	0.0000	0.0006	0.0011
344	2011	10,851,897	369,566	33,333	0	11,188,130	11,020,013	0.0030	0.0008	0.0007
344	2012	11,188,130	43,093	0	0	11,231,223	11,209,676	0.0000	0.0008	0.0006
344	2013	11,231,223	76,284	0	0	11,307,507	11,269,365	0.0000	0.0007	0.0006
344	2014	11,307,507	311,004	233,798	0	11,384,713	11,346,110	0.0206	0.0021	0.0048
344	2015	11,384,713	126,742	203,029	0	11,308,426	11,346,569	0.0179	0.0031	0.0084
344	2016	11,308,426	3,619	0	0	11,312,045	11,310,235	0.0000	0.0029	0.0077
344	2017	11,312,045	9,945	0	0	11,321,990	11,317,017	0.0000	0.0027	0.0077
							Average	0.0027		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC			
Plant Classification:	Other Production Plant	Life Span (years)	44.11	19.69
Account Number:	345	IRR	0.0016	0.0016
Plant Account:	Accessory Electric Equipment	Adjusted Life Span (years)	42.57	19.38
End of Year Study Balance:	$9,587,188			

* See separate worksheet for calculation of average remaining life spans for other production plant accounts

Year ending December 31

Account	Year	BOY Balance	Additions	Interim Retirements	Terminal Retirements	EOY Balance	Average Balance	Retirement Ratio Annual	Retirement Ratio Cumulative	Retirement Ratio 5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
345	1964	$0	$49,007	$23	$0	$48,984	$24,492	0.0009	0.0009	
345	1965	48,984	0	0	0	48,984	48,984	0.0000	0.0003	
345	1966	48,984	13,887	0	0	62,871	55,928	0.0000	0.0002	
345	1967	62,871	0	0	0	62,871	62,871	0.0000	0.0001	
345	1968	62,871	2,549	0	0	65,420	64,146	0.0000	0.0001	0.0001
345	1969	65,420	64	0	0	65,484	65,452	0.0000	0.0001	0.0000
345	1970	65,484	0	0	0	65,484	65,484	0.0000	0.0001	0.0000
345	1971	65,484	0	0	0	65,484	65,484	0.0000	0.0001	0.0000
345	1972	65,484	8,682	0	0	74,166	69,825	0.0000	0.0000	0.0000
345	1973	74,166	486	0	0	74,652	74,409	0.0000	0.0000	0.0000
345	1974	74,652	2,337	0	0	76,989	75,821	0.0000	0.0000	0.0000
345	1975	76,989	3,398	0	0	80,387	78,688	0.0000	0.0000	0.0000
345	1976	80,387	0	0	0	80,387	80,387	0.0000	0.0000	0.0000
345	1977	80,387	6,821	0	0	87,208	83,798	0.0000	0.0000	0.0000
345	1978	87,208	0	0	0	87,208	87,208	0.0000	0.0000	0.0000
345	1979	87,208	0	0	0	87,208	87,208	0.0000	0.0000	0.0000
345	1980	87,208	74,306	0	0	161,514	124,361	0.0000	0.0000	0.0000
345	1981	161,514	85,102	0	0	246,616	204,065	0.0000	0.0000	0.0000
345	1982	246,616	0	0	0	246,616	246,616	0.0000	0.0000	0.0000
345	1983	246,616	23,311	0	0	269,927	258,272	0.0000	0.0000	0.0000
345	1984	269,927	7,662	0	0	277,589	273,758	0.0000	0.0000	0.0000
345	1985	277,589	0	22	0	277,567	277,578	0.0001	0.0000	0.0000
345	1986	277,567	24,749	0	0	302,316	289,942	0.0000	0.0000	0.0000
345	1987	302,316	0	0	0	302,316	302,316	0.0000	0.0000	0.0000
345	1988	302,316	743	0	0	303,059	302,688	0.0000	0.0000	0.0000
345	1989	303,059	4,572	0	0	307,631	305,345	0.0000	0.0000	0.0000
345	1990	307,631	3,367,932	0	0	3,675,563	1,991,597	0.0000	0.0000	0.0000
345	1991	3,675,563	696,544	0	0	4,372,107	4,023,835	0.0000	0.0000	0.0000
345	1992	4,372,107	128,158	0	0	4,500,265	4,436,186	0.0000	0.0000	0.0000
345	1993	4,500,265	233,175	0	0	4,733,440	4,616,853	0.0000	0.0000	0.0000
345	1994	4,733,440	10,345	1,585	0	4,742,200	4,737,820	0.0003	0.0001	0.0001
345	1995	4,742,200	58,400	0	0	4,800,600	4,771,400	0.0000	0.0001	0.0001
345	1996	4,800,600	(11,618)	0	0	4,788,982	4,794,791	0.0000	0.0000	0.0001
345	1997	4,788,982	0	0	0	4,788,982	4,788,982	0.0000	0.0000	0.0001
345	1998	4,788,982	86,957	2,337	0	4,873,602	4,831,292	0.0005	0.0001	0.0002
345	1999	4,873,602	6,065	0	0	4,879,667	4,876,635	0.0000	0.0001	0.0001
345	2000	4,879,667	0	0	0	4,879,667	4,879,667	0.0000	0.0001	0.0001
345	2001	4,879,667	(2)	0	0	4,879,665	4,879,666	0.0000	0.0001	0.0001
345	2002	4,879,665	0	4,845	0	4,874,820	4,877,242	0.0010	0.0001	0.0003
345	2003	4,874,820	3,263,325	0	0	8,138,145	6,506,482	0.0000	0.0001	0.0002
345	2004	8,138,145	0	0	0	8,138,145	8,138,145	0.0000	0.0001	0.0002
345	2005	8,138,145	42,946	0	0	8,181,091	8,159,618	0.0000	0.0001	0.0001
345	2006	8,181,091	11,576	0	0	8,192,667	8,186,879	0.0000	0.0001	0.0001
345	2007	8,192,667	6,491	1,938	0	8,197,220	8,194,943	0.0002	0.0001	0.0000
345	2008	8,197,220	30,021	0	0	8,227,240	8,212,230	0.0000	0.0001	0.0000
345	2009	8,227,240	28,135	0	0	8,255,375	8,241,308	0.0000	0.0001	0.0000
345	2010	8,255,375	642,566	16,347	0	8,881,594	8,568,485	0.0019	0.0002	0.0004
345	2011	8,881,594	13,313	100,685	0	8,794,223	8,837,908	0.0114	0.0009	0.0028
345	2012	8,794,223	66,309	101,241	0	8,759,290	8,776,756	0.0115	0.0016	0.0051
345	2013	8,759,290	73,338	22,489	0	8,810,139	8,784,715	0.0026	0.0016	0.0056
345	2014	8,810,139	184,772	13,521	0	8,981,391	8,895,765	0.0015	0.0016	0.0058
345	2015	8,981,391	152,133	0	0	9,133,524	9,057,457	0.0000	0.0016	0.0054
345	2016	9,133,524	187,380	0	0	9,320,904	9,227,214	0.0000	0.0015	0.0031
345	2017	9,320,904	301,219	34,934	0	9,587,188	9,454,046	0.0037	0.0016	0.0016
							Average	0.0016		

Interim Retirement Rate Analysis

			Total Life Span	Remaining Life
Company:	KIUC			
Plant Classification:	Other Production Plant	Life Span (years)	43.60	19.34
Account Number:	346	IRR	0.0362	0.0362
Plant Account:	Misc. Power Plant Equipment	Adjusted Life Span (years)	9.16	12.56
End of Year Study Balance:	$2,332,311			

* See separate worksheet for calculation of average remaining life spans for other production plant accounts

Year ending December 31

		BOY		Interim	Terminal	EOY	Average	Retirement Ratio		
Account	Year	Balance	Additions	Retirements	Retirements	Balance	Balance	Annual	Cumulative	5-Yr Avg.
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
346	1964	($0)	$0	$0		($0)	($0)	0.0000	0.0000	
346	1965	(0)	647	0	0	647	323	0.0000	0.0000	
346	1966	647	1,481	0	0	2,128	1,387	0.0000	0.0000	
346	1967	2,128	0	0	0	2,128	2,128	0.0000	0.0000	
346	1968	2,128	0	0	0	2,128	2,128	0.0000	0.0000	0.0000
346	1969	2,128	0	0	0	2,128	2,128	0.0000	0.0000	0.0000
346	1970	2,128	0	0	0	2,128	2,128	0.0000	0.0000	0.0000
346	1971	2,128	0	0	0	2,128	2,128	0.0000	0.0000	0.0000
346	1972	2,128	0	0	0	2,128	2,128	0.0000	0.0000	0.0000
346	1973	2,128	6,730	0	0	8,858	5,493	0.0000	0.0000	0.0000
346	1974	8,858	4,950	0	0	13,808	11,333	0.0000	0.0000	0.0000
346	1975	13,808	0	0	0	13,808	13,808	0.0000	0.0000	0.0000
346	1976	13,808	0	0	0	13,808	13,808	0.0000	0.0000	0.0000
346	1977	13,808	31,498	0	0	45,306	29,557	0.0000	0.0000	0.0000
346	1978	45,306	0	0	0	45,306	45,306	0.0000	0.0000	0.0000
346	1979	45,306	0	0	0	45,306	45,306	0.0000	0.0000	0.0000
346	1980	45,306	5,098	0	0	50,404	47,855	0.0000	0.0000	0.0000
346	1981	50,404	575	0	0	50,979	50,691	0.0000	0.0000	0.0000
346	1982	50,979	0	0	0	50,979	50,979	0.0000	0.0000	0.0000
346	1983	50,979	0	0	0	50,979	50,979	0.0000	0.0000	0.0000
346	1984	50,979	0	0	0	50,979	50,979	0.0000	0.0000	0.0000
346	1985	50,979	0	0	0	50,979	50,979	0.0000	0.0000	0.0000
346	1986	50,979	0	0	0	50,979	50,979	0.0000	0.0000	0.0000
346	1987	50,979	38	0	0	51,017	50,998	0.0000	0.0000	0.0000
346	1988	51,017	0	0	0	51,017	51,017	0.0000	0.0000	0.0000
346	1989	51,017	0	0	0	51,017	51,017	0.0000	0.0000	0.0000
346	1990	51,017	241,919	0	0	292,936	171,977	0.0000	0.0000	0.0000
346	1991	292,936	154,446	0	0	447,382	370,159	0.0000	0.0000	0.0000
346	1992	447,382	11,501	0	0	458,883	453,133	0.0000	0.0000	0.0000
346	1993	458,883	0	0	0	458,883	458,883	0.0000	0.0000	0.0000
346	1994	458,883	69,066	0	0	527,949	493,416	0.0000	0.0000	0.0000
346	1995	527,949	77,516	0	0	605,465	566,707	0.0000	0.0000	0.0000
346	1996	605,465	(55)	0	0	605,410	605,438	0.0000	0.0000	0.0000
346	1997	605,410	0	0	0	605,410	605,410	0.0000	0.0000	0.0000
346	1998	605,410	71,658	32,890	0	644,178	624,794	0.0526	0.0065	0.0114
346	1999	644,178	4,690	0	0	648,868	646,523	0.0000	0.0058	0.0108
346	2000	648,868	36,977	0	0	685,845	667,357	0.0000	0.0052	0.0104
346	2001	685,845	(3,583)	0	0	682,262	684,054	0.0000	0.0047	0.0102
346	2002	682,262	0	29,772	0	652,490	667,376	0.0446	0.0081	0.0190
346	2003	652,490	3,660,660	0	0	4,313,151	2,482,820	0.0000	0.0062	0.0058
346	2004	4,313,151	9,929	0	0	4,323,079	4,318,115	0.0000	0.0043	0.0034
346	2005	4,323,079	44,337	0	0	4,367,417	4,345,248	0.0000	0.0033	0.0024
346	2006	4,367,417	36,514	0	0	4,403,930	4,385,674	0.0000	0.0027	0.0018
346	2007	4,403,930	27,565	0	0	4,431,496	4,417,713	0.0000	0.0023	0.0000
346	2008	4,431,496	13,058	1,370	0	4,443,183	4,437,339	0.0003	0.0020	0.0001
346	2009	4,443,183	15,562	11,529	0	4,447,217	4,445,200	0.0026	0.0021	0.0006
346	2010	4,447,217	71,081	18,988	0	4,499,310	4,473,263	0.0042	0.0023	0.0014
346	2011	4,499,310	51,137	33,338	0	4,517,109	4,508,209	0.0074	0.0028	0.0029
346	2012	4,517,109	10,311	1,605	0	4,525,816	4,521,462	0.0004	0.0026	0.0030
346	2013	4,525,816	10,334	208,562	0	4,327,587	4,426,701	0.0471	0.0062	0.0122
346	2014	4,327,587	52,000	60,135	0	4,319,452	4,323,520	0.0139	0.0068	0.0145
346	2015	4,319,452	5,930	4,709	0	4,320,673	4,320,063	0.0011	0.0064	0.0140
346	2016	4,320,673	27,286	2,080,146	0	2,267,813	3,294,243	0.6314	0.0374	0.1128
346	2017	2,267,813	70,496	5,998	0	2,332,311	2,300,062	0.0026	0.0362	0.1264
							Average	0.0362		

Kaua'i Island Utility Cooperative

Weighted Average Life Span and Remaining Life
Other Production Plant

Unit(s)	Type	Manufacturer	Nameplate	In Service Year	Age in 2017	Estimated Life Span	Estimated Ret. Yr.	Remaining Life Span at 12/31/17
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
D1 and D2	IC-Diesel	EMD	2,000 kW each	1964	53	64	2028	10.5
D3, D4 and D5	IC-Diesel	EMD	2,750 kW each	1968	49	60	2028	10.5
GT1	IC-Gas Turbine	Hitachi/GE	17,500 kW	1973	44	55	2028	10.5
GT2	IC-Gas Turbine	John Brown/GE	22,600 kW	1977	40	51	2028	10.5
D6 and D7	IC-Diesel	Stork-Wartsila	7,850 kW each	1989	28	39	2028	10.5
D8 and D9	IC-Diesel	Stork-Wartsila	7,850 kW each	1991	26	37	2028	10.5
Kapaia	IC-Gas Turbine	GE LM2500	27,500 kW	2002	15	40	2042	24.5

		Gross Plant					Based on Gross Plant %		Net Plant					Based on Net Plant %	
		Balance	Kapaia	Port Allen	Relative Percent		Average Life	Average Remaining	Balance	Kapaia	Port Allen	Relative Percent		Average Life	Average Remaining
Account	Description	at 12/31/17	Plant	Units	Kapaia	Port Allen	Span*	Life Span	at 12/31/17	Plant	Units	Kapaia	Port Allen	Span*	Life Span
(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)	(X)	(Y)
341	Structures & Improvements	$18,689,459	$6,339,248	$12,350,211	33.92%	66.08%	47.27	15.25	$9,312,121	$3,794,950	$5,517,171	40.75%	59.25%	46.52	16.21
342	Fuel Holders	4,932,794	2,198,826	2,733,968	44.58%	55.42%	46.10	16.74	2,714,005	1,403,088	1,310,917	51.70%	48.30%	45.31	17.74
343	Prime Movers	67,029,806	11,098,026	55,931,780	16.56%	83.44%	49.18	12.82	29,680,916	7,055,031	22,506,558	23.77%	75.83%	48.18	13.79
344	Generators	11,321,990	6,674,118	4,647,871	58.95%	41.05%	44.52	18.75	6,163,971	4,015,149	2,268,149	65.14%	36.80%	44.82	19.82
345	Access. Electrical Equip.	9,587,188	3,499,871	6,087,318	36.51%	63.49%	46.98	15.61	3,091,289	2,016,957	1,091,644	65.25%	35.31%	44.11	19.69
346	Miscellaneous Equip.	2,332,311	1,497,991	834,320	64.23%	35.77%	43.93	19.49	2,272,798	1,448,648	806,838	63.74%	35.50%	43.60	19.34
	Total	$113,893,548	$31,308,080	$82,585,468					$53,235,101	$19,733,823	$33,501,277				

* Based on average life span for Port Allen units equal to 51 years

Appendix C
NET SALVAGE ANALYSIS

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 311.00
Description: STRUCTURES AND IMPROVEMENTS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	738,663	0	4,839,736	0	0.00%		0.00%	0	0.00%		0.00%	241,820	0.00%		83.98%	(241,820)	0.00%		-83.98%	(241,820)	0.00%		-83.98%	0.00%		0.27%
1999	0	6,718	4,833,018	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.72%	0	0.00%		-0.72%	0	0.00%		-0.72%	0.14%		0.29%
2000	9,371	0	4,842,389	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	3599.58%	0.74%	0	0.00%	-3599.58%	-0.74%	0	0.00%	-3599.58%	-0.74%	0.00%	0.05%	0.29%
2001	841	0	4,843,230	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	467	0.00%	6.95%	0.74%	(467)	0.00%	-6.95%	-0.74%	(467)	0.00%	-6.95%	-0.74%	0.00%	0.05%	0.31%
2002	(57,642)	0	4,785,588	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.57%	0	0.00%	0.00%	-0.57%	0	0.00%	0.00%	-0.57%	0.00%	0.00%	0.33%
2003	38,395	17,406	4,806,577	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	2.68%	0.57%	0	0.00%	-2.68%	-0.57%	0	0.00%	-2.68%	-0.57%	0.36%	0.12%	0.35%
2004	341,102	30,557	5,117,122	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.61%	0	0.00%	0.00%	-0.61%	0	0.00%	0.00%	-0.61%	0.60%	0.33%	0.35%
2005	126,155	530	5,242,747	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.69%	0	0.00%	0.00%	-0.69%	0	0.00%	0.00%	-0.69%	0.01%	0.32%	0.33%
2006	120,510	0	5,363,257	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.69%	0	0.00%	0.00%	-0.69%	0	0.00%	0.00%	-0.69%	0.00%	0.20%	0.35%
2007	70,710	0	5,433,967	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.69%	0	0.00%	0.00%	-0.69%	0	0.00%	0.00%	-0.69%	0.00%	0.00%	0.38%
2008	74,315	4,793	5,503,490	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.69%	0	0.00%	0.00%	-0.69%	0	0.00%	0.00%	-0.69%	0.09%	0.03%	0.42%
2009	55,789	18,563	5,540,716	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.34%	0.14%	0.46%
2010	119,492	86,171	5,574,037	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.76%	0	0.00%	0.00%	-0.76%	0	0.00%	0.00%	-0.76%	1.55%	0.66%	0.47%
2011	7,623	17,334	5,564,325	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.29%	0	0.00%	0.00%	-1.29%	0	0.00%	0.00%	-1.29%	0.31%	0.73%	0.32%
2012	13,466	2,030	5,575,761	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.50%	0	0.00%	0.00%	-1.50%	0	0.00%	0.00%	-1.50%	0.04%	0.63%	0.32%
2013	28,531	0	5,604,292	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.52%	0	0.00%	0.00%	-1.52%	0	0.00%	0.00%	-1.52%	0.00%	0.12%	0.38%
2014	71,067	35,876	5,639,483	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,620	4.52%	4.27%	1.52%	(1,620)	-4.52%	-4.27%	-1.52%	(1,620)	-4.52%	-4.27%	-1.52%	0.64%	0.23%	0.47%
2015	0	0	5,639,483	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	4.52%	0.00%	0	0.00%	-4.52%	0.00%	0	0.00%	-4.52%	0.00%	0.00%	0.21%	0.42%
2016	0	0	5,639,483	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	4.52%	0.00%	0	0.00%	-4.52%	0.00%	0	0.00%	-4.52%	0.00%	0.00%	0.21%	0.63%
2017	58,175	70,449	5,627,209	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.25%	0.42%	1.25%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 312.00
Description: BOILER PLANT EQUIPMENT
Rolling Band (Yrs): 3

				Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	EOY Plant Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	6,613	0	5,106,280	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		1.57%	0	0.00%		-1.57%	0	0.00%		-1.57%	0.00%		1.04%
1999	0	0	5,106,280	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		1.57%	0	0.00%		-1.57%	0	0.00%		-1.57%	0.00%		1.06%
2000	48,666	0	5,154,946	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.57%	0	0.00%	0.00%	-1.57%	0	0.00%	0.00%	-1.57%	0.00%	0.00%	1.08%
2001	23,933	0	5,178,879	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.57%	0	0.00%	0.00%	-1.57%	0	0.00%	0.00%	-1.57%	0.00%	0.00%	1.11%
2002	38,379	0	5,217,258	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.57%	0	0.00%	0.00%	-1.57%	0	0.00%	0.00%	-1.57%	0.00%	0.00%	1.13%
2003	5,760,786	0	10,978,044	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.57%	0	0.00%	0.00%	-1.57%	0	0.00%	0.00%	-1.57%	0.00%	0.00%	1.16%
2004	603,102	315,186	11,265,960	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.57%	0	0.00%	0.00%	-1.57%	0	0.00%	0.00%	-1.57%	2.80%	1.15%	1.23%
2005	1,274,569	94,592	12,445,938	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.80%	0	0.00%	0.00%	-1.80%	0	0.00%	0.00%	-1.80%	0.76%	1.18%	1.13%
2006	166,467	92,226	12,520,179	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.89%	0	0.00%	0.00%	-1.89%	0	0.00%	0.00%	-1.89%	0.74%	1.39%	1.16%
2007	110,548	51,802	12,578,925	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.98%	0	0.00%	0.00%	-1.98%	0	0.00%	0.00%	-1.98%	0.41%	0.64%	1.19%
2008	363,795	152,146	12,790,574	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.03%	0	0.00%	0.00%	-2.03%	0	0.00%	0.00%	-2.03%	1.19%	0.78%	1.26%
2009	2,296,051	140,328	14,946,297	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.20%	0	0.00%	0.00%	-2.20%	0	0.00%	0.00%	-2.20%	0.94%	0.85%	1.26%
2010	314,524	26,081	15,234,740	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.39%	0	0.00%	0.00%	-2.39%	0	0.00%	0.00%	-2.39%	0.17%	0.74%	1.30%
2011	103,529	29,899	15,308,371	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.43%	0	0.00%	0.00%	-2.43%	0	0.00%	0.00%	-2.43%	0.20%	0.43%	1.46%
2012	38,646	20,147	15,326,869	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.48%	0	0.00%	0.00%	-2.48%	0	0.00%	0.00%	-2.48%	0.13%	0.17%	1.66%
2013	714,019	785,254	15,255,634	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.51%	0	0.00%	0.00%	-2.51%	0	0.00%	0.00%	-2.51%	5.15%	1.82%	1.96%
2014	713,209	129,616	15,839,227	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	11,845	9.14%	1.27%	5.10%	(11,845)	-9.14%	-1.27%	-5.10%	(11,845)	-9.14%	-1.27%	-5.10%	0.82%	2.01%	1.20%
2015	73,922	68,569	15,844,581	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	5,715	8.33%	1.79%	4.28%	(5,715)	-8.33%	-1.79%	-4.28%	(5,715)	-8.33%	-1.79%	-4.28%	0.43%	2.10%	1.32%
2016	194,422	229,130	15,809,872	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	12,065	5.27%	6.93%	3.78%	(12,065)	-5.27%	-6.93%	-3.78%	(12,065)	-5.27%	-6.93%	-3.78%	1.45%	0.90%	1.76%
2017	713,917	333,809	16,189,980	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	9,228	2.76%	4.28%	2.76%	(9,228)	-2.76%	-4.28%	-2.76%	(9,228)	-2.76%	-4.28%	-2.76%	2.06%	1.32%	2.06%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 313.00
Description: ENGINE DRIVEN GENERATORS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	5,556	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
1999	0	0	5,556	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
2000	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2001	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2002	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2003	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2004	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2005	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2006	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2007	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2008	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2009	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2010	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2011	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	5,556	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 314.00
Description: TURBOGENERATOR UNITS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	1,582,865	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		29.17%	0	0.00%		-29.17%	0	0.00%		-29.17%	0.00%		0.34%
1999	0	0	1,582,865	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		29.17%	0	0.00%		-29.17%	0	0.00%		-29.17%	0.00%		0.35%
2000	0	0	1,582,865	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	29.17%	0	0.00%	0.00%	-29.17%	0	0.00%	0.00%	-29.17%	0.00%	0.00%	0.37%
2001	134,420	0	1,717,285	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	42,983	0.00%	0.00%	29.17%	(42,983)	0.00%	0.00%	-29.17%	(42,983)	0.00%	0.00%	-29.17%	0.00%	0.00%	0.38%
2002	0	0	1,717,285	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.40%
2003	0	0	1,717,285	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%
2004	2,462	4,707	1,715,040	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.27%	0.09%	0.44%
2005	31,369	5,230	1,741,179	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.30%	0.19%	0.45%
2006	8,912	1,319	1,748,772	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.08%	0.22%	0.46%
2007	76,615	0	1,825,387	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.12%	0.48%
2008	935,681	136,100	2,624,969	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	5.18%	2.22%	0.51%
2009	0	0	2,624,969	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	1.92%	0.00%
2010	0	0	2,624,969	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	1.73%	0.00%
2011	0	0	2,624,969	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	2,624,969	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	2,624,969	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	2,624,969	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	2,624,969	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	158,467	0	2,783,436	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	19,330	0	2,802,766	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 315.00
Description: ACCESSORY ELECTRICAL EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	17,795	781	565,254	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		23.84%	0	0.00%		-23.84%	0	0.00%		-23.84%	0.14%		0.31%
1999	4,872	0	570,126	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		24.28%	0	0.00%		-24.28%	0	0.00%		-24.28%	0.00%		0.32%
2000	2,898	0	573,024	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	24.28%	0	0.00%	0.00%	-24.28%	0	0.00%	0.00%	-24.28%	0.00%	0.05%	0.34%
2001	826	0	573,850	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	24.28%	0	0.00%	0.00%	-24.28%	0	0.00%	0.00%	-24.28%	0.00%	0.00%	0.35%
2002	0	0	573,850	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	24.28%	0	0.00%	0.00%	-24.28%	0	0.00%	0.00%	-24.28%	0.00%	0.00%	0.37%
2003	0	0	573,850	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	24.28%	0	0.00%	0.00%	-24.28%	0	0.00%	0.00%	-24.28%	0.00%	0.00%	0.39%
2004	0	0	573,850	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	24.28%	0	0.00%	0.00%	-24.28%	0	0.00%	0.00%	-24.28%	0.00%	0.00%	0.41%
2005	27,696	4,086	597,460	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	24.28%	0	0.00%	0.00%	-24.28%	0	0.00%	0.00%	-24.28%	0.68%	0.23%	0.44%
2006	5,487	2,960	599,987	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	26.91%	0	0.00%	0.00%	-26.91%	0	0.00%	0.00%	-26.91%	0.49%	0.40%	0.42%
2007	2,669	770	601,886	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	29.21%	0	0.00%	0.00%	-29.21%	0	0.00%	0.00%	-29.21%	0.13%	0.43%	0.42%
2008	176,789	5,188	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	29.87%	0	0.00%	0.00%	-29.87%	0	0.00%	0.00%	-29.87%	0.67%	0.45%	0.44%
2009	0	0	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	35.25%	0	0.00%	0.00%	-35.25%	0	0.00%	0.00%	-35.25%	0.00%	0.28%	0.41%
2010	0	0	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	35.25%	0	0.00%	0.00%	-35.25%	0	0.00%	0.00%	-35.25%	0.00%	0.22%	0.46%
2011	0	0	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	35.25%	0	0.00%	0.00%	-35.25%	0	0.00%	0.00%	-35.25%	0.00%	0.00%	0.53%
2012	0	0	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	35.25%	0	0.00%	0.00%	-35.25%	0	0.00%	0.00%	-35.25%	0.00%	0.00%	0.62%
2013	0	0	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	35.25%	0	0.00%	0.00%	-35.25%	0	0.00%	0.00%	-35.25%	0.00%	0.00%	0.74%
2014	0	0	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	35.25%	0	0.00%	0.00%	-35.25%	0	0.00%	0.00%	-35.25%	0.00%	0.00%	0.93%
2015	0	0	773,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	35.25%	0	0.00%	0.00%	-35.25%	0	0.00%	0.00%	-35.25%	0.00%	0.00%	1.24%
2016	32,116	28,781	776,822	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	10,146	35.25%	35.25%	35.25%	(10,146)	-35.25%	-35.25%	-35.25%	(10,146)	######	-35.25%	-35.25%	3.70%	1.24%	1.85%
2017	0	0	776,822	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	35.25%	--	0	0.00%	-35.25%	--	0	0.00%	-35.25%	--	0.00%	1.24%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 316.00
Description: MISCELLANEOUS POWER EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	49,920	0	250,667	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.35%	0	0.00%		-0.35%	0	0.00%		-0.35%	0.00%		1.31%
1999	(69,877)	0	180,790	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.35%	0	0.00%		-0.35%	0	0.00%		-0.35%	0.00%		1.35%
2000	0	0	180,790	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.35%	0	0.00%	0.00%	-0.35%	0	0.00%	0.00%	-0.35%	0.00%	0.00%	1.38%
2001	452	0	181,242	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.35%	0	0.00%	0.00%	-0.35%	0	0.00%	0.00%	-0.35%	0.00%	0.00%	1.41%
2002	63,321	0	244,563	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.35%	0	0.00%	0.00%	-0.35%	0	0.00%	0.00%	-0.35%	0.00%	0.00%	1.44%
2003	(1,772)	0	242,791	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.35%	0	0.00%	0.00%	-0.35%	0	0.00%	0.00%	-0.35%	0.00%	0.00%	1.49%
2004	54,375	63,594	233,572	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.35%	0	0.00%	0.00%	-0.35%	0	0.00%	0.00%	-0.35%	27.23%	8.82%	1.53%
2005	13,218	0	246,790	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.77%	0	0.00%	0.00%	-0.77%	0	0.00%	0.00%	-0.77%	0.00%	8.79%	0.72%
2006	3,000	137	249,653	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.77%	0	0.00%	0.00%	-0.77%	0	0.00%	0.00%	-0.77%	0.05%	8.73%	0.74%
2007	5,456	0	255,109	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.77%	0	0.00%	0.00%	-0.77%	0	0.00%	0.00%	-0.77%	0.00%	0.02%	0.77%
2008	403,239	363	657,985	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.77%	0	0.00%	0.00%	-0.77%	0	0.00%	0.00%	-0.77%	0.06%	0.04%	0.80%
2009	195	14,640	643,540	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.78%	0	0.00%	0.00%	-0.78%	0	0.00%	0.00%	-0.78%	2.27%	0.96%	0.88%
2010	19,280	0	662,819	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.08%	0	0.00%	0.00%	-1.08%	0	0.00%	0.00%	-1.08%	0.00%	0.76%	0.71%
2011	840	0	663,659	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.08%	0	0.00%	0.00%	-1.08%	0	0.00%	0.00%	-1.08%	0.00%	0.74%	0.81%
2012	30,491	35,516	658,634	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.08%	0	0.00%	0.00%	-1.08%	0	0.00%	0.00%	-1.08%	5.39%	1.79%	0.95%
2013	0	0	658,634	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	18.48%	0	0.00%	0.00%	-18.48%	0	0.00%	0.00%	-18.48%	0.00%	1.79%	0.07%
2014	0	0	658,634	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	18.48%	0	0.00%	0.00%	-18.48%	0	0.00%	0.00%	-18.48%	0.00%	1.80%	0.08%
2015	6,666	2,206	663,094	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	408	18.48%	18.48%	18.48%	(408)	-18.48%	-18.48%	-18.48%	(408)	######	-18.48%	-18.48%	0.33%	0.11%	0.11%
2016	5,759	0	668,853	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	18.48%	--	0	0.00%	-18.48%	--	0	0.00%	-18.48%	--	0.00%	0.11%	0.00%
2017	0	0	668,853	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	18.48%	--	0	0.00%	-18.48%	--	0	0.00%	-18.48%	--	0.00%	0.11%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 331.00
Description: STRUCTURES AND IMPROVEMENTS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.70%	0	0.00%		-0.70%	0	0.00%		-0.70%	0.00%		2.33%
1999	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.70%	0	0.00%		-0.70%	0	0.00%		-0.70%	0.00%		2.33%
2000	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.33%
2001	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.33%
2002	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.33%
2003	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.33%
2004	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.33%
2005	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.33%
2006	12,172	0	12,172	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.33%
2007	0	0	12,172	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.35%
2008	0	0	12,172	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.36%
2009	0	0	12,172	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.37%
2010	41,321	0	53,493	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.38%
2011	0	0	53,493	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.44%
2012	0	0	53,493	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.50%
2013	0	0	53,493	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.70%	0	0.00%	0.00%	-0.70%	0	0.00%	0.00%	-0.70%	0.00%	0.00%	2.57%
2014	132,994	53,493	132,994	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	373	0.70%	0.70%	0.70%	(373)	-0.70%	-0.70%	-0.70%	(373)	-0.70%	-0.70%	-0.70%	40.22%	22.29%	2.63%
2015	19,610	0	152,604	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.70%	--	0	0.00%	-0.70%	--	0	0.00%	-0.70%	--	0.00%	15.78%	0.00%
2016	585,634	0	738,238	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.70%	--	0	0.00%	-0.70%	--	0	0.00%	-0.70%	--	0.00%	5.22%	0.00%
2017	268,551	0	1,006,789	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 332.00
Description: RESERVOIRS, DAMS AND WATERWAYS
Rolling Band (Yrs): 3

				Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	EOY Plant Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
1999	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
2000	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2001	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2002	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2003	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2004	207,355	0	207,355	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2005	0	0	207,355	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2006	0	0	207,355	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2007	258,409	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2008	0	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2009	0	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2010	0	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2011	0	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	465,764	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	1,564,787	0	2,030,551	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	2,030,551	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	2,030,551	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 333.00
Description: WATERWHEELS, TURBINES AND GOVERNORS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		2.82%	0	0.00%		-2.82%	0	0.00%		-2.82%	0.00%		1.64%
1999	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		2.82%	0	0.00%		-2.82%	0	0.00%		-2.82%	0.00%		1.64%
2000	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.82%	0	0.00%	0.00%	-2.82%	0	0.00%	0.00%	-2.82%	0.00%	0.00%	1.64%
2001	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.82%	0	0.00%	0.00%	-2.82%	0	0.00%	0.00%	-2.82%	0.00%	0.00%	1.64%
2002	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.82%	0	0.00%	0.00%	-2.82%	0	0.00%	0.00%	-2.82%	0.00%	0.00%	1.64%
2003	268,646	0	268,646	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.82%	0	0.00%	0.00%	-2.82%	0	0.00%	0.00%	-2.82%	0.00%	0.00%	1.64%
2004	115,760	0	384,406	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.82%	0	0.00%	0.00%	-2.82%	0	0.00%	0.00%	-2.82%	0.00%	0.00%	1.69%
2005	0	0	384,406	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.82%	0	0.00%	0.00%	-2.82%	0	0.00%	0.00%	-2.82%	0.00%	0.00%	1.76%
2006	15,173	31,704	367,875	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.82%	0	0.00%	0.00%	-2.82%	0	0.00%	0.00%	-2.82%	8.62%	2.79%	1.84%
2007	262,511	38,478	591,908	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.53%	0	0.00%	0.00%	-3.53%	0	0.00%	0.00%	-3.53%	6.50%	5.22%	1.54%
2008	0	0	591,908	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.09%	0	0.00%	0.00%	-5.09%	0	0.00%	0.00%	-5.09%	0.00%	4.52%	1.15%
2009	0	0	591,908	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.09%	0	0.00%	0.00%	-5.09%	0	0.00%	0.00%	-5.09%	0.00%	2.17%	1.25%
2010	0	751	591,156	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.09%	0	0.00%	0.00%	-5.09%	0	0.00%	0.00%	-5.09%	0.13%	0.04%	1.36%
2011	0	0	591,156	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.13%	0	0.00%	0.00%	-5.13%	0	0.00%	0.00%	-5.13%	0.00%	0.04%	1.49%
2012	0	0	591,156	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.13%	0	0.00%	0.00%	-5.13%	0	0.00%	0.00%	-5.13%	0.00%	0.04%	1.66%
2013	95,030	19,714	666,472	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.13%	0	0.00%	0.00%	-5.13%	0	0.00%	0.00%	-5.13%	2.96%	1.07%	1.87%
2014	0	0	666,472	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,435	0.00%	22.49%	6.65%	(4,435)	0.00%	-22.49%	-6.65%	(4,435)	0.00%	-22.49%	-6.65%	0.00%	1.02%	1.69%
2015	0	0	666,472	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	22.49%	0.00%	0	0.00%	-22.49%	0.00%	0	0.00%	-22.49%	0.00%	0.00%	0.99%	2.03%
2016	0	0	666,472	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	2.54%
2017	1,356,977	66,705	1,956,745	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3.41%	2.03%	3.41%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 334.00
Description: ACCESSORY ELECTRIC EQUIPMENT - WATER
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998																0										
1999																0										
2000																0										
2001																0										
2002																0										
2003	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2004	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2005	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2006	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2007	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2008	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2009	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2010	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2011	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	410,032	0	410,032	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	410,032	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	110,048	0	520,080	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	61,917	0	581,996	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	136,905	0	718,901	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 341.00
Description: STRUCTURES AND IMPROVEMENTS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	38,300	0	7,255,318	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		3.05%	0	0.00%		-3.05%	0	0.00%		-3.05%	0.00%		0.56%
1999	0	0	7,255,318	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		3.05%	0	0.00%		-3.05%	0	0.00%		-3.05%	0.00%		0.57%
2000	0	0	7,255,318	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.05%	0	0.00%	0.00%	-3.05%	0	0.00%	0.00%	-3.05%	0.00%	0.00%	0.58%
2001	2,734,749	0	9,990,067	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.05%	0	0.00%	0.00%	-3.05%	0	0.00%	0.00%	-3.05%	0.00%	0.00%	0.60%
2002	1,687,512	1,454	11,676,125	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.05%	0	0.00%	0.00%	-3.05%	0	0.00%	0.00%	-3.05%	0.01%	0.01%	0.62%
2003	6,534,266	0	18,210,391	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.05%	0	0.00%	0.00%	-3.05%	0	0.00%	0.00%	-3.05%	0.00%	0.00%	0.64%
2004	0	0	18,210,391	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.05%	0	0.00%	0.00%	-3.05%	0	0.00%	0.00%	-3.05%	0.00%	0.00%	0.69%
2005	0	0	18,210,391	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.05%	0	0.00%	0.00%	-3.05%	0	0.00%	0.00%	-3.05%	0.00%	0.00%	0.74%
2006	125,093	37,276	18,298,208	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.05%	0	0.00%	0.00%	-3.05%	0	0.00%	0.00%	-3.05%	0.20%	0.07%	0.80%
2007	14,639	6,300	18,306,547	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.12%	0	0.00%	0.00%	-3.12%	0	0.00%	0.00%	-3.12%	0.03%	0.08%	0.85%
2008	271,379	118,800	18,459,126	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.13%	0	0.00%	0.00%	-3.13%	0	0.00%	0.00%	-3.13%	0.64%	0.29%	0.93%
2009	82,190	5,022	18,536,293	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.35%	0	0.00%	0.00%	-3.35%	0	0.00%	0.00%	-3.35%	0.03%	0.24%	0.96%
2010	123,023	31,869	18,627,447	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.36%	0	0.00%	0.00%	-3.36%	0	0.00%	0.00%	-3.36%	0.17%	0.28%	1.07%
2011	284,787	123,355	18,788,879	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.43%	0	0.00%	0.00%	-3.43%	0	0.00%	0.00%	-3.43%	0.66%	0.29%	1.20%
2012	427,772	0	19,216,651	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.72%	0	0.00%	0.00%	-3.72%	0	0.00%	0.00%	-3.72%	0.00%	0.27%	1.29%
2013	213,726	4,887	19,425,490	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,301	26.62%	1.01%	3.72%	(1,301)	-26.62%	-1.01%	-3.72%	(1,301)	-26.62%	-1.01%	-3.72%	0.03%	0.22%	1.55%
2014	581,216	1,094,475	18,912,231	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	39,511	3.61%	3.71%	3.64%	(39,511)	-3.61%	-3.71%	-3.64%	(39,511)	-3.61%	-3.71%	-3.64%	5.79%	1.91%	1.95%
2015	38,119	10,275	18,940,075	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,640	15.96%	3.83%	3.74%	(1,640)	-15.96%	-3.83%	-3.74%	(1,640)	-15.96%	-3.83%	-3.74%	0.05%	1.94%	0.66%
2016	79,095	354,784	18,664,386	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	12,202	3.44%	3.66%	3.40%	(12,202)	-3.44%	-3.66%	-3.40%	(12,202)	-3.44%	-3.66%	-3.40%	1.90%	2.58%	0.96%
2017	29,633	4,560	18,689,459	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	3.74%	0.00%	0	0.00%	-3.74%	0.00%	0	0.00%	-3.74%	0.00%	0.02%	0.66%	0.02%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 342.00
Description: FUEL HOLDERS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	5,697	0	1,686,197	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		1.27%	0	0.00%		-1.27%	0	0.00%		-1.27%	0.00%		0.10%
1999	(1,061)	0	1,685,136	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		1.27%	0	0.00%		-1.27%	0	0.00%		-1.27%	0.00%		0.10%
2000	25,562	0	1,710,699	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.27%	0	0.00%	0.00%	-1.27%	0	0.00%	0.00%	-1.27%	0.00%	0.00%	0.10%
2001	6,348	0	1,717,046	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.27%	0	0.00%	0.00%	-1.27%	0	0.00%	0.00%	-1.27%	0.00%	0.00%	0.11%
2002	395,295	5,259	2,107,082	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.27%	0	0.00%	0.00%	-1.27%	0	0.00%	0.00%	-1.27%	0.25%	0.10%	0.11%
2003	1,860,642	0	3,967,724	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.37%	0	0.00%	0.00%	-1.37%	0	0.00%	0.00%	-1.37%	0.00%	0.07%	0.10%
2004	0	0	3,967,724	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.37%	0	0.00%	0.00%	-1.37%	0	0.00%	0.00%	-1.37%	0.00%	0.05%	0.11%
2005	82,303	0	4,050,027	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.37%	0	0.00%	0.00%	-1.37%	0	0.00%	0.00%	-1.37%	0.00%	0.00%	0.12%
2006	160,075	4,124	4,205,978	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.37%	0	0.00%	0.00%	-1.37%	0	0.00%	0.00%	-1.37%	0.10%	0.03%	0.13%
2007	82,334	0	4,288,311	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.45%	0	0.00%	0.00%	-1.45%	0	0.00%	0.00%	-1.45%	0.00%	0.03%	0.13%
2008	0	0	4,288,311	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.45%	0	0.00%	0.00%	-1.45%	0	0.00%	0.00%	-1.45%	0.00%	0.03%	0.14%
2009	60,104	5,893	4,342,523	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.45%	0	0.00%	0.00%	-1.45%	0	0.00%	0.00%	-1.45%	0.14%	0.05%	0.16%
2010	96,514	23,907	4,415,130	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.60%	0	0.00%	0.00%	-1.60%	0	0.00%	0.00%	-1.60%	0.54%	0.23%	0.16%
2011	20,244	5,136	4,430,237	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.70%	0	0.00%	0.00%	-2.70%	0	0.00%	0.00%	-2.70%	0.12%	0.26%	0.11%
2012	0	0	4,430,237	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.17%	0	0.00%	0.00%	-3.17%	0	0.00%	0.00%	-3.17%	0.00%	0.22%	0.10%
2013	17,441	24,943	4,422,735	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.17%	0	0.00%	0.00%	-3.17%	0	0.00%	0.00%	-3.17%	0.56%	0.23%	0.12%
2014	258,132	0	4,680,867	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	20.39%	0	0.00%	0.00%	-20.39%	0	0.00%	0.00%	-20.39%	0.00%	0.18%	0.02%
2015	229,896	0	4,910,763	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	20.39%	0	0.00%	0.00%	-20.39%	0	0.00%	0.00%	-20.39%	0.00%	0.18%	0.03%
2016	15,760	0	4,926,523	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	20.39%	0	0.00%	0.00%	-20.39%	0	0.00%	0.00%	-20.39%	0.00%	0.00%	0.05%
2017	10,871	4,600	4,932,794	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	938	20.39%	20.39%	20.39%	(938)	-20.39%	-20.39%	-20.39%	(938)	-20.39%	-20.39%	-20.39%	0.09%	0.03%	0.09%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 343.00
Description: PRIME MOVERS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	1,120,309	1,364,795	36,933,373	0	0.00%		0.00%	0	0.00%		0.22%	835,513	61.22%		10.51%	(835,513)	-61.22%		-10.29%	(835,513)	-61.22%		-10.29%	3.70%		1.25%
1999	238,331	0	37,171,704	0	0.00%		0.00%	0	0.00%		0.25%	0	0.00%		4.83%	0	0.00%		-4.58%	0	0.00%		-4.58%	0.00%		1.16%
2000	1,445,231	0	38,616,935	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.25%	340,701	0.00%	86.18%	4.83%	(340,701)	0.00%	-86.18%	-4.58%	(340,701)	0.00%	-86.18%	-4.58%	0.00%	1.21%	1.20%
2001	1,943,865	56	40,560,744	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.25%	0	0.00%	608394.36%	2.03%	0	0.00%	-608394.36%	-1.79%	0	0.00%	-608394.36%	-1.79%	0.00%	0.00%	1.25%
2002	702,817	533,885	40,729,676	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.25%	0	0.00%	63.81%	2.03%	0	0.00%	-63.81%	-1.79%	0	0.00%	-63.81%	-1.79%	1.31%	0.45%	1.30%
2003	9,523,668	34,833	50,218,511	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.26%	0	0.00%	0.00%	2.13%	0	0.00%	0.00%	-1.87%	0	0.00%	0.00%	-1.87%	0.07%	0.43%	1.30%
2004	652,603	266,621	50,604,494	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.26%	0	0.00%	0.00%	2.13%	0	0.00%	0.00%	-1.87%	0	0.00%	0.00%	-1.87%	0.53%	0.59%	1.38%
2005	1,246,931	795,865	51,055,559	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.26%	0	0.00%	0.00%	2.18%	0	0.00%	0.00%	-1.92%	0	0.00%	0.00%	-1.92%	1.56%	0.72%	1.43%
2006	1,858,104	822,587	52,091,076	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.28%	0	0.00%	0.00%	2.35%	0	0.00%	0.00%	-2.06%	0	0.00%	0.00%	-2.06%	1.58%	1.23%	1.42%
2007	1,252,082	140,467	53,202,691	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.31%	0	0.00%	0.00%	2.55%	0	0.00%	0.00%	-2.24%	0	0.00%	0.00%	-2.24%	0.26%	1.12%	1.41%
2008	1,132,993	506,621	53,829,063	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.31%	0	0.00%	0.00%	2.58%	0	0.00%	0.00%	-2.27%	0	0.00%	0.00%	-2.27%	0.94%	0.92%	1.51%
2009	4,008,879	813,115	57,024,827	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.33%	0	0.00%	0.00%	2.73%	0	0.00%	0.00%	-2.40%	0	0.00%	0.00%	-2.40%	1.43%	0.89%	1.56%
2010	6,887,611	2,507,991	61,404,447	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.36%	0	0.00%	0.00%	3.00%	0	0.00%	0.00%	-2.63%	0	0.00%	0.00%	-2.63%	4.08%	2.22%	1.57%
2011	3,856,935	1,006,121	64,255,260	0	0.00%	0.00%	0.00%	30,000	2.98%	0.69%	0.52%	0	0.00%	0.00%	4.30%	30,000	2.98%	0.69%	-3.78%	30,000	2.98%	0.69%	-3.78%	1.57%	2.37%	1.24%
2012	1,489,985	175,631	65,569,615	0	0.00%	0.00%	0.00%	0	0.00%	0.81%	0.00%	0	0.00%	0.00%	5.21%	0	0.00%	0.81%	-5.21%	0	0.00%	0.81%	-5.21%	0.27%	1.93%	1.19%
2013	2,243,336	1,093,216	66,719,735	0	0.00%	0.00%	0.00%	0	0.00%	1.32%	0.00%	0	0.00%	0.00%	5.41%	0	0.00%	1.32%	-5.41%	0	0.00%	1.32%	-5.41%	1.64%	1.16%	1.37%
2014	1,633,695	1,244,984	67,108,446	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	60,183	4.83%	2.39%	7.11%	(60,183)	-4.83%	-2.39%	-7.11%	(60,183)	-4.83%	-2.39%	-7.11%	1.86%	1.26%	1.30%
2015	1,122,821	1,846,106	66,385,161	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	162,613	8.81%	5.32%	8.38%	(162,613)	-8.81%	-5.32%	-8.38%	(162,613)	-8.81%	-5.32%	-8.38%	2.78%	2.09%	1.12%
2016	718,884	119,327	66,984,718	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	7,229	6.06%	7.16%	6.35%	(7,229)	-6.06%	-7.16%	-6.35%	(7,229)	-6.06%	-7.16%	-6.35%	0.18%	1.60%	0.29%
2017	315,798	270,710	67,029,806	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	17,525	6.47%	8.38%	6.47%	(17,525)	-6.47%	-8.38%	-6.47%	(17,525)	-6.47%	-8.38%	-6.47%	0.40%	1.12%	0.40%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 344.00
Description: GENERATORS
Rolling Band (Yrs): 3

				Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	EOY Plant Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	17,588	2,222	2,176,049	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		3.58%	0	0.00%		-3.58%	0	0.00%		-3.58%	0.10%		0.31%
1999	0	0	2,176,049	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		3.59%	0	0.00%		-3.59%	0	0.00%		-3.59%	0.00%		0.32%
2000	0	0	2,176,049	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.59%	0	0.00%	0.00%	-3.59%	0	0.00%	0.00%	-3.59%	0.00%	0.03%	0.32%
2001	235,265	0	2,411,314	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.59%	0	0.00%	0.00%	-3.59%	0	0.00%	0.00%	-3.59%	0.00%	0.00%	0.32%
2002	110,441	0	2,521,755	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.59%	0	0.00%	0.00%	-3.59%	0	0.00%	0.00%	-3.59%	0.00%	0.00%	0.33%
2003	6,771,969	0	9,293,725	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.59%	0	0.00%	0.00%	-3.59%	0	0.00%	0.00%	-3.59%	0.00%	0.00%	0.33%
2004	2,000	1,507	9,294,217	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.59%	0	0.00%	0.00%	-3.59%	0	0.00%	0.00%	-3.59%	0.02%	0.01%	0.35%
2005	161,611	0	9,455,828	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.60%	0	0.00%	0.00%	-3.60%	0	0.00%	0.00%	-3.60%	0.00%	0.01%	0.38%
2006	209,074	52,307	9,612,595	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.60%	0	0.00%	0.00%	-3.60%	0	0.00%	0.00%	-3.60%	0.54%	0.19%	0.40%
2007	487,191	5,252	10,094,534	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.00%	0	0.00%	0.00%	-4.00%	0	0.00%	0.00%	-4.00%	0.05%	0.20%	0.39%
2008	319,151	0	10,413,684	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.05%	0	0.00%	0.00%	-4.05%	0	0.00%	0.00%	-4.05%	0.00%	0.19%	0.42%
2009	0	0	10,413,684	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.05%	0	0.00%	0.00%	-4.05%	0	0.00%	0.00%	-4.05%	0.00%	0.02%	0.47%
2010	438,212	0	10,851,897	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.05%	0	0.00%	0.00%	-4.05%	0	0.00%	0.00%	-4.05%	0.00%	0.00%	0.52%
2011	369,566	33,333	11,188,130	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.05%	0	0.00%	0.00%	-4.05%	0	0.00%	0.00%	-4.05%	0.30%	0.10%	0.59%
2012	43,093	0	11,231,223	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.35%	0	0.00%	0.00%	-4.35%	0	0.00%	0.00%	-4.35%	0.00%	0.10%	0.64%
2013	76,284	0	11,307,507	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.35%	0	0.00%	0.00%	-4.35%	0	0.00%	0.00%	-4.35%	0.00%	0.10%	0.77%
2014	311,004	233,798	11,384,713	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	10,559	4.52%	4.52%	4.35%	(10,559)	-4.52%	-4.52%	-4.35%	(10,559)	-4.52%	-4.52%	-4.35%	2.05%	0.69%	0.96%
2015	126,742	203,029	11,308,426	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	8,463	4.17%	4.35%	4.17%	(8,463)	-4.17%	-4.35%	-4.17%	(8,463)	-4.17%	-4.35%	-4.17%	1.80%	1.28%	0.60%
2016	3,619	0	11,312,045	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	4.35%	--	0	0.00%	-4.35%	--	0	0.00%	-4.35%	--	0.00%	1.28%	0.00%
2017	9,945	0	11,321,990	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	4.17%	--	0	0.00%	-4.17%	--	0	0.00%	-4.17%	--	0.00%	0.60%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 345.00
Description: ACCESSORY ELECTRICAL EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	86,957	2,337	4,873,602	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		2.59%	0	0.00%		-2.59%	0	0.00%		-2.59%	0.05%		0.19%
1999	6,065	0	4,879,667	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		2.61%	0	0.00%		-2.61%	0	0.00%		-2.61%	0.00%		0.20%
2000	0	0	4,879,667	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.61%	0	0.00%	0.00%	-2.61%	0	0.00%	0.00%	-2.61%	0.00%	0.02%	0.21%
2001	(2)	0	4,879,665	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.61%	0	0.00%	0.00%	-2.61%	0	0.00%	0.00%	-2.61%	0.00%	0.00%	0.21%
2002	0	4,845	4,874,820	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.61%	0	0.00%	0.00%	-2.61%	0	0.00%	0.00%	-2.61%	0.10%	0.03%	0.22%
2003	3,263,325	0	8,138,145	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.65%	0	0.00%	0.00%	-2.65%	0	0.00%	0.00%	-2.65%	0.00%	0.03%	0.22%
2004	0	0	8,138,145	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.65%	0	0.00%	0.00%	-2.65%	0	0.00%	0.00%	-2.65%	0.00%	0.02%	0.24%
2005	42,946	0	8,181,091	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.65%	0	0.00%	0.00%	-2.65%	0	0.00%	0.00%	-2.65%	0.00%	0.00%	0.26%
2006	11,576	0	8,192,667	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.65%	0	0.00%	0.00%	-2.65%	0	0.00%	0.00%	-2.65%	0.00%	0.00%	0.28%
2007	6,491	1,938	8,197,220	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.65%	0	0.00%	0.00%	-2.65%	0	0.00%	0.00%	-2.65%	0.02%	0.01%	0.30%
2008	30,021	0	8,227,240	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.67%	0	0.00%	0.00%	-2.67%	0	0.00%	0.00%	-2.67%	0.00%	0.01%	0.33%
2009	28,135	0	8,255,375	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.67%	0	0.00%	0.00%	-2.67%	0	0.00%	0.00%	-2.67%	0.00%	0.01%	0.36%
2010	642,566	16,347	8,881,594	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.67%	0	0.00%	0.00%	-2.67%	0	0.00%	0.00%	-2.67%	0.18%	0.06%	0.40%
2011	13,313	100,685	8,794,223	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.83%	0	0.00%	0.00%	-2.83%	0	0.00%	0.00%	-2.83%	1.14%	0.45%	0.43%
2012	66,309	101,241	8,759,290	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.48%	0	0.00%	0.00%	-4.48%	0	0.00%	0.00%	-4.48%	1.16%	0.83%	0.32%
2013	73,338	22,489	8,810,139	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	10.88%	0	0.00%	0.00%	-10.88%	0	0.00%	0.00%	-10.88%	0.26%	0.85%	0.15%
2014	184,772	13,521	8,981,391	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	611	4.52%	0.44%	15.93%	(611)	-4.52%	-0.44%	-15.93%	(611)	-4.52%	-0.44%	-15.93%	0.15%	0.52%	0.13%
2015	152,133	0	9,133,524	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	1.70%	20.34%	0	0.00%	-1.70%	-20.34%	0	0.00%	-1.70%	-20.34%	0.00%	0.13%	0.12%
2016	187,380	0	9,320,904	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	4.52%	20.34%	0	0.00%	-4.52%	-20.34%	0	0.00%	-4.52%	-20.34%	0.00%	0.05%	0.18%
2017	301,219	34,934	9,587,188	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	7,107	20.34%	20.34%	20.34%	(7,107)	-20.34%	-20.34%	-20.34%	(7,107)	-20.34%	-20.34%	-20.34%	0.36%	0.12%	0.36%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 346.00
Description: MISCELLANEOUS EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	71,658	32,890	644,178	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		3.67%	0	0.00%		-3.67%	0	0.00%		-3.67%	5.11%		3.82%
1999	4,690	0	648,868	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		3.72%	0	0.00%		-3.72%	0	0.00%		-3.72%	0.00%		3.81%
2000	36,977	0	685,845	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.72%	0	0.00%	0.00%	-3.72%	0	0.00%	0.00%	-3.72%	0.00%	1.66%	3.85%
2001	(3,583)	0	682,262	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.72%	0	0.00%	0.00%	-3.72%	0	0.00%	0.00%	-3.72%	0.00%	0.00%	3.89%
2002	0	29,772	652,490	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.72%	0	0.00%	0.00%	-3.72%	0	0.00%	0.00%	-3.72%	4.56%	1.47%	3.93%
2003	3,660,660	0	4,313,151	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.77%	0	0.00%	0.00%	-3.77%	0	0.00%	0.00%	-3.77%	0.00%	0.53%	3.92%
2004	9,929	0	4,323,079	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.77%	0	0.00%	0.00%	-3.77%	0	0.00%	0.00%	-3.77%	0.00%	0.32%	4.22%
2005	44,337	0	4,367,417	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.77%	0	0.00%	0.00%	-3.77%	0	0.00%	0.00%	-3.77%	0.00%	0.00%	4.56%
2006	36,514	0	4,403,930	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.77%	0	0.00%	0.00%	-3.77%	0	0.00%	0.00%	-3.77%	0.00%	0.00%	4.97%
2007	27,565	0	4,431,496	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.77%	0	0.00%	0.00%	-3.77%	0	0.00%	0.00%	-3.77%	0.00%	0.00%	5.46%
2008	13,058	1,370	4,443,183	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.77%	0	0.00%	0.00%	-3.77%	0	0.00%	0.00%	-3.77%	0.03%	0.01%	6.07%
2009	15,562	11,529	4,447,217	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.77%	0	0.00%	0.00%	-3.77%	0	0.00%	0.00%	-3.77%	0.26%	0.10%	6.82%
2010	71,081	18,988	4,499,310	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.79%	0	0.00%	0.00%	-3.79%	0	0.00%	0.00%	-3.79%	0.42%	0.24%	7.76%
2011	51,137	33,338	4,517,109	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.82%	0	0.00%	0.00%	-3.82%	0	0.00%	0.00%	-3.82%	0.74%	0.47%	9.00%
2012	10,311	1,605	4,525,816	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.87%	0	0.00%	0.00%	-3.87%	0	0.00%	0.00%	-3.87%	0.04%	0.40%	10.69%
2013	10,334	208,562	4,327,587	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	20,420	9.79%	8.39%	3.87%	(20,420)	-9.79%	-8.39%	-3.87%	(20,420)	-9.79%	-8.39%	-3.87%	4.82%	1.82%	13.43%
2014	52,000	60,135	4,319,452	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,467	4.10%	8.47%	3.30%	(2,467)	-4.10%	-8.47%	-3.30%	(2,467)	-4.10%	-8.47%	-3.30%	1.39%	2.05%	16.25%
2015	5,930	4,709	4,320,673	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	826	17.55%	8.67%	3.28%	(826)	-17.55%	-8.67%	-3.28%	(826)	-17.55%	-8.67%	-3.28%	0.11%	2.11%	23.44%
2016	27,286	2,080,146	2,267,813	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	66,340	3.19%	3.25%	3.24%	(66,340)	-3.19%	-3.25%	-3.24%	(66,340)	-3.19%	-3.25%	-3.24%	91.72%	19.66%	45.35%
2017	70,496	5,998	2,332,311	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,311	21.86%	3.28%	21.86%	(1,311)	-21.86%	-3.28%	-21.86%	(1,311)	-21.86%	-3.28%	-21.86%	0.26%	23.44%	0.26%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 352.00
Description: STRUCTURES AND IMPROVEMENTS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	274,043	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		246.34%	0	0.00%		-246.34%	0	0.00%		-246.34%	0.00%		0.25%
1999	0	0	274,043	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		246.34%	0	0.00%		-246.34%	0	0.00%		-246.34%	0.00%		0.26%
2000	0	0	274,043	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	246.34%	0	0.00%	0.00%	-246.34%	0	0.00%	0.00%	-246.34%	0.00%	0.00%	0.28%
2001	(506)	0	273,537	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	246.34%	0	0.00%	0.00%	-246.34%	0	0.00%	0.00%	-246.34%	0.00%	0.00%	0.30%
2002	1,165	0	274,702	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	246.34%	0	0.00%	0.00%	-246.34%	0	0.00%	0.00%	-246.34%	0.00%	0.00%	0.31%
2003	0	0	274,702	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	246.34%	0	0.00%	0.00%	-246.34%	0	0.00%	0.00%	-246.34%	0.00%	0.00%	0.34%
2004	0	0	274,702	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	246.34%	0	0.00%	0.00%	-246.34%	0	0.00%	0.00%	-246.34%	0.00%	0.00%	0.36%
2005	0	0	274,702	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	246.34%	0	0.00%	0.00%	-246.34%	0	0.00%	0.00%	-246.34%	0.00%	0.00%	0.39%
2006	0	0	274,702	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	246.34%	0	0.00%	0.00%	-246.34%	0	0.00%	0.00%	-246.34%	0.00%	0.00%	0.42%
2007	0	0	274,702	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	33,108	0.00%	0.00%	246.34%	(33,108)	0.00%	0.00%	-246.34%	(33,108)	0.00%	0.00%	-246.34%	0.00%	0.00%	0.46%
2008	1,739	13,440	263,001	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	246.34%	0.00%	0	0.00%	-246.34%	0.00%	0	0.00%	-246.34%	0.00%	5.11%	1.65%	0.51%
2009	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	246.34%	--	0	0.00%	-246.34%	--	0	0.00%	-246.34%	--	0.00%	1.68%	0.00%
2010	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	1.70%	0.00%
2011	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	263,001	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 353.00
Description: STATION EQUIPMENT
Rolling Band (Yrs): 3

				Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	EOY Plant Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	255,066	172,848	13,370,355	0	0.00%		0.00%	0	0.00%		0.00%	1,556	0.90%		6.12%	(1,556)	-0.90%		-6.12%	(1,556)	-0.90%		-6.12%	1.29%		1.47%
1999	1,349,698	0	14,720,053	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		6.28%	0	0.00%		-6.28%	0	0.00%		-6.28%	0.00%		1.48%
2000	1,332,358	2,431,720	13,620,691	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	8,765	0.36%	0.40%	6.28%	(8,765)	-0.36%	-0.40%	-6.28%	(8,765)	-0.36%	-0.40%	-6.28%	17.85%	6.24%	1.54%
2001	1,065,656	53	14,686,293	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	95,078	178382.05%	4.27%	10.45%	(95,078)	-178382.05%	-4.27%	-10.45%	(95,078)	-178382.05%	-4.27%	-10.45%	0.00%	5.65%	0.93%
2002	3,162,494	4,867	17,843,920	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	16,374	336.44%	4.93%	7.69%	(16,374)	-336.44%	-4.93%	-7.69%	(16,374)	-336.44%	-4.93%	-7.69%	0.03%	5.28%	0.97%
2003	1,062,380	6,107	18,900,194	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	1010.73%	7.23%	0	0.00%	-1010.73%	-7.23%	0	0.00%	-1010.73%	-7.23%	0.03%	0.02%	1.02%
2004	410,251	142,294	19,168,151	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	10.68%	7.24%	0	0.00%	-10.68%	-7.24%	0	0.00%	-10.68%	-7.24%	0.74%	0.27%	1.08%
2005	198,344	177,056	19,189,439	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	7.55%	0	0.00%	0.00%	-7.55%	0	0.00%	0.00%	-7.55%	0.92%	0.57%	1.10%
2006	1,251,874	185,173	20,256,141	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	22,178	11.98%	4.40%	7.98%	(22,178)	-11.98%	-4.40%	-7.98%	(22,178)	-11.98%	-4.40%	-7.98%	0.91%	0.86%	1.12%
2007	31,317	259,379	20,028,079	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	3.57%	7.73%	0	0.00%	-3.57%	-7.73%	0	0.00%	-3.57%	-7.73%	1.30%	1.05%	1.13%
2008	939,170	802,819	20,164,430	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	27,279	3.40%	3.96%	8.48%	(27,279)	-3.40%	-3.96%	-8.48%	(27,279)	-3.40%	-3.96%	-8.48%	3.98%	2.06%	1.12%
2009	1,922,084	141,845	21,944,669	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	8,351	5.89%	2.96%	10.67%	(8,351)	-5.89%	-2.96%	-10.67%	(8,351)	-5.89%	-2.96%	-10.67%	0.65%	1.94%	0.85%
2010	1,388,551	198,398	23,134,822	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	13,386	6.75%	4.29%	11.07%	(13,386)	-6.75%	-4.29%	-11.07%	(13,386)	-6.75%	-4.29%	-11.07%	0.86%	1.75%	0.88%
2011	1,134,442	573,983	23,695,282	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,708	0.82%	2.89%	11.63%	(4,708)	-0.82%	-2.89%	-11.63%	(4,708)	-0.82%	-2.89%	-11.63%	2.42%	1.33%	0.88%
2012	73,699	134,493	23,634,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	44,246	32.90%	6.87%	18.16%	(44,246)	-32.90%	-6.87%	-18.16%	(44,246)	-32.90%	-6.87%	-18.16%	0.57%	1.29%	0.63%
2013	657,310	125,257	24,166,541	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	19,974	15.95%	8.27%	15.73%	(19,974)	-15.95%	-8.27%	-15.73%	(19,974)	-15.95%	-8.27%	-15.73%	0.52%	1.17%	0.65%
2014	251,085	83,848	24,333,778	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	9,868	11.77%	21.56%	15.69%	(9,868)	-11.77%	-21.56%	-15.69%	(9,868)	-11.77%	-21.56%	-15.69%	0.34%	0.48%	0.68%
2015	1,031,081	332,221	25,032,638	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	29,485	8.88%	10.96%	16.23%	(29,485)	-8.88%	-10.96%	-16.23%	(29,485)	-8.88%	-10.96%	-16.23%	1.33%	0.74%	0.78%
2016	819,698	245,757	25,606,578	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	58,111	23.65%	14.73%	25.14%	(58,111)	-23.65%	-14.73%	-25.14%	(58,111)	-23.65%	-14.73%	-25.14%	0.96%	0.88%	0.52%
2017	1,345,159	28,269	26,923,468	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	10,790	38.17%	16.23%	38.17%	(10,790)	-38.17%	-16.23%	-38.17%	(10,790)	-38.17%	-16.23%	-38.17%	0.10%	0.78%	0.10%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 354.00
Description: TOWERS AND FIXTURES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
1999	58,189	0	58,189	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
2000	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2001	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2002	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2003	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2004	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2005	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2006	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2007	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	3,166	0.00%	0.00%	--	(3,166)	0.00%	0.00%	--	(3,166)	0.00%	0.00%	--	0.00%	0.00%	0.00%
2008	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2009	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2010	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2011	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	58,189	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 355.00
Description: POLES AND FIXTURES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	109,718	2,091	28,725,237	0	0.00%		0.00%	0	0.00%		0.00%	9,710	464.37%		18.20%	(9,710)	-464.37%		-18.20%	(9,710)	-464.37%		-18.20%	0.01%		0.22%
1999	20,507	0	28,745,744	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		17.47%	0	0.00%		-17.47%	0	0.00%		-17.47%	0.00%		0.23%
2000	10,605	1,123	28,755,226	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	7,969	709.44%	550.02%	17.47%	(7,969)	-709.44%	-550.02%	-17.47%	(7,969)	-709.44%	-550.02%	-17.47%	0.00%	0.00%	0.24%
2001	(12,179)	10,878	28,732,170	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	8,035	73.87%	133.36%	16.85%	(8,035)	-73.87%	-133.36%	-16.85%	(8,035)	-73.87%	-133.36%	-16.85%	0.04%	0.01%	0.25%
2002	426,696	6,713	29,152,153	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	95	1.42%	86.03%	16.36%	(95)	-1.42%	-86.03%	-16.36%	(95)	-1.42%	-86.03%	-16.36%	0.02%	0.02%	0.27%
2003	20,278	74,764	29,097,667	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	8.80%	16.44%	0	0.00%	-8.80%	-16.44%	0	0.00%	-8.80%	-16.44%	0.26%	0.11%	0.28%
2004	118,922	55,665	29,160,923	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.07%	17.49%	0	0.00%	-0.07%	-17.49%	0	0.00%	-0.07%	-17.49%	0.19%	0.16%	0.28%
2005	(441)	69,626	29,090,857	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	18.35%	0	0.00%	0.00%	-18.35%	0	0.00%	0.00%	-18.35%	0.24%	0.23%	0.29%
2006	10,454	19,846	29,081,465	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	766	3.86%	0.53%	19.57%	(766)	-3.86%	-0.53%	-19.57%	(766)	-3.86%	-0.53%	-19.57%	0.07%	0.17%	0.29%
2007	12,112	22,101	29,071,476	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	35,684	161.46%	32.67%	19.87%	(35,684)	-161.46%	-32.67%	-19.87%	(35,684)	-161.46%	-32.67%	-19.87%	0.08%	0.13%	0.31%
2008	25,763	41,723	29,055,516	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,187	10.04%	48.57%	16.77%	(4,187)	-10.04%	-48.57%	-16.77%	(4,187)	-10.04%	-48.57%	-16.77%	0.14%	0.10%	0.34%
2009	770,312	207,501	29,618,326	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	14.70%	17.06%	0	0.00%	-14.70%	-17.06%	0	0.00%	-14.70%	-17.06%	0.70%	0.31%	0.36%
2010	59,564	61,117	29,616,773	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	6,651	10.88%	3.49%	21.72%	(6,651)	-10.88%	-3.49%	-21.72%	(6,651)	-10.88%	-3.49%	-21.72%	0.21%	0.35%	0.31%
2011	319,219	93,076	29,842,916	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	9,487	10.19%	4.46%	22.66%	(9,487)	-10.19%	-4.46%	-22.66%	(9,487)	-10.19%	-4.46%	-22.66%	0.31%	0.41%	0.33%
2012	223,070	119,660	29,946,326	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	54,383	45.45%	25.75%	24.58%	(54,383)	-45.45%	-25.75%	-24.58%	(54,383)	-45.45%	-25.75%	-24.58%	0.40%	0.31%	0.33%
2013	328,540	109,552	30,165,314	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	21,406	19.54%	26.46%	19.45%	(21,406)	-19.54%	-26.46%	-19.45%	(21,406)	-19.54%	-26.46%	-19.45%	0.36%	0.36%	0.32%
2014	257,797	66,889	30,356,222	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	10,410	15.56%	29.11%	19.42%	(10,410)	-15.56%	-29.11%	-19.42%	(10,410)	-15.56%	-29.11%	-19.42%	0.22%	0.33%	0.31%
2015	294,585	98,962	30,551,845	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	26,163	26.44%	21.05%	20.25%	(26,163)	-26.44%	-21.05%	-20.25%	(26,163)	-26.44%	-21.05%	-20.25%	0.32%	0.30%	0.34%
2016	111,754	129,602	30,533,997	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	25,165	19.42%	20.90%	17.35%	(25,165)	-19.42%	-20.90%	-17.35%	(25,165)	-19.42%	-20.90%	-17.35%	0.42%	0.32%	0.35%
2017	44,740	81,843	30,496,894	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	11,526	14.08%	20.25%	14.08%	(11,526)	-14.08%	-20.25%	-14.08%	(11,526)	-14.08%	-20.25%	-14.08%	0.27%	0.34%	0.27%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 356.00
Description: OVERHEAD CONDUCTORS AND DEVICES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	146,636	28,934	15,420,367	0	0.00%		0.00%	0	0.00%		0.00%	8,064	27.87%		17.75%	(8,064)	-27.87%		-17.75%	(8,064)	-27.87%		-17.75%	0.19%		0.58%
1999	21,371	0	15,441,738	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		17.60%	0	0.00%		-17.60%	0	0.00%		-17.60%	0.00%		0.59%
2000	2,461	188	15,444,011	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3,608	1919.21%	40.08%	17.60%	(3,608)	-1919.21%	-40.08%	-17.60%	(3,608)	-1919.21%	-40.08%	-17.60%	0.00%	0.06%	0.62%
2001	8,751	9,165	15,443,597	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	537	5.86%	44.32%	17.43%	(537)	-5.86%	-44.32%	-17.43%	(537)	-5.86%	-44.32%	-17.43%	0.06%	0.02%	0.65%
2002	143,994	1,250	15,586,341	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	19,131	1530.49%	219.53%	17.48%	(19,131)	-1530.49%	-219.53%	-17.48%	(19,131)	-1530.49%	-219.53%	-17.48%	0.01%	0.02%	0.69%
2003	171,357	151,098	15,606,600	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	105	0.07%	12.24%	16.53%	(105)	-0.07%	-12.24%	-16.53%	(105)	-0.07%	-12.24%	-16.53%	0.97%	0.35%	0.72%
2004	89,150	54,241	15,641,508	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	9.31%	17.88%	0	0.00%	-9.31%	-17.88%	0	0.00%	-9.31%	-17.88%	0.35%	0.44%	0.71%
2005	181,035	53,797	15,768,746	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.04%	18.43%	0	0.00%	-0.04%	-18.43%	0	0.00%	-0.04%	-18.43%	0.34%	0.55%	0.73%
2006	261,584	49,085	15,981,246	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	19,419	39.56%	12.36%	19.00%	(19,419)	-39.56%	-12.36%	-19.00%	(19,419)	-39.56%	-12.36%	-19.00%	0.31%	0.33%	0.76%
2007	885,179	116,609	16,749,815	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	8.85%	18.40%	0	0.00%	-8.85%	-18.40%	0	0.00%	-8.85%	-18.40%	0.70%	0.45%	0.79%
2008	1,016,035	178,430	17,587,420	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	61,275	34.34%	23.45%	19.77%	(61,275)	-34.34%	-23.45%	-19.77%	(61,275)	-34.34%	-23.45%	-19.77%	1.01%	0.68%	0.80%
2009	979,342	219,083	18,347,679	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	30,919	14.11%	17.93%	17.89%	(30,919)	-14.11%	-17.93%	-17.89%	(30,919)	-14.11%	-17.93%	-17.89%	1.19%	0.98%	0.78%
2010	210,991	117,532	18,441,137	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	11,640	9.90%	20.16%	18.60%	(11,640)	-9.90%	-20.16%	-18.60%	(11,640)	-9.90%	-20.16%	-18.60%	0.64%	0.95%	0.73%
2011	500,150	242,654	18,698,633	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	42,437	17.49%	14.67%	19.58%	(42,437)	-17.49%	-14.67%	-19.58%	(42,437)	-17.49%	-14.67%	-19.58%	1.30%	1.04%	0.75%
2012	183,981	40,039	18,842,575	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	15,665	39.12%	17.43%	20.20%	(15,665)	-39.12%	-17.43%	-20.20%	(15,665)	-39.12%	-17.43%	-20.20%	0.21%	0.71%	0.66%
2013	1,764,773	200,055	20,407,293	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	48,607	24.30%	22.10%	19.22%	(48,607)	-24.30%	-22.10%	-19.22%	(48,607)	-24.30%	-22.10%	-19.22%	0.98%	0.83%	0.74%
2014	103,961	76,765	20,434,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	23,607	30.75%	27.73%	17.42%	(23,607)	-30.75%	-27.73%	-17.42%	(23,607)	-30.75%	-27.73%	-17.42%	0.38%	0.53%	0.69%
2015	400,066	123,290	20,711,264	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	23,312	18.91%	23.87%	15.34%	(23,312)	-18.91%	-23.87%	-15.34%	(23,312)	-18.91%	-23.87%	-15.34%	0.60%	0.65%	0.79%
2016	242,508	161,142	20,792,630	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	9,629	5.98%	15.66%	14.13%	(9,629)	-5.98%	-15.66%	-14.13%	(9,629)	-5.98%	-15.66%	-14.13%	0.77%	0.58%	0.88%
2017	162,978	205,559	20,750,050	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	42,202	20.53%	15.34%	20.53%	(42,202)	-20.53%	-15.34%	-20.53%	(42,202)	-20.53%	-15.34%	-20.53%	0.99%	0.79%	0.99%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 357.00
Description: UNDERGROUND CONDUIT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
1999	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
2000	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2001	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2002	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2003	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2004	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2005	5,016	0	5,016	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2006	0	0	5,016	0	0.00%	0.00%	--	0	0.00%	0.00%	--	374	0.00%	0.00%	--	(374)	0.00%	0.00%	--	(374)	0.00%	0.00%	--	0.00%	0.00%	0.00%
2007	0	0	5,016	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2008	0	0	5,016	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2009	3,849	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2010	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2011	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	8,865	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 358.00
Description: UNDERGROUND CONDUCTORS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		12.03%	0	0.00%		-12.03%	0	0.00%		-12.03%	0.00%		0.79%
1999	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		12.03%	0	0.00%		-12.03%	0	0.00%		-12.03%	0.00%		0.79%
2000	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.79%
2001	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.79%
2002	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.79%
2003	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.79%
2004	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.79%
2005	95,295	0	95,295	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.79%
2006	0	0	95,295	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.80%
2007	0	0	95,295	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	12.03%	0	0.00%	0.00%	-12.03%	0	0.00%	0.00%	-12.03%	0.00%	0.00%	0.82%
2008	141,367	27,900	208,762	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	626	2.24%	2.24%	12.03%	(626)	-2.24%	-2.24%	-12.03%	(626)	-2.24%	-2.24%	-12.03%	13.36%	6.99%	0.84%
2009	285,809	0	494,571	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	2.24%	36.95%	0	0.00%	-2.24%	-36.95%	0	0.00%	-2.24%	-36.95%	0.00%	3.49%	0.25%
2010	0	0	494,571	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	2.24%	36.95%	0	0.00%	-2.24%	-36.95%	0	0.00%	-2.24%	-36.95%	0.00%	2.33%	0.28%
2011	8,578	10,962	492,187	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,050	36.95%	36.95%	36.95%	(4,050)	-36.95%	-36.95%	-36.95%	(4,050)	-36.95%	-36.95%	-36.95%	2.23%	0.74%	0.32%
2012	0	0	492,187	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	36.95%	--	0	0.00%	-36.95%	--	0	0.00%	-36.95%	--	0.00%	0.74%	0.00%
2013	0	0	492,187	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	36.95%	--	0	0.00%	-36.95%	--	0	0.00%	-36.95%	--	0.00%	0.74%	0.00%
2014	0	0	492,187	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	492,187	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	492,187	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	492,187	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 361.00
Description: STRUCTURES AND IMPROVEMENTS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	1,875	1,180	96,145	0	0.00%		0.00%	0	0.00%		0.00%	3,038	257.46%		9.08%	(3,038)	-257.46%		-9.08%	(3,038)	-257.46%		-9.08%	1.23%		0.24%
1999	0	0	96,145	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		4.68%	0	0.00%		-4.68%	0	0.00%		-4.68%	0.00%		0.24%
2000	0	0	96,145	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	257.46%	4.68%	0	0.00%	-257.46%	-4.68%	0	0.00%	-257.46%	-4.68%	0.00%	0.41%	0.24%
2001	375	0	96,520	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.68%	0	0.00%	0.00%	-4.68%	0	0.00%	0.00%	-4.68%	0.00%	0.00%	0.24%
2002	0	0	96,520	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	282	0.00%	0.00%	4.68%	(282)	0.00%	0.00%	-4.68%	(282)	0.00%	0.00%	-4.68%	0.00%	0.00%	0.24%
2003	216,163	0	312,683	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.26%	0	0.00%	0.00%	-4.26%	0	0.00%	0.00%	-4.26%	0.00%	0.00%	0.24%
2004	0	936	311,747	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	30.13%	4.26%	0	0.00%	-30.13%	-4.26%	0	0.00%	-30.13%	-4.26%	0.30%	0.13%	0.24%
2005	0	0	311,747	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.32%	0	0.00%	0.00%	-4.32%	0	0.00%	0.00%	-4.32%	0.00%	0.10%	0.24%
2006	0	0	311,747	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.32%	0	0.00%	0.00%	-4.32%	0	0.00%	0.00%	-4.32%	0.00%	0.10%	0.25%
2007	0	3,145	308,603	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	4.32%	0	0.00%	0.00%	-4.32%	0	0.00%	0.00%	-4.32%	1.02%	0.34%	0.25%
2008	1,044	4,057	305,589	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	788	19.41%	10.94%	4.54%	(788)	-19.41%	-10.94%	-4.54%	(788)	-19.41%	-10.94%	-4.54%	1.33%	0.78%	0.24%
2009	25,717	0	331,307	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	10.94%	3.50%	0	0.00%	-10.94%	-3.50%	0	0.00%	-10.94%	-3.50%	0.00%	0.76%	0.23%
2010	24,510	0	355,817	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	19.41%	3.50%	0	0.00%	-19.41%	-3.50%	0	0.00%	-19.41%	-3.50%	0.00%	0.41%	0.23%
2011	3,234,397	0	3,590,214	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.50%	0	0.00%	0.00%	-3.50%	0	0.00%	0.00%	-3.50%	0.00%	0.00%	0.23%
2012	15,622	40,609	3,565,227	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,736	4.27%	4.27%	3.50%	(1,736)	-4.27%	-4.27%	-3.50%	(1,736)	-4.27%	-4.27%	-3.50%	1.14%	0.54%	0.27%
2013	0	0	3,565,227	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	4.27%	1.75%	0	0.00%	-4.27%	-1.75%	0	0.00%	-4.27%	-1.75%	0.00%	0.38%	0.10%
2014	7,125	0	3,572,352	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	4.27%	1.75%	0	0.00%	-4.27%	-1.75%	0	0.00%	-4.27%	-1.75%	0.00%	0.38%	0.12%
2015	19,177	17,039	3,574,490	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.75%	0	0.00%	0.00%	-1.75%	0	0.00%	0.00%	-1.75%	0.48%	0.16%	0.16%
2016	47,537	355	3,621,672	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	88	24.87%	0.51%	38.37%	(88)	-24.87%	-0.51%	-38.37%	(88)	-24.87%	-0.51%	-38.37%	0.01%	0.16%	0.01%
2017	29,411	457	3,650,626	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	223	48.87%	1.75%	48.87%	(223)	-48.87%	-1.75%	-48.87%	(223)	-48.87%	-1.75%	-48.87%	0.01%	0.16%	0.01%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 362.00
Description: STATION EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	43,300	101,527	4,637,969	0	0.00%		3.76%	0	0.00%		3.76%	438	0.43%		12.12%	(438)	-0.43%		-8.36%	(438)	-0.43%		-12.12%	2.19%		2.24%
1999	729	0	4,638,698	0	0.00%		3.83%	0	0.00%		3.83%	0	0.00%		12.35%	0	0.00%		-8.52%	0	0.00%		-12.35%	0.00%		2.25%
2000	2,943	289,646	4,351,996	0	0.00%	0.00%	3.83%	0	0.00%	0.00%	3.83%	1,084	0.37%	0.39%	12.35%	(1,084)	-0.37%	-0.39%	-8.52%	(1,084)	-0.37%	-0.39%	-12.35%	6.66%	2.87%	2.29%
2001	826,772	10,351	5,168,417	0	0.00%	0.00%	4.05%	0	0.00%	0.00%	4.05%	80,922	781.75%	27.34%	13.05%	(80,922)	-781.75%	-27.34%	-9.00%	(80,922)	-781.75%	-27.34%	-13.05%	0.20%	2.12%	2.21%
2002	1,289,898	19,123	6,439,192	0	0.00%	0.00%	4.06%	0	0.00%	0.00%	4.06%	0	0.00%	25.70%	11.43%	0	0.00%	-25.70%	-7.37%	0	0.00%	-25.70%	-11.43%	0.30%	2.00%	2.25%
2003	1,197,125	37,244	7,599,073	0	0.00%	0.00%	4.08%	0	0.00%	0.00%	4.08%	0	0.00%	121.29%	11.48%	0	0.00%	-121.29%	-7.40%	0	0.00%	-121.29%	-11.48%	0.49%	0.35%	2.31%
2004	423,795	254,435	7,768,433	0	0.00%	0.00%	4.11%	0	0.00%	0.00%	4.11%	0	0.00%	0.00%	11.57%	0	0.00%	0.00%	-7.46%	0	0.00%	0.00%	-11.57%	3.28%	1.43%	2.38%
2005	1,069,172	155,311	8,682,294	0	0.00%	0.00%	4.34%	0	0.00%	0.00%	4.34%	0	0.00%	0.00%	12.20%	0	0.00%	0.00%	-7.87%	0	0.00%	0.00%	-12.20%	1.79%	1.86%	2.35%
2006	1,517,027	138,715	10,060,606	0	0.00%	0.00%	4.49%	0	0.00%	0.00%	4.49%	11,701	8.43%	2.13%	12.63%	(11,701)	-8.43%	-2.13%	-8.14%	(11,701)	-8.43%	-2.13%	-12.63%	1.38%	2.07%	2.37%
2007	1,137,359	269,723	10,928,242	0	0.00%	0.00%	4.63%	0	0.00%	0.00%	4.63%	29,374	10.89%	7.29%	12.76%	(29,374)	-10.89%	-7.29%	-8.13%	(29,374)	-10.89%	-7.29%	-12.76%	2.47%	1.90%	2.43%
2008	1,381,339	708,222	11,601,359	200,000	28.24%	17.91%	4.94%	200,000	28.24%	17.91%	4.94%	14,799	2.09%	5.00%	12.89%	185,201	26.15%	12.91%	-7.95%	(14,799)	-2.09%	-5.00%	-12.89%	6.10%	3.43%	2.43%
2009	1,566,365	78,496	13,089,228	0	0.00%	18.93%	0.00%	0	0.00%	18.93%	0.00%	24,067	30.66%	6.46%	15.18%	(24,067)	-30.66%	12.47%	-15.18%	(24,067)	-30.66%	-6.46%	-15.18%	0.60%	2.97%	2.15%
2010	596,791	209,936	13,476,083	0	0.00%	20.07%	0.00%	0	0.00%	20.07%	0.00%	70,964	33.80%	11.02%	14.81%	(70,964)	-33.80%	9.05%	-14.81%	(70,964)	-33.80%	-11.02%	-14.81%	1.56%	2.61%	2.29%
2011	2,588,891	89,813	15,975,161	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	29,673	33.04%	32.97%	13.50%	(29,673)	-33.04%	-32.97%	-13.50%	(29,673)	-33.04%	-32.97%	-13.50%	0.56%	0.89%	2.37%
2012	999,087	170,122	16,804,126	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	40,203	23.63%	29.97%	12.91%	(40,203)	-23.63%	-29.97%	-12.91%	(40,203)	-23.63%	-29.97%	-12.91%	1.01%	1.02%	2.63%
2013	2,489,788	1,103,849	18,190,065	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	97,198	8.81%	12.25%	12.25%	(97,198)	-8.81%	-12.25%	-12.25%	(97,198)	-8.81%	-12.25%	-12.25%	6.07%	2.68%	2.91%
2014	526,503	324,840	18,391,728	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	34,073	10.49%	10.73%	14.51%	(34,073)	-10.49%	-10.73%	-14.51%	(34,073)	-10.49%	-10.73%	-14.51%	1.77%	2.99%	2.17%
2015	1,434,731	609,854	19,216,605	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	72,780	11.93%	10.01%	15.47%	(72,780)	-11.93%	-10.01%	-15.47%	(72,780)	-11.93%	-10.01%	-15.47%	3.17%	3.65%	2.29%
2016	1,279,386	603,747	19,892,244	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	111,498	18.47%	14.19%	18.33%	(111,498)	-18.47%	-14.19%	-18.33%	(111,498)	-18.47%	-14.19%	-18.33%	3.04%	2.68%	1.87%
2017	530,255	148,749	20,273,750	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	26,432	17.77%	15.47%	17.77%	(26,432)	-17.77%	-15.47%	-17.77%	(26,432)	-17.77%	-15.47%	-17.77%	0.73%	2.29%	0.73%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 363.00
Description: Storage Battery Equipment
Rolling Band (Yrs): 3

				Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	EOY Plant Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		0.37%
1999	0	0	0	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		0.37%
2000	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2001	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2002	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2003	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2004	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2005	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2006	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2007	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2008	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2009	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2010	0	0	0	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2011	2,546,880	0	2,546,880	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
2012	4,941,995	0	7,488,875	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.39%
2013	0	0	7,488,875	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.47%
2014	44,413	34,975	7,498,313	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.47%	0.16%	0.59%
2015	212,414	89,223	7,621,504	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.17%	0.55%	0.63%
2016	60,440	54,001	7,627,943	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.71%	0.78%	0.35%
2017	0	0	7,627,943	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.63%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 364.00
Description: Poles, Towers and Fixtures
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	755,859	21,079	33,702,255	0	0.00%		0.00%	0	0.00%		0.00%	39,865	189.12%		36.93%	(39,865)	-189.12%		-36.93%	(39,865)	-189.12%		-36.93%	0.06%		0.77%
1999	399,704	25,906	34,076,053	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		36.33%	0	0.00%		-36.33%	0	0.00%		-36.33%	0.08%		0.81%
2000	587,795	87,951	34,575,897	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	605,063	687.96%	477.95%	36.51%	(605,063)	-687.96%	-477.95%	-36.51%	(605,063)	-687.96%	-477.95%	-36.51%	0.25%	0.13%	0.84%
2001	(3,621)	164,756	34,407,520	0	0.00%	0.00%	0.00%	72	0.04%	0.03%	0.00%	341,904	207.52%	339.89%	25.54%	(341,833)	-207.48%	-339.86%	-25.54%	(341,833)	-207.48%	-339.86%	-25.54%	0.48%	0.27%	0.88%
2002	144,586	77,865	34,474,241	0	0.00%	0.00%	0.00%	0	0.00%	0.02%	0.00%	142,619	183.16%	329.61%	19.61%	(142,619)	-183.16%	-329.59%	-19.61%	(142,619)	-183.16%	-329.59%	-19.61%	0.23%	0.32%	0.90%
2003	699,730	803,817	34,370,154	0	0.00%	0.00%	0.00%	0	0.00%	0.01%	0.00%	30,454	3.79%	49.21%	17.05%	(30,454)	-3.79%	-49.21%	-17.05%	(30,454)	-3.79%	-49.21%	-17.05%	2.34%	1.01%	0.95%
2004	9,071	449,279	33,929,947	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	13.00%	19.60%	0	0.00%	-13.00%	-19.60%	0	0.00%	-13.00%	-19.60%	1.32%	1.30%	0.85%
2005	149,925	318,205	33,761,667	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	1.94%	21.97%	0	0.00%	-1.94%	-21.97%	0	0.00%	-1.94%	-21.97%	0.94%	1.54%	0.82%
2006	487,457	245,800	34,003,324	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	53,152	21.62%	5.25%	24.02%	(53,152)	-21.62%	-5.25%	-24.02%	(53,152)	-21.62%	-5.25%	-24.02%	0.72%	1.00%	0.81%
2007	364,150	215,743	34,151,732	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	45,251	20.97%	12.62%	24.20%	(45,251)	-20.97%	-12.62%	-24.20%	(45,251)	-20.97%	-12.62%	-24.20%	0.63%	0.77%	0.81%
2008	485,420	231,736	34,405,416	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	27,694	11.95%	18.19%	24.44%	(27,694)	-11.95%	-18.19%	-24.44%	(27,694)	-11.95%	-18.19%	-24.44%	0.67%	0.68%	0.83%
2009	264,371	236,331	34,433,456	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	64,150	27.14%	20.05%	25.51%	(64,150)	-27.14%	-20.05%	-25.51%	(64,150)	-27.14%	-20.05%	-25.51%	0.69%	0.66%	0.85%
2010	243,335	211,706	34,465,085	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	44,400	20.97%	20.04%	25.35%	(44,400)	-20.97%	-20.04%	-25.35%	(44,400)	-20.97%	-20.04%	-25.35%	0.61%	0.66%	0.87%
2011	379,879	248,047	34,596,917	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	71,495	28.82%	25.87%	25.76%	(71,495)	-28.82%	-25.87%	-25.76%	(71,495)	-28.82%	-25.87%	-25.76%	0.72%	0.67%	0.90%
2012	528,597	230,755	34,894,759	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	99,418	43.08%	31.18%	25.38%	(99,418)	-43.08%	-31.18%	-25.38%	(99,418)	-43.08%	-31.18%	-25.38%	0.66%	0.66%	0.93%
2013	1,278,517	360,141	35,813,135	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	66,089	18.35%	28.25%	23.10%	(66,089)	-18.35%	-28.25%	-23.10%	(66,089)	-18.35%	-28.25%	-23.10%	1.01%	0.80%	0.98%
2014	579,034	307,879	36,084,290	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	87,267	28.34%	28.12%	24.29%	(87,267)	-28.34%	-28.12%	-24.29%	(87,267)	-28.34%	-28.12%	-24.29%	0.85%	0.84%	0.98%
2015	620,804	257,757	36,447,337	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	49,161	19.07%	21.88%	23.18%	(49,161)	-19.07%	-21.88%	-23.18%	(49,161)	-19.07%	-21.88%	-23.18%	0.71%	0.85%	1.02%
2016	558,043	320,758	36,684,622	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	71,833	22.39%	23.50%	24.41%	(71,833)	-22.39%	-23.50%	-24.41%	(71,833)	-22.39%	-23.50%	-24.41%	0.87%	0.81%	1.17%
2017	775,490	540,768	36,919,344	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	138,462	25.60%	23.18%	25.60%	(138,462)	-25.60%	-23.18%	-25.60%	(138,462)	-25.60%	-23.18%	-25.60%	1.46%	1.02%	1.46%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 365.00
Description: OVERHEAD CONDUCTORS AND DEVICES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	448,638	22,270	28,966,668	0	0.00%		0.00%	0	0.00%		0.02%	33,441	150.16%		22.17%	(33,441)	-150.16%		-22.15%	(33,441)	-150.16%		-22.15%	0.08%		1.01%
1999	454,947	24,254	29,397,360	0	0.00%		0.00%	0	0.00%		0.02%	0	0.00%		21.76%	0	0.00%		-21.74%	0	0.00%		-21.74%	0.08%		1.05%
2000	615,263	736	30,011,888	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.02%	233,662	31753.16%	565.18%	21.83%	(233,662)	-31753.16%	-565.18%	-21.81%	(233,662)	-31753.16%	-565.18%	-21.81%	0.00%	0.05%	1.09%
2001	1,231,714	242,122	31,001,479	0	0.00%	0.00%	0.00%	1,394	0.58%	0.52%	0.02%	231,441	95.59%	174.12%	18.46%	(230,047)	-95.01%	-173.60%	-18.44%	(230,047)	-95.01%	-173.60%	-18.44%	0.78%	0.30%	1.15%
2002	814,850	26,556	31,789,773	0	0.00%	0.00%	0.00%	0	0.00%	0.52%	0.00%	124,611	469.24%	218.89%	15.65%	(124,611)	-469.24%	-218.37%	-15.65%	(124,611)	-469.24%	-218.37%	-15.65%	0.08%	0.29%	1.17%
2003	1,507,280	1,083,319	32,213,734	0	0.00%	0.00%	0.00%	0	0.00%	0.10%	0.00%	25,746	2.38%	28.24%	13.84%	(25,746)	-2.38%	-28.14%	-13.84%	(25,746)	-2.38%	-28.14%	-13.84%	3.36%	1.42%	1.23%
2004	1,190,543	480,020	32,924,257	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	9.46%	16.08%	0	0.00%	-9.46%	-16.08%	0	0.00%	-9.46%	-16.08%	1.46%	1.64%	1.10%
2005	1,465,817	592,251	33,797,823	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	1.19%	17.59%	0	0.00%	-1.19%	-17.59%	0	0.00%	-1.19%	-17.59%	1.75%	2.18%	1.07%
2006	707,831	270,349	34,235,304	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	16,234	6.00%	1.21%	19.92%	(16,234)	-6.00%	-1.21%	-19.92%	(16,234)	-6.00%	-1.21%	-19.92%	0.79%	1.33%	1.02%
2007	566,135	386,845	34,414,595	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	75,340	19.48%	7.33%	20.81%	(75,340)	-19.48%	-7.33%	-20.81%	(75,340)	-19.48%	-7.33%	-20.81%	1.12%	1.22%	1.04%
2008	1,197,333	489,195	35,122,733	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	52,757	10.78%	12.59%	20.95%	(52,757)	-10.78%	-12.59%	-20.95%	(52,757)	-10.78%	-12.59%	-20.95%	1.39%	1.10%	1.03%
2009	709,593	322,016	35,510,311	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	51,152	15.88%	14.96%	22.43%	(51,152)	-15.88%	-14.96%	-22.43%	(51,152)	-15.88%	-14.96%	-22.43%	0.91%	1.14%	0.99%
2010	494,372	340,453	35,664,230	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	83,370	24.49%	16.26%	23.13%	(83,370)	-24.49%	-16.26%	-23.13%	(83,370)	-24.49%	-16.26%	-23.13%	0.95%	1.08%	1.00%
2011	747,954	279,855	36,132,329	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	49,492	17.69%	19.53%	22.96%	(49,492)	-17.69%	-19.53%	-22.96%	(49,492)	-17.69%	-19.53%	-22.96%	0.77%	0.88%	1.01%
2012	714,177	292,821	36,553,685	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	105,942	36.18%	26.15%	23.58%	(105,942)	-36.18%	-26.15%	-23.58%	(105,942)	-36.18%	-26.15%	-23.58%	0.80%	0.84%	1.04%
2013	1,876,284	675,757	37,754,213	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	128,867	19.07%	22.77%	21.82%	(128,867)	-19.07%	-22.77%	-21.82%	(128,867)	-19.07%	-22.77%	-21.82%	1.79%	1.13%	1.09%
2014	694,684	259,762	38,189,135	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	67,020	25.80%	24.57%	23.12%	(67,020)	-25.80%	-24.57%	-23.12%	(67,020)	-25.80%	-24.57%	-23.12%	0.68%	1.09%	0.92%
2015	715,554	263,732	38,640,957	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	50,260	19.06%	20.53%	22.53%	(50,260)	-19.06%	-20.53%	-22.53%	(50,260)	-19.06%	-20.53%	-22.53%	0.68%	1.05%	1.00%
2016	681,706	324,250	38,998,414	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	58,670	18.09%	20.76%	23.54%	(58,670)	-18.09%	-20.76%	-23.54%	(58,670)	-18.09%	-20.76%	-23.54%	0.83%	0.73%	1.15%
2017	1,096,303	580,266	39,514,451	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	154,276	26.59%	22.53%	26.59%	(154,276)	-26.59%	-22.53%	-26.59%	(154,276)	-26.59%	-22.53%	-26.59%	1.47%	1.00%	1.47%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 366.00
Description: UNDERGROUND CONDUIT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	5,211	552	4,150,965	0	0.00%		0.00%	0	0.00%		0.00%	514	93.12%		12.94%	(514)	-93.12%		-12.94%	(514)	-93.12%		-12.94%	0.01%		0.19%
1999	46,384	3,194	4,194,155	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		12.75%	0	0.00%		-12.75%	0	0.00%		-12.75%	0.08%		0.20%
2000	(716)	741	4,192,698	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	640	86.47%	25.73%	12.93%	(640)	-86.47%	-25.73%	-12.93%	(640)	-86.47%	-25.73%	-12.93%	0.02%	0.04%	0.21%
2001	8,541	2,079	4,199,160	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	6,271	301.63%	114.93%	12.69%	(6,271)	-301.63%	-114.93%	-12.69%	(6,271)	-301.63%	-114.93%	-12.69%	0.05%	0.05%	0.21%
2002	40,003	4,457	4,234,706	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	762	17.10%	105.45%	9.94%	(762)	-17.10%	-105.45%	-9.94%	(762)	-17.10%	-105.45%	-9.94%	0.11%	0.06%	0.22%
2003	104,169	4,366	4,334,509	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	54	1.23%	65.01%	9.80%	(54)	-1.23%	-65.01%	-9.80%	(54)	-1.23%	-65.01%	-9.80%	0.10%	0.09%	0.22%
2004	69,836	2,964	4,401,380	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	6.92%	9.97%	0	0.00%	-6.92%	-9.97%	0	0.00%	-6.92%	-9.97%	0.07%	0.09%	0.23%
2005	785,627	3,092	5,183,915	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.52%	10.12%	0	0.00%	-0.52%	-10.12%	0	0.00%	-0.52%	-10.12%	0.06%	0.07%	0.24%
2006	660,200	12,119	5,831,996	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,372	11.32%	7.55%	10.27%	(1,372)	-11.32%	-7.55%	-10.27%	(1,372)	-11.32%	-7.55%	-10.27%	0.21%	0.12%	0.25%
2007	53,677	5,291	5,880,382	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,737	32.84%	15.17%	10.20%	(1,737)	-32.84%	-15.17%	-10.20%	(1,737)	-32.84%	-15.17%	-10.20%	0.09%	0.12%	0.25%
2008	46,203	109,835	5,816,749	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,238	2.04%	4.20%	9.56%	(2,238)	-2.04%	-4.20%	-9.56%	(2,238)	-2.04%	-4.20%	-9.56%	1.89%	0.73%	0.27%
2009	121,496	2,566	5,935,680	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,567	61.06%	4.71%	20.29%	(1,567)	-61.06%	-4.71%	-20.29%	(1,567)	-61.06%	-4.71%	-20.29%	0.04%	0.67%	0.12%
2010	194,866	1,799	6,128,746	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	341	18.94%	3.63%	18.88%	(341)	-18.94%	-3.63%	-18.88%	(341)	-18.94%	-3.63%	-18.88%	0.03%	0.64%	0.13%
2011	258,628	2,207	6,385,167	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	958	43.43%	43.60%	18.88%	(958)	-43.43%	-43.60%	-18.88%	(958)	-43.43%	-43.60%	-18.88%	0.03%	0.04%	0.14%
2012	24,983	15,277	6,394,873	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,483	16.26%	19.62%	18.11%	(2,483)	-16.26%	-19.62%	-18.11%	(2,483)	-16.26%	-19.62%	-18.11%	0.24%	0.10%	0.15%
2013	961,030	5,263	7,350,641	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,128	21.44%	20.09%	18.63%	(1,128)	-21.44%	-20.09%	-18.63%	(1,128)	-21.44%	-20.09%	-18.63%	0.07%	0.11%	0.14%
2014	106,275	15,986	7,440,929	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3,678	23.01%	19.96%	18.33%	(3,678)	-23.01%	-19.96%	-18.33%	(3,678)	-23.01%	-19.96%	-18.33%	0.21%	0.17%	0.16%
2015	192,193	18,871	7,614,251	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3,489	18.49%	20.67%	16.13%	(3,489)	-18.49%	-20.67%	-16.13%	(3,489)	-18.49%	-20.67%	-16.13%	0.25%	0.18%	0.14%
2016	337,187	7,490	7,943,947	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,432	19.11%	20.30%	13.19%	(1,432)	-19.11%	-20.30%	-13.19%	(1,432)	-19.11%	-20.30%	-13.19%	0.09%	0.18%	0.09%
2017	999,523	7,588	8,935,883	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	557	7.34%	16.13%	7.34%	(557)	-7.34%	-16.13%	-7.34%	(557)	-7.34%	-16.13%	-7.34%	0.08%	0.14%	0.08%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 367.00
Description: UNDERGROUND CONDUCTORS AND DEVICES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	430,295	22,469	11,687,326	0	0.00%		0.00%	0	0.00%		0.00%	16,864	75.05%		15.99%	(16,864)	-75.05%		-15.99%	(16,864)	-75.05%		-15.99%	0.19%		0.85%
1999	373,844	4,896	12,056,274	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		15.55%	0	0.00%		-15.55%	0	0.00%		-15.55%	0.04%		0.87%
2000	428,154	822	12,483,606	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	26,590	3234.79%	154.16%	15.58%	(26,590)	-3234.79%	-154.16%	-15.58%	(26,590)	-3234.79%	-154.16%	-15.58%	0.01%	0.08%	0.90%
2001	602,670	93,867	12,992,409	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	29,697	31.64%	56.52%	14.72%	(29,697)	-31.64%	-56.52%	-14.72%	(29,697)	-31.64%	-56.52%	-14.72%	0.72%	0.27%	0.93%
2002	616,340	110,620	13,498,129	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	27,032	24.44%	40.58%	14.18%	(27,032)	-24.44%	-40.58%	-14.18%	(27,032)	-24.44%	-40.58%	-14.18%	0.82%	0.53%	0.94%
2003	981,015	253,205	14,225,939	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	5,242	2.07%	13.54%	13.78%	(5,242)	-2.07%	-13.54%	-13.78%	(5,242)	-2.07%	-13.54%	-13.78%	1.78%	1.12%	0.94%
2004	(80,680)	150,728	13,994,532	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	6.27%	14.92%	0	0.00%	-6.27%	-14.92%	0	0.00%	-6.27%	-14.92%	1.08%	1.23%	0.90%
2005	481,334	334,438	14,141,427	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.71%	15.84%	0	0.00%	-0.71%	-15.84%	0	0.00%	-0.71%	-15.84%	2.36%	1.74%	0.89%
2006	1,181,633	289,329	15,033,732	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	10,199	3.52%	1.32%	18.33%	(10,199)	-3.52%	-1.32%	-18.33%	(10,199)	-3.52%	-1.32%	-18.33%	1.92%	1.79%	0.81%
2007	1,412,287	137,430	16,308,589	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	20,501	14.92%	4.03%	20.67%	(20,501)	-14.92%	-4.03%	-20.67%	(20,501)	-14.92%	-4.03%	-20.67%	0.84%	1.67%	0.75%
2008	2,469,121	307,001	18,470,709	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	8,294	2.70%	5.31%	21.14%	(8,294)	-2.70%	-5.31%	-21.14%	(8,294)	-2.70%	-5.31%	-21.14%	1.66%	1.47%	0.74%
2009	2,040,863	123,020	20,388,552	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	36,751	29.87%	11.55%	25.21%	(36,751)	-29.87%	-11.55%	-25.21%	(36,751)	-29.87%	-11.55%	-25.21%	0.60%	1.03%	0.66%
2010	1,125,276	163,082	21,350,747	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	35,530	21.79%	13.59%	24.76%	(35,530)	-21.79%	-13.59%	-24.76%	(35,530)	-21.79%	-13.59%	-24.76%	0.76%	0.99%	0.67%
2011	410,483	37,605	21,723,625	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	13,503	35.91%	26.50%	25.20%	(13,503)	-35.91%	-26.50%	-25.20%	(13,503)	-35.91%	-26.50%	-25.20%	0.17%	0.51%	0.65%
2012	1,912,778	146,477	23,489,926	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	48,114	32.85%	27.98%	24.82%	(48,114)	-32.85%	-27.98%	-24.82%	(48,114)	-32.85%	-27.98%	-24.82%	0.62%	0.52%	0.72%
2013	1,189,309	155,967	24,523,267	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	36,374	23.32%	28.82%	23.54%	(36,374)	-23.32%	-28.82%	-23.54%	(36,374)	-23.32%	-28.82%	-23.54%	0.64%	0.49%	0.74%
2014	(1,269,004)	72,819	23,181,445	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	18,430	25.31%	27.43%	23.59%	(18,430)	-25.31%	-27.43%	-23.59%	(18,430)	-25.31%	-27.43%	-23.59%	0.31%	0.53%	0.77%
2015	1,683,544	300,571	24,564,418	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	51,001	16.97%	19.99%	23.41%	(51,001)	-16.97%	-19.99%	-23.41%	(51,001)	-16.97%	-19.99%	-23.41%	1.22%	0.73%	0.91%
2016	647,077	164,642	25,046,852	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	34,481	20.94%	19.31%	28.38%	(34,481)	-20.94%	-19.31%	-28.38%	(34,481)	-20.94%	-19.31%	-28.38%	0.66%	0.74%	0.76%
2017	1,495,868	224,231	26,318,489	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	75,892	33.85%	23.41%	33.85%	(75,892)	-33.85%	-23.41%	-33.85%	(75,892)	-33.85%	-23.41%	-33.85%	0.85%	0.91%	0.85%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 368.00
Description: LINE TRANSFORMERS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	793,711	76,971	18,476,457	0	0.00%		0.00%	0	0.00%		0.08%	120,216	156.18%		18.27%	(120,216)	-156.18%		-18.19%	(120,216)	-156.18%		-18.19%	0.42%		2.03%
1999	326,220	6,225	18,796,452	0	0.00%		0.00%	0	0.00%		0.08%	0	0.00%		17.10%	0	0.00%		-17.01%	0	0.00%		-17.01%	0.03%		2.10%
2000	538,746	93,754	19,241,444	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.08%	91,482	97.58%	119.64%	17.11%	(91,482)	-97.58%	-119.64%	-17.03%	(91,482)	-97.58%	-119.64%	-17.03%	0.49%	0.31%	2.19%
2001	1,985,734	354,553	20,872,624	0	0.00%	0.00%	0.00%	7,690	2.17%	1.69%	0.09%	238,680	67.32%	72.64%	16.27%	(230,990)	-65.15%	-70.95%	-16.18%	(230,990)	-65.15%	-70.95%	-16.18%	1.70%	0.77%	2.27%
2002	808,193	38,423	21,642,394	0	0.00%	0.00%	0.00%	0	0.00%	1.58%	0.00%	169,851	442.06%	102.73%	14.17%	(169,851)	-442.06%	-101.15%	-14.17%	(169,851)	-442.06%	-101.15%	-14.17%	0.18%	0.79%	2.31%
2003	50,550	343,055	21,349,889	0	0.00%	0.00%	0.00%	0	0.00%	1.04%	0.00%	2,767	0.81%	55.88%	12.25%	(2,767)	-0.81%	-54.84%	-12.25%	(2,767)	-0.81%	-54.84%	-12.25%	1.61%	1.15%	2.44%
2004	786,722	2,217,504	19,919,107	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	6.64%	12.72%	0	0.00%	-6.64%	-12.72%	0	0.00%	-6.64%	-12.72%	11.13%	4.13%	2.49%
2005	856,561	637,070	20,138,598	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.09%	17.42%	0	0.00%	-0.09%	-17.42%	0	0.00%	-0.09%	-17.42%	3.16%	5.21%	1.94%
2006	801,780	576,843	20,363,535	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	125,206	21.71%	3.65%	19.49%	(125,206)	-21.71%	-3.65%	-19.49%	(125,206)	-21.71%	-3.65%	-19.49%	2.83%	5.68%	1.85%
2007	1,818,285	444,821	21,736,998	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	100,478	22.59%	13.61%	19.22%	(100,478)	-22.59%	-13.61%	-19.22%	(100,478)	-22.59%	-13.61%	-19.22%	2.05%	2.67%	1.78%
2008	1,937,820	281,195	23,393,623	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	85,823	30.52%	23.91%	18.88%	(85,823)	-30.52%	-23.91%	-18.88%	(85,823)	-30.52%	-23.91%	-18.88%	1.20%	1.99%	1.75%
2009	763,088	200,721	23,955,991	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	67,705	33.73%	27.41%	18.07%	(67,705)	-33.73%	-27.41%	-18.07%	(67,705)	-33.73%	-27.41%	-18.07%	0.84%	1.34%	1.81%
2010	929,657	353,870	24,531,778	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	77,044	21.77%	27.59%	17.26%	(77,044)	-21.77%	-27.59%	-17.26%	(77,044)	-21.77%	-27.59%	-17.26%	1.44%	1.16%	1.93%
2011	478,764	672,099	24,338,442	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	86,314	12.84%	18.84%	16.80%	(86,314)	-12.84%	-18.84%	-16.80%	(86,314)	-12.84%	-18.84%	-16.80%	2.76%	1.68%	1.99%
2012	992,777	703,552	24,627,667	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	145,893	20.74%	17.88%	17.74%	(145,893)	-20.74%	-17.88%	-17.74%	(145,893)	-20.74%	-17.88%	-17.74%	2.86%	2.35%	1.87%
2013	872,362	599,565	24,900,464	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	110,004	18.35%	17.33%	16.75%	(110,004)	-18.35%	-17.33%	-16.75%	(110,004)	-18.35%	-17.33%	-16.75%	2.41%	2.67%	1.68%
2014	649,288	432,470	25,117,282	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	44,078	10.19%	17.28%	16.13%	(44,078)	-10.19%	-17.28%	-16.13%	(44,078)	-10.19%	-17.28%	-16.13%	1.72%	2.33%	1.50%
2015	781,344	433,678	25,464,949	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	49,191	11.34%	13.87%	18.46%	(49,191)	-11.34%	-13.87%	-18.46%	(49,191)	-11.34%	-13.87%	-18.46%	1.70%	1.94%	1.43%
2016	534,665	308,689	25,690,924	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	72,161	23.38%	14.08%	23.04%	(72,161)	-23.38%	-14.08%	-23.04%	(72,161)	-23.38%	-14.08%	-23.04%	1.20%	1.54%	1.30%
2017	852,403	363,495	26,179,832	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	82,743	22.76%	18.46%	22.76%	(82,743)	-22.76%	-18.46%	-22.76%	(82,743)	-22.76%	-18.46%	-22.76%	1.39%	1.43%	1.39%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 369.00
Description: SERVICES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	134,786	1,401	4,441,437	0	0.00%		0.00%	0	0.00%		0.00%	4,707	335.97%		24.46%	(4,707)	-335.97%		-24.46%	(4,707)	-335.97%		-24.46%	0.03%		0.14%
1999	38,081	2,596	4,476,921	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		21.65%	0	0.00%		-21.65%	0	0.00%		-21.65%	0.06%		0.14%
2000	74,538	0	4,551,459	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,483	0.00%	229.92%	22.02%	(4,483)	0.00%	-229.92%	-22.02%	(4,483)	0.00%	-229.92%	-22.02%	0.00%	0.03%	0.15%
2001	98,864	2,933	4,647,390	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,856	165.58%	168.92%	19.08%	(4,856)	-165.58%	-168.92%	-19.08%	(4,856)	-165.58%	-168.92%	-19.08%	0.06%	0.04%	0.15%
2002	151,999	857	4,798,532	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3,400	396.72%	336.13%	16.21%	(3,400)	-396.72%	-336.13%	-16.21%	(3,400)	-396.72%	-336.13%	-16.21%	0.02%	0.03%	0.16%
2003	128,378	8,389	4,918,520	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	436	5.19%	71.37%	14.02%	(436)	-5.19%	-71.37%	-14.02%	(436)	-5.19%	-71.37%	-14.02%	0.17%	0.08%	0.16%
2004	162,162	28,701	5,051,981	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	10.11%	14.55%	0	0.00%	-10.11%	-14.55%	0	0.00%	-10.11%	-14.55%	0.57%	0.26%	0.16%
2005	262,190	9,375	5,304,796	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.94%	18.28%	0	0.00%	-0.94%	-18.28%	0	0.00%	-0.94%	-18.28%	0.18%	0.30%	0.14%
2006	237,225	5,963	5,536,058	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,709	28.66%	3.88%	19.96%	(1,709)	-28.66%	-3.88%	-19.96%	(1,709)	-28.66%	-3.88%	-19.96%	0.11%	0.28%	0.14%
2007	227,062	6,338	5,756,783	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	564	8.90%	10.49%	19.42%	(564)	-8.90%	-10.49%	-19.42%	(564)	-8.90%	-10.49%	-19.42%	0.11%	0.13%	0.14%
2008	254,366	8,557	6,002,592	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	473	5.53%	13.17%	20.16%	(473)	-5.53%	-13.17%	-20.16%	(473)	-5.53%	-13.17%	-20.16%	0.14%	0.12%	0.14%
2009	132,011	8,111	6,126,492	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,427	17.60%	10.71%	21.69%	(1,427)	-17.60%	-10.71%	-21.69%	(1,427)	-17.60%	-10.71%	-21.69%	0.13%	0.13%	0.14%
2010	111,156	6,731	6,230,916	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	763	11.33%	11.38%	22.15%	(763)	-11.33%	-11.38%	-22.15%	(763)	-11.33%	-11.38%	-22.15%	0.11%	0.13%	0.14%
2011	89,612	3,912	6,316,617	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	524	13.39%	14.47%	23.24%	(524)	-13.39%	-14.47%	-23.24%	(524)	-13.39%	-14.47%	-23.24%	0.06%	0.10%	0.15%
2012	57,280	4,567	6,369,330	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,592	34.86%	18.92%	23.85%	(1,592)	-34.86%	-18.92%	-23.85%	(1,592)	-34.86%	-18.92%	-23.85%	0.07%	0.08%	0.16%
2013	97,274	11,252	6,455,352	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,348	20.87%	22.63%	22.99%	(2,348)	-20.87%	-22.63%	-22.99%	(2,348)	-20.87%	-22.63%	-22.99%	0.17%	0.10%	0.18%
2014	105,032	10,867	6,549,518	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,483	22.85%	24.07%	23.50%	(2,483)	-22.85%	-24.07%	-23.50%	(2,483)	-22.85%	-24.07%	-23.50%	0.17%	0.14%	0.18%
2015	111,943	12,805	6,648,656	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,898	22.63%	22.13%	23.69%	(2,898)	-22.63%	-22.13%	-23.69%	(2,898)	-22.63%	-22.13%	-23.69%	0.19%	0.18%	0.18%
2016	107,696	12,236	6,744,117	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,470	20.19%	21.86%	24.27%	(2,470)	-20.19%	-21.86%	-24.27%	(2,470)	-20.19%	-21.86%	-24.27%	0.18%	0.18%	0.17%
2017	95,928	11,078	6,828,967	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3,189	28.79%	23.69%	28.79%	(3,189)	-28.79%	-23.69%	-28.79%	(3,189)	-28.79%	-23.69%	-28.79%	0.16%	0.18%	0.16%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 370.00
Description: METERS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	246,086	121,742	6,468,468	0	0.00%		0.00%	0	0.00%		0.00%	6,008	4.94%		0.69%	(6,008)	-4.94%		-0.69%	(6,008)	-4.94%		-0.69%	1.88%		4.71%
1999	140,674	81,396	6,527,746	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.61%	0	0.00%		-0.61%	0	0.00%		-0.61%	1.25%		4.84%
2000	226,768	57,497	6,697,017	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	230	0.40%	2.39%	0.62%	(230)	-0.40%	-2.39%	-0.62%	(230)	-0.40%	-2.39%	-0.62%	0.86%	1.32%	5.03%
2001	502,713	234	7,199,496	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	20,823	8898.56%	15.13%	0.62%	(20,823)	-8898.56%	-15.13%	-0.62%	(20,823)	-8898.56%	-15.13%	-0.62%	0.00%	0.68%	5.26%
2002	272,986	262,460	7,210,022	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	15,533	5.92%	11.43%	0.30%	(15,533)	-5.92%	-11.43%	-0.30%	(15,533)	-5.92%	-11.43%	-0.30%	3.64%	1.52%	5.59%
2003	281,096	451,331	7,039,787	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	255	0.06%	5.13%	0.05%	(255)	-0.06%	-5.13%	-0.05%	(255)	-0.06%	-5.13%	-0.05%	6.41%	3.33%	5.72%
2004	236,059	27,909	7,247,936	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	2.13%	0.05%	0	0.00%	-2.13%	-0.05%	0	0.00%	-2.13%	-0.05%	0.39%	3.45%	5.67%
2005	215,130	380,208	7,082,858	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.03%	0.05%	0	0.00%	-0.03%	-0.05%	0	0.00%	-0.03%	-0.05%	5.37%	4.02%	6.08%
2006	323,340	316,292	7,089,906	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,769	0.56%	0.24%	0.06%	(1,769)	-0.56%	-0.24%	-0.06%	(1,769)	-0.56%	-0.24%	-0.06%	4.46%	3.38%	6.14%
2007	288,929	261,109	7,117,726	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.18%	0.03%	0	0.00%	-0.18%	-0.03%	0	0.00%	-0.18%	-0.03%	3.67%	4.50%	6.29%
2008	294,810	279,034	7,133,502	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	426	0.15%	0.26%	0.03%	(426)	-0.15%	-0.26%	-0.03%	(426)	-0.15%	-0.26%	-0.03%	3.91%	4.01%	6.56%
2009	202,625	267,477	7,068,650	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	812	0.30%	0.15%	0.02%	(812)	-0.30%	-0.15%	-0.02%	(812)	-0.30%	-0.15%	-0.02%	3.78%	3.79%	6.85%
2010	133,736	62,550	7,139,836	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.20%	0.00%	0	0.00%	-0.20%	0.00%	0	0.00%	-0.20%	0.00%	0.88%	2.85%	7.23%
2011	63,851	78,760	7,124,927	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.20%	0.00%	0	0.00%	-0.20%	0.00%	0	0.00%	-0.20%	0.00%	1.11%	1.92%	8.13%
2012	43,675	2,019,925	5,148,676	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	39.23%	11.13%	9.30%
2013	3,684,901	696,319	8,137,258	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	83	0.01%	0.00%	0.00%	(83)	-0.01%	0.00%	0.00%	(83)	-0.01%	0.00%	0.00%	8.56%	13.69%	5.22%
2014	187,006	854,004	7,470,260	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	11.43%	17.20%	4.31%
2015	26,878	97,581	7,399,557	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.01%	0.00%	0	0.00%	-0.01%	0.00%	0	0.00%	-0.01%	0.00%	1.32%	7.16%	1.92%
2016	140,133	122,879	7,416,812	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.66%	4.82%	2.21%
2017	187,146	205,257	7,398,700	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2.77%	1.92%	2.77%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 371.00
Description: INSTALLATIONS ON CUSTOMER'S PREMISES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
1999	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
2000	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2001	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2002	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2003	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2004	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2005	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2006	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2007	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2008	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2009	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2010	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2011	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	29,138	0	29,138	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	29,138	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	29,138	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	29,138	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 372.00
Description: LEASED PROPERTY ON CUSTOMER PREMISES
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
1999	0	0	0	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0	0.00%		--	0.00%		0.00%
2000	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2001	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2002	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2003	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2004	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2005	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2006	0	0	0	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2007	9,378	0	9,378	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2008	9,331	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2009	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2010	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2011	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2012	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2013	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2014	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	18,709	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 373.00
Description: STREET LIGHTING AND SIGNAL SYSTEMS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	90,445	6,110	2,689,672	0	0.00%		0.00%	0	0.00%		0.00%	2,027	33.18%		5.69%	(2,027)	-33.18%		-5.69%	(2,027)	-33.18%		-5.69%	0.23%		4.02%
1999	36,526	4,822	2,721,375	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		5.63%	0	0.00%		-5.63%	0	0.00%		-5.63%	0.18%		4.19%
2000	64,273	1,662	2,783,986	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	6,214	373.87%	65.43%	5.64%	(6,214)	-373.87%	-65.43%	-5.64%	(6,214)	-373.87%	-65.43%	-5.64%	0.06%	0.15%	4.37%
2001	149,969	14,866	2,919,090	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	5,473	36.82%	54.74%	5.40%	(5,473)	-36.82%	-54.74%	-5.40%	(5,473)	-36.82%	-54.74%	-5.40%	0.51%	0.25%	4.58%
2002	76,675	30,162	2,965,603	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	13,576	45.01%	54.11%	5.22%	(13,576)	-45.01%	-54.11%	-5.22%	(13,576)	-45.01%	-54.11%	-5.22%	1.02%	0.54%	4.80%
2003	128,267	333,455	2,760,415	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3,956	1.19%	6.08%	4.75%	(3,956)	-1.19%	-6.08%	-4.75%	(3,956)	-1.19%	-6.08%	-4.75%	12.08%	4.38%	5.02%
2004	54,220	26,912	2,787,722	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	4.49%	5.29%	0	0.00%	-4.49%	-5.29%	0	0.00%	-4.49%	-5.29%	0.97%	4.59%	4.62%
2005	123,497	24,228	2,886,991	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	1.03%	5.35%	0	0.00%	-1.03%	-5.35%	0	0.00%	-1.03%	-5.35%	0.84%	4.56%	4.84%
2006	332,082	29,771	3,189,302	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,096	7.04%	2.59%	5.41%	(2,096)	-7.04%	-2.59%	-5.41%	(2,096)	-7.04%	-2.59%	-5.41%	0.93%	0.91%	5.11%
2007	153,786	17,601	3,325,487	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,328	7.55%	4.78%	5.39%	(1,328)	-7.55%	-4.78%	-5.39%	(1,328)	-7.55%	-4.78%	-5.39%	0.53%	0.76%	5.45%
2008	89,559	39,273	3,375,773	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,996	5.08%	6.26%	5.37%	(1,996)	-5.08%	-6.26%	-5.37%	(1,996)	-5.08%	-6.26%	-5.37%	1.16%	0.88%	5.91%
2009	40,377	40,623	3,375,528	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	3,775	9.29%	7.28%	5.38%	(3,775)	-9.29%	-7.28%	-5.38%	(3,775)	-9.29%	-7.28%	-5.38%	1.20%	0.97%	6.40%
2010	(43,384)	33,910	3,298,234	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,486	13.23%	9.01%	5.30%	(4,486)	-13.23%	-9.01%	-5.30%	(4,486)	-13.23%	-9.01%	-5.30%	1.03%	1.13%	7.00%
2011	30,393	35,882	3,292,744	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4,035	11.25%	11.14%	5.17%	(4,035)	-11.25%	-11.14%	-5.17%	(4,035)	-11.25%	-11.14%	-5.17%	1.09%	1.11%	7.76%
2012	58,430	50,361	3,300,813	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	9,870	19.60%	15.31%	5.06%	(9,870)	-19.60%	-15.31%	-5.06%	(9,870)	-19.60%	-15.31%	-5.06%	1.53%	1.21%	8.73%
2013	166,499	28,268	3,439,044	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	5,710	20.20%	17.13%	4.68%	(5,710)	-20.20%	-17.13%	-4.68%	(5,710)	-20.20%	-17.13%	-4.68%	0.82%	1.14%	9.97%
2014	27,428	40,245	3,426,228	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	7,407	18.41%	19.34%	4.44%	(7,407)	-18.41%	-19.34%	-4.44%	(7,407)	-18.41%	-19.34%	-4.44%	1.17%	1.17%	11.95%
2015	85,101	38,800	3,472,528	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	8,196	21.12%	19.86%	4.14%	(8,196)	-21.12%	-19.86%	-4.14%	(8,196)	-21.12%	-19.86%	-4.14%	1.12%	1.04%	14.92%
2016	37,033	27,563	3,481,998	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	6,799	24.67%	21.01%	3.78%	(6,799)	-24.67%	-21.01%	-3.78%	(6,799)	-24.67%	-21.01%	-3.78%	0.79%	1.03%	20.26%
2017	3,790,993	1,788,902	5,484,090	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	61,835	3.46%	4.14%	3.46%	(61,835)	-3.46%	-4.14%	-3.46%	(61,835)	-3.46%	-4.14%	-3.46%	32.62%	14.92%	32.62%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 390.00
Description: STRUCTURES AND IMPROVEMENTS
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	7,394	0	8,843,049	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.64%	0	0.00%		-0.64%	0	0.00%		-0.64%	0.00%		0.65%
1999	40,781	0	8,883,830	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.64%	0	0.00%		-0.64%	0	0.00%		-0.64%	0.00%		0.68%
2000	35,665	27,302	8,892,192	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.64%	0	0.00%	0.00%	-0.64%	0	0.00%	0.00%	-0.64%	0.31%	0.10%	0.72%
2001	33,605	0	8,925,797	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.66%	0	0.00%	0.00%	-0.66%	0	0.00%	0.00%	-0.66%	0.00%	0.10%	0.74%
2002	9,146	8,366	8,926,577	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.66%	0	0.00%	0.00%	-0.66%	0	0.00%	0.00%	-0.66%	0.09%	0.13%	0.78%
2003	142,395	0	9,068,972	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.66%	0	0.00%	0.00%	-0.66%	0	0.00%	0.00%	-0.66%	0.00%	0.03%	0.82%
2004	41,719	12,044	9,098,647	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.66%	0	0.00%	0.00%	-0.66%	0	0.00%	0.00%	-0.66%	0.13%	0.08%	0.87%
2005	313,256	304,269	9,107,634	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.67%	0	0.00%	0.00%	-0.67%	0	0.00%	0.00%	-0.67%	3.34%	1.16%	0.92%
2006	524,337	412,760	9,219,212	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.88%	0	0.00%	0.00%	-0.88%	0	0.00%	0.00%	-0.88%	4.48%	2.66%	0.75%
2007	308,294	28,661	9,498,844	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.55%	0	0.00%	0.00%	-1.55%	0	0.00%	0.00%	-1.55%	0.30%	2.68%	0.46%
2008	486,356	65,495	9,919,705	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	6,394	9.76%	1.26%	1.64%	(6,394)	-9.76%	-1.26%	-1.64%	(6,394)	-9.76%	-1.26%	-1.64%	0.66%	1.77%	0.47%
2009	46,710	1,035	9,965,380	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	6.72%	0.45%	0	0.00%	-6.72%	-0.45%	0	0.00%	-6.72%	-0.45%	0.01%	0.32%	0.45%
2010	406,354	44,452	10,327,281	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	830	1.87%	6.51%	0.45%	(830)	-1.87%	-6.51%	-0.45%	(830)	-1.87%	-6.51%	-0.45%	0.43%	0.37%	0.50%
2011	128,117	65,167	10,390,230	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.75%	0.29%	0	0.00%	-0.75%	-0.29%	0	0.00%	-0.75%	-0.29%	0.63%	0.36%	0.51%
2012	673,309	24,005	11,039,535	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	989	4.12%	1.36%	0.35%	(989)	-4.12%	-1.36%	-0.35%	(989)	-4.12%	-1.36%	-0.35%	0.22%	0.42%	0.49%
2013	288,307	37,570	11,290,272	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.78%	0.05%	0	0.00%	-0.78%	-0.05%	0	0.00%	-0.78%	-0.05%	0.33%	0.39%	0.54%
2014	30,166	14,646	11,305,792	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	1.30%	0.06%	0	0.00%	-1.30%	-0.06%	0	0.00%	-1.30%	-0.06%	0.13%	0.23%	0.59%
2015	356,878	201,140	11,461,529	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.07%	0	0.00%	0.00%	-0.07%	0	0.00%	0.00%	-0.07%	1.75%	0.74%	0.75%
2016	201,101	43,920	11,618,710	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	171	0.39%	0.07%	0.29%	(171)	-0.39%	-0.07%	-0.29%	(171)	-0.39%	-0.07%	-0.29%	0.38%	0.76%	0.25%
2017	128,372	14,524	11,732,559	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.07%	0.00%	0	0.00%	-0.07%	0.00%	0	0.00%	-0.07%	0.00%	0.12%	0.75%	0.12%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 391.00
Description: OFFICE FURNITURE AND EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	59,271	2,122	1,776,400	0	0.00%		0.00%	0	0.00%		0.04%	0	0.00%		0.33%	0	0.00%		-0.29%	0	0.00%		-0.29%	0.12%		2.86%
1999	55,417	0	1,831,817	0	0.00%		0.00%	0	0.00%		0.04%	0	0.00%		0.33%	0	0.00%		-0.29%	0	0.00%		-0.29%	0.00%		3.01%
2000	36,237	485	1,867,570	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.04%	0	0.00%	0.00%	0.33%	0	0.00%	0.00%	-0.29%	0	0.00%	0.00%	-0.29%	0.03%	0.05%	3.17%
2001	202,481	222	2,069,829	0	0.00%	0.00%	0.00%	459	206.58%	64.91%	0.04%	0	0.00%	0.00%	0.33%	459	206.58%	64.91%	-0.29%	459	206.58%	64.91%	-0.29%	0.01%	0.01%	3.36%
2002	49,757	481,156	1,638,431	0	0.00%	0.00%	0.00%	0	0.00%	0.10%	0.00%	0	0.00%	0.00%	0.33%	0	0.00%	0.10%	-0.33%	0	0.00%	0.10%	-0.33%	29.37%	8.64%	3.61%
2003	(103,474)	11,944	1,523,013	0	0.00%	0.00%	0.00%	0	0.00%	0.09%	0.00%	0	0.00%	0.00%	0.62%	0	0.00%	0.09%	-0.62%	0	0.00%	0.09%	-0.62%	0.78%	9.43%	2.05%
2004	58,904	23,809	1,558,108	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.64%	0	0.00%	0.00%	-0.64%	0	0.00%	0.00%	-0.64%	1.53%	10.95%	2.12%
2005	94,050	125,305	1,526,853	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.67%	0	0.00%	0.00%	-0.67%	0	0.00%	0.00%	-0.67%	8.21%	3.50%	2.16%
2006	133,202	25,186	1,634,869	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.88%	0	0.00%	0.00%	-0.88%	0	0.00%	0.00%	-0.88%	1.54%	3.69%	1.75%
2007	156,296	58,232	1,732,933	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.94%	0	0.00%	0.00%	-0.94%	0	0.00%	0.00%	-0.94%	3.36%	4.26%	1.77%
2008	86,114	10,248	1,808,799	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,445	14.10%	1.54%	1.11%	(1,445)	-14.10%	-1.54%	-1.11%	(1,445)	-14.10%	-1.54%	-1.11%	0.57%	1.81%	1.62%
2009	13,606	2,593	1,819,812	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	2.03%	0.67%	0	0.00%	-2.03%	-0.67%	0	0.00%	-2.03%	-0.67%	0.14%	1.33%	1.74%
2010	18,116	7,957	1,829,971	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1,311	16.47%	13.25%	0.67%	(1,311)	-16.47%	-13.25%	-0.67%	(1,311)	-16.47%	-13.25%	-0.67%	0.43%	0.38%	1.92%
2011	29,502	32,918	1,826,555	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	700	2.13%	4.63%	0.24%	(700)	-2.13%	-4.63%	-0.24%	(700)	-2.13%	-4.63%	-0.24%	1.80%	0.79%	2.12%
2012	22,759	2,151	1,847,163	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	4.67%	0.00%	0	0.00%	-4.67%	0.00%	0	0.00%	-4.67%	0.00%	0.12%	0.78%	2.17%
2013	108,463	47,682	1,907,943	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.85%	0.00%	0	0.00%	-0.85%	0.00%	0	0.00%	-0.85%	0.00%	2.50%	1.48%	2.55%
2014	108,812	122,403	1,894,352	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	6.46%	3.05%	2.56%
2015	139,836	49,763	1,984,425	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2.51%	3.80%	1.37%
2016	75,907	621	2,059,711	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.03%	2.91%	0.83%
2017	122,558	34,438	2,147,831	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.60%	1.37%	1.60%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 391.10
Description: COMPUTER EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	211,651	0	4,080,268	0	0.00%		0.00%	0	0.00%		0.05%	0	0.00%		0.10%	0	0.00%		-0.05%	0	0.00%		-0.05%	0.00%		8.91%
1999	45,113	0	4,125,381	0	0.00%		0.00%	0	0.00%		0.05%	0	0.00%		0.10%	0	0.00%		-0.05%	0	0.00%		-0.05%	0.00%		9.30%
2000	463,604	6	4,588,979	0	0.00%	0.00%	0.00%	4,002	66811.35%	66811.35%	0.05%	0	0.00%	0.00%	0.10%	4,002	66811.35%	66811.35%	-0.05%	4,002	66811.35%	66811.35%	-0.05%	0.00%	0.00%	9.74%
2001	670,913	1,452,854	3,807,038	0	0.00%	0.00%	0.00%	0	0.00%	0.28%	0.00%	0	0.00%	0.00%	0.10%	0	0.00%	0.28%	-0.10%	0	0.00%	0.28%	-0.10%	38.16%	11.60%	10.28%
2002	272,511	2,453,124	1,626,426	0	0.00%	0.00%	0.00%	0	0.00%	0.10%	0.00%	0	0.00%	0.00%	0.12%	0	0.00%	0.10%	-0.12%	0	0.00%	0.10%	-0.12%	150.83%	38.97%	8.94%
2003	770,432	29,882	2,366,975	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.18%	0	0.00%	0.00%	-0.18%	0	0.00%	0.00%	-0.18%	1.26%	50.46%	5.98%
2004	631,109	98,967	2,899,117	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.19%	0	0.00%	0.00%	-0.19%	0	0.00%	0.00%	-0.19%	3.41%	37.46%	6.13%
2005	906,639	362,597	3,443,159	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.19%	0	0.00%	0.00%	-0.19%	0	0.00%	0.00%	-0.19%	10.53%	5.64%	6.23%
2006	363,468	383,259	3,423,368	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.21%	0	0.00%	0.00%	-0.21%	0	0.00%	0.00%	-0.21%	11.20%	8.65%	6.02%
2007	546,545	174,529	3,795,383	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.23%	0	0.00%	0.00%	-0.23%	0	0.00%	0.00%	-0.23%	4.60%	8.63%	5.75%
2008	449,720	2,276	4,242,827	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2,329	102.31%	0.42%	0.24%	(2,329)	-102.31%	-0.42%	-0.24%	(2,329)	-102.31%	-0.42%	-0.24%	0.05%	4.89%	5.82%
2009	549,862	98,085	4,694,603	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.85%	0.17%	0	0.00%	-0.85%	-0.17%	0	0.00%	-0.85%	-0.17%	2.09%	2.16%	6.25%
2010	572,202	262,083	5,004,722	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.64%	0.18%	0	0.00%	-0.64%	-0.18%	0	0.00%	-0.64%	-0.18%	5.24%	2.60%	6.61%
2011	214,877	612,795	4,606,805	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.19%	0	0.00%	0.00%	-0.19%	0	0.00%	0.00%	-0.19%	13.30%	6.80%	6.76%
2012	328,056	7,171	4,927,690	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.24%	0	0.00%	0.00%	-0.24%	0	0.00%	0.00%	-0.24%	0.15%	6.07%	6.06%
2013	220,759	74,419	5,074,030	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.24%	0	0.00%	0.00%	-0.24%	0	0.00%	0.00%	-0.24%	1.47%	4.75%	6.82%
2014	3,347,143	987,240	7,433,933	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.24%	0	0.00%	0.00%	-0.24%	0	0.00%	0.00%	-0.24%	13.28%	6.13%	7.64%
2015	536,801	177,023	7,793,710	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.40%	0	0.00%	0.00%	-0.40%	0	0.00%	0.00%	-0.40%	2.27%	6.10%	6.02%
2016	1,276,095	1,045,746	8,024,059	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	6,239	0.60%	0.28%	0.45%	(6,239)	-0.60%	-0.28%	-0.45%	(6,239)	-0.60%	-0.28%	-0.45%	13.03%	9.50%	7.63%
2017	2,422,564	337,294	10,109,329	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.40%	0.00%	0	0.00%	-0.40%	0.00%	0	0.00%	-0.40%	0.00%	3.34%	6.02%	3.34%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 393.00
Description: STORES EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	942	0	227,714	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		1.56%
1999	625	0	228,339	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		1.67%
2000	0	0	228,339	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	1.80%
2001	2,409	0	230,748	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	1.94%
2002	0	52,756	177,992	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	29.64%	8.28%	2.11%
2003	(22,234)	0	155,758	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	9.35%	0.10%
2004	0	0	155,758	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	10.78%	0.11%
2005	3,513	0	159,271	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.11%
2006	0	0	159,271	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%
2007	0	0	159,271	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%
2008	0	0	159,271	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%
2009	0	0	159,271	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.16%
2010	0	0	159,271	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.18%
2011	0	0	159,271	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.21%
2012	2,860	2,412	159,719	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.51%	0.50%	0.24%
2013	0	0	159,719	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.50%	0.00%
2014	12,291	0	172,010	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.49%	0.00%
2015	0	0	172,010	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	172,010	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	172,010	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 394.00
Description: TOOLS, SHOP AND GARAGE EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	22,940	6,859	1,062,865	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.65%		3.30%
1999	43,704	0	1,106,569	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		3.42%
2000	85,034	4,350	1,187,253	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.37%	0.33%	3.58%
2001	63,808	0	1,251,062	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.12%	3.75%
2002	154,345	615,503	789,904	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	77.92%	19.20%	3.97%
2003	11,442	0	801,346	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	21.66%	1.09%
2004	156,782	13,767	944,361	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.46%	24.82%	1.14%
2005	44,925	26,158	963,128	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2.72%	1.47%	1.12%
2006	64,872	25,542	1,002,458	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2.55%	2.25%	1.03%
2007	67,770	23,926	1,046,301	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2.29%	2.51%	0.94%
2008	150,824	18,011	1,179,114	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.53%	2.09%	0.85%
2009	105,496	23,894	1,260,716	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.90%	1.89%	0.79%
2010	98,501	5,196	1,354,022	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.38%	1.24%	0.69%
2011	59,105	6,653	1,406,474	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.47%	0.89%	0.72%
2012	163,381	20,759	1,549,095	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.34%	0.76%	0.76%
2013	49,080	16,148	1,582,027	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.02%	0.96%	0.65%
2014	115,084	21,067	1,676,045	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.26%	1.21%	0.57%
2015	69,610	13,005	1,732,650	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.75%	1.01%	0.36%
2016	77,486	4,626	1,805,510	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.26%	0.74%	0.19%
2017	154,527	2,388	1,957,649	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.12%	0.36%	0.12%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 395.00
Description: LABORATORY EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	26,684	2,008	507,942	0	0.00%		0.00%	0	0.00%		0.46%	0	0.00%		0.00%	0	0.00%		0.46%	0	0.00%		0.46%	0.40%		0.75%
1999	27,998	1,401	534,540	0	0.00%		0.00%	0	0.00%		0.47%	0	0.00%		0.00%	0	0.00%		0.47%	0	0.00%		0.47%	0.26%		0.76%
2000	78,051	0	612,591	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.48%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.48%	0	0.00%	0.00%	0.48%	0.00%	0.21%	0.78%
2001	9,943	0	622,534	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.48%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.48%	0	0.00%	0.00%	0.48%	0.00%	0.08%	0.82%
2002	46,540	68,275	600,799	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.48%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.48%	0	0.00%	0.00%	0.48%	11.36%	3.72%	0.86%
2003	54,611	0	655,410	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.39%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.39%	0	0.00%	0.00%	1.39%	0.00%	3.63%	0.31%
2004	17,860	10,397	662,873	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.39%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.39%	0	0.00%	0.00%	1.39%	1.57%	4.10%	0.33%
2005	62,058	0	724,931	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.95%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.95%	0	0.00%	0.00%	1.95%	0.00%	0.51%	0.25%
2006	0	0	724,931	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.95%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.95%	0	0.00%	0.00%	1.95%	0.00%	0.49%	0.27%
2007	37,286	8,776	753,440	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.95%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	1.95%	0	0.00%	0.00%	1.95%	1.16%	0.40%	0.29%
2008	17,359	1,721	769,078	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.96%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	2.96%	0	0.00%	0.00%	2.96%	0.22%	0.47%	0.21%
2009	14,793	5,441	778,430	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.30%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	3.30%	0	0.00%	0.00%	3.30%	0.70%	0.69%	0.21%
2010	23,325	5,746	796,008	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.14%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	5.14%	0	0.00%	0.00%	5.14%	0.72%	0.55%	0.15%
2011	0	1,983	794,025	0	0.00%	0.00%	0.00%	500	25.22%	3.80%	12.55%	0	0.00%	0.00%	0.00%	500	25.22%	3.80%	12.55%	500	25.22%	3.80%	12.55%	0.25%	0.56%	0.07%
2012	6,073	0	800,098	0	0.00%	0.00%	0.00%	0	0.00%	6.47%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	6.47%	0.00%	0	0.00%	6.47%	0.00%	0.00%	0.32%	0.04%
2013	11,919	0	812,017	0	0.00%	0.00%	0.00%	0	0.00%	25.22%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	25.22%	0.00%	0	0.00%	25.22%	0.00%	0.00%	0.08%	0.05%
2014	12,978	2,001	822,994	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.24%	0.08%	0.06%
2015	0	0	822,994	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.08%	0.00%
2016	0	0	822,994	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.08%	0.00%
2017	0	0	822,994	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 396.00
Description: POWER OPERATED EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	1,290	0	114,755	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		0.24%
1999	0	0	114,755	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		0.24%
2000	1,879	0	116,634	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%
2001	81,046	0	197,680	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.26%
2002	1,056	3,442	195,294	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	1.76%	0.68%	0.27%
2003	15,899	0	211,193	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.57%	0.19%
2004	2,210	1,001	212,402	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.47%	0.72%	0.20%
2005	22,598	0	235,000	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.15%	0.18%
2006	0	0	235,000	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.15%	0.20%
2007	0	0	235,000	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.21%
2008	2,616	0	237,616	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%
2009	8,923	0	246,539	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.26%
2010	5,847	0	252,386	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.29%
2011	4,070	5,925	250,531	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2.37%	0.79%	0.33%
2012	6,620	0	257,151	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.78%	0.00%
2013	0	0	257,151	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.77%	0.00%
2014	0	0	257,151	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2015	0	0	257,151	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2016	0	0	257,151	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%
2017	0	0	257,151	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.00%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 397.00
Description: COMMUNICATION EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	9,606	0	846,849	0	0.00%		0.00%	0	0.00%		0.03%	0	0.00%		0.02%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		1.69%
1999	2,708	0	849,557	0	0.00%		0.00%	0	0.00%		0.03%	0	0.00%		0.02%	0	0.00%		0.00%	0	0.00%		0.00%	0.00%		1.72%
2000	20,426	0	869,983	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.03%	0	0.00%	0.00%	0.02%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.00%	0.00%	1.76%
2001	7,768	0	877,751	0	0.00%	0.00%	0.00%	200	0.00%	0.00%	0.03%	0	0.00%	0.00%	0.02%	200	0.00%	0.00%	0.00%	200	0.00%	0.00%	0.00%	0.00%	0.00%	1.80%
2002	20,764	194,772	703,743	0	0.00%	0.00%	0.00%	0	0.00%	0.10%	0.00%	0	0.00%	0.00%	0.02%	0	0.00%	0.10%	-0.02%	0	0.00%	0.10%	-0.02%	27.68%	7.95%	1.84%
2003	107,396	3,681	807,457	0	0.00%	0.00%	0.00%	0	0.00%	0.10%	0.00%	0	0.00%	0.00%	0.03%	0	0.00%	0.10%	-0.03%	0	0.00%	0.10%	-0.03%	0.46%	8.31%	1.36%
2004	162,899	41,867	928,488	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.03%	0	0.00%	0.00%	-0.03%	0	0.00%	0.00%	-0.03%	4.51%	9.85%	1.38%
2005	89,996	1,918	1,016,567	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.03%	0	0.00%	0.00%	-0.03%	0	0.00%	0.00%	-0.03%	0.19%	1.72%	1.30%
2006	75,418	36,797	1,055,187	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.03%	0	0.00%	0.00%	-0.03%	0	0.00%	0.00%	-0.03%	3.49%	2.69%	1.33%
2007	170,648	26,110	1,199,725	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.04%	0	0.00%	0.00%	-0.04%	0	0.00%	0.00%	-0.04%	2.18%	1.98%	1.27%
2008	490,120	17,238	1,672,607	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.04%	0	0.00%	0.00%	-0.04%	0	0.00%	0.00%	-0.04%	1.03%	2.04%	1.24%
2009	739,740	6,965	2,405,382	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.04%	0	0.00%	0.00%	-0.04%	0	0.00%	0.00%	-0.04%	0.29%	0.95%	1.25%
2010	36,386	2,811	2,438,957	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.04%	0	0.00%	0.00%	-0.04%	0	0.00%	0.00%	-0.04%	0.12%	0.41%	1.33%
2011	268,038	43,645	2,663,350	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.04%	0	0.00%	0.00%	-0.04%	0	0.00%	0.00%	-0.04%	1.64%	0.71%	1.44%
2012	239,945	11,030	2,892,265	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.05%	0	0.00%	0.00%	-0.05%	0	0.00%	0.00%	-0.05%	0.38%	0.72%	1.41%
2013	1,572,610	318,564	4,146,311	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	165	0.05%	0.04%	0.05%	(165)	-0.05%	-0.04%	-0.05%	(165)	-0.05%	-0.04%	-0.05%	7.68%	3.85%	1.55%
2014	60,664	0	4,206,974	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.05%	0.00%	0	0.00%	-0.05%	0.00%	0	0.00%	-0.05%	0.00%	0.00%	2.93%	0.07%
2015	95,220	1,280	4,300,914	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.05%	0.00%	0	0.00%	-0.05%	0.00%	0	0.00%	-0.05%	0.00%	0.03%	2.53%	0.09%
2016	28,645	11,030	4,318,530	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.26%	0.10%	0.13%
2017	20,265	0	4,338,795	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0	0.00%	0.00%	--	0.00%	0.09%	0.00%

Kauai Island Utility Cooperative
2017 Depreciation Study
Net Salvage Analysis

Account: 398.00
Description: MISCELLANEOUS EQUIPMENT
Rolling Band (Yrs): 3

			EOY Plant	Reimbursements				Salvage				Cost of Removal				Net Salvage				Net Salvage w/out Reimbursements				% Ret. to Plant Bal.		
Year	Additions	Retirements	Balance	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Amount	Ratio	3-Year	Shrinking	Ratio	3-Year	Shrinking
1998	7,736	4,655	136,102	0	0.00%		0.00%	0	0.00%		0.44%	0	0.00%		0.00%	0	0.00%		0.44%	0	0.00%		0.44%	3.42%		1.89%
1999	18,476	0	154,578	0	0.00%		0.00%	0	0.00%		0.45%	0	0.00%		0.00%	0	0.00%		0.45%	0	0.00%		0.45%	0.00%		1.87%
2000	985	0	155,563	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.45%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.45%	0	0.00%	0.00%	0.45%	0.00%	1.04%	1.90%
2001	9,712	0	165,275	0	0.00%	0.00%	0.00%	200	0.00%	0.00%	0.45%	0	0.00%	0.00%	0.00%	200	0.00%	0.00%	0.45%	200	0.00%	0.00%	0.45%	0.00%	0.00%	1.93%
2002	1,286	12,451	154,110	0	0.00%	0.00%	0.00%	0	0.00%	1.61%	0.33%	0	0.00%	0.00%	0.00%	0	0.00%	1.61%	0.33%	0	0.00%	1.61%	0.33%	8.08%	2.62%	1.97%
2003	6,676	0	160,786	0	0.00%	0.00%	0.00%	0	0.00%	1.61%	0.36%	0	0.00%	0.00%	0.00%	0	0.00%	1.61%	0.36%	0	0.00%	1.61%	0.36%	0.00%	2.59%	1.86%
2004	0	2,280	158,506	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.36%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.36%	0	0.00%	0.00%	0.36%	1.44%	3.11%	1.89%
2005	45,213	9,944	193,776	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.37%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.37%	0	0.00%	0.00%	0.37%	5.13%	2.38%	1.90%
2006	66,121	47,353	212,543	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.39%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.39%	0	0.00%	0.00%	0.39%	22.28%	10.55%	1.82%
2007	12,482	(38,062)	263,087	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.58%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.58%	0	0.00%	0.00%	0.58%	-14.47%	2.87%	1.26%
2008	82,095	8,087	337,095	0	0.00%	0.00%	0.00%	562	6.95%	3.23%	0.42%	0	0.00%	0.00%	0.00%	562	6.95%	3.23%	0.42%	562	6.95%	3.23%	0.42%	2.40%	2.14%	1.82%
2009	21,514	10,296	348,313	0	0.00%	0.00%	0.00%	0	0.00%	-2.86%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	-2.86%	0.00%	0	0.00%	-2.86%	0.00%	2.96%	-2.07%	1.79%
2010	86,587	6,936	427,963	0	0.00%	0.00%	0.00%	0	0.00%	2.22%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	2.22%	0.00%	0	0.00%	2.22%	0.00%	1.62%	2.27%	1.73%
2011	21,843	2,580	447,226	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.58%	1.62%	1.73%
2012	3,283	2,451	448,057	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.55%	0.90%	1.82%
2013	28,447	645	475,859	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.14%	0.41%	1.93%
2014	573,406	1,178	1,048,088	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.11%	0.22%	2.10%
2015	208,237	59,552	1,196,773	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	4.98%	2.26%	2.64%
2016	148,516	3,943	1,341,347	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0.29%	1.80%	1.60%
2017	49,227	39,047	1,351,526	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	0	0.00%	0.00%	0.00%	2.89%	2.64%	2.89%

Appendix D
ACCRUAL CALCULATIONS

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**352.00**
Plant Account	**STRUCTURES AND IMPROVEMENTS**
Survivor Curve	R4
Average Service Life	57
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	1	100.00%	$0	0.0100	$0	56.4300
2016	0	1.5	3	100.00%	0	0.0300	0	55.2900
2015	0	2.5	4	100.00%	0	0.0400	0	54.7200
2014	0	3.5	6	99.99%	0	0.0599	0	53.5857
2013	0	4.5	8	99.99%	0	0.0799	0	52.4457
2012	0	5.5	10	99.98%	0	0.0998	0	51.3114
2011	0	6.5	11	99.98%	0	0.1098	0	50.7414
2010	0	7.5	13	99.97%	0	0.1297	0	49.6071
2009	0	8.5	15	99.96%	0	0.1496	0	48.4728
2008	1,739	9.5	17	99.95%	1,738	0.1695	295	47.3385
2007	0	10.5	18	99.94%	0	0.1795	0	46.7685
2006	0	11.5	20	99.92%	0	0.1993	0	45.6399
2005	0	12.5	22	99.90%	0	0.2191	0	44.5113
2004	0	13.5	24	99.87%	0	0.2389	0	43.3827
2003	0	14.5	25	99.85%	0	0.2488	0	42.8184
2002	1,165	15.5	27	99.81%	1,163	0.2685	312	41.6955
2001	(506)	16.5	29	99.76%	(505)	0.2881	(145)	40.5783
2000	0	17.5	31	99.70%	0	0.3077	0	39.4611
1999	0	18.5	32	99.66%	0	0.3174	0	38.9082
1998	0	19.5	34	99.58%	0	0.3369	0	37.7967
1997	0	20.5	36	99.48%	0	0.3562	0	36.6966
1996	0	21.5	38	99.36%	0	0.3755	0	35.5965
1995	8,685	22.5	39	99.30%	8,624	0.3850	3,320	35.0550
1994	79,731	23.5	41	99.14%	79,047	0.4041	31,943	33.9663
1993	785	24.5	43	98.96%	777	0.4230	329	32.8890
1992	0	25.5	45	98.75%	0	0.4418	0	31.8174
1991	61,571	26.5	46	98.63%	60,726	0.4511	27,393	31.2873
1990	0	27.5	48	98.36%	0	0.4697	0	30.2271
1989	135,096	28.5	50	98.04%	132,450	0.4880	64,636	29.1840
1988	20,872	29.5	52	97.68%	20,387	0.5061	10,318	28.1523
1987	0	30.5	54	97.26%	0	0.5240	0	27.1320
1986	0	31.5	55	97.02%	0	0.5329	0	26.6247
1985	534	32.5	57	96.51%	515	0.5504	284	25.6272
1984	0	33.5	59	95.92%	0	0.5677	0	24.6411
1983	0	34.5	61	95.25%	0	0.5848	0	23.6664
1982	0	35.5	62	94.89%	0	0.5932	0	23.1876
1981	0	36.5	64	94.09%	0	0.6098	0	22.2414
1980	0	37.5	66	93.19%	0	0.6262	0	21.3066
1979	0	38.5	68	92.19%	0	0.6422	0	20.3946
1978	950	39.5	69	91.65%	871	0.6501	566	19.9443
Total					$305,792		$139,251	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$139,251	
Average Remaining Life								31.04

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**353.00**
Plant Account	**STATION EQUIPMENT**
Survivor Curve	R0.5
Average Service Life	40
Net Salvage	-10.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$1,345,159	0.5	1	99.62%	$1,340,061	0.0062	$8,308	39.7520
2016	819,698	1.5	4	98.47%	807,181	0.0248	20,018	39.0080
2015	1,031,081	2.5	6	97.70%	1,007,345	0.0371	37,373	38.5160
2014	251,085	3.5	9	96.52%	242,355	0.0556	13,475	37.7760
2013	657,310	4.5	11	95.73%	629,250	0.0679	42,726	37.2840
2012	73,699	5.5	14	94.53%	69,666	0.0862	6,005	36.5520
2011	1,134,442	6.5	16	93.72%	1,063,177	0.0984	104,617	36.0640
2010	1,388,551	7.5	19	92.49%	1,284,243	0.1166	149,743	35.3360
2009	1,922,084	8.5	21	91.66%	1,761,782	0.1287	226,741	34.8520
2008	939,170	9.5	24	90.40%	849,047	0.1468	124,640	34.1280
2007	31,317	10.5	26	89.56%	28,047	0.1588	4,454	33.6480
2006	1,251,874	11.5	29	88.28%	1,105,117	0.1769	195,495	32.9240
2005	198,344	12.5	31	87.41%	173,381	0.1888	32,734	32.4480
2004	410,251	13.5	34	86.11%	353,255	0.2067	73,018	31.7320
2003	1,062,380	14.5	36	85.23%	905,424	0.2186	197,926	31.2560
2002	3,162,494	15.5	39	83.89%	2,653,079	0.2365	627,453	30.5400
2001	1,065,656	16.5	41	82.99%	884,409	0.2483	219,599	30.0680
2000	1,332,358	17.5	44	81.63%	1,087,550	0.2660	289,288	29.3600
1999	1,349,698	18.5	46	80.71%	1,089,274	0.2777	302,491	28.8920
1998	255,066	19.5	49	79.30%	202,278	0.2952	59,712	28.1920
1997	67,925	20.5	51	78.36%	53,225	0.3068	16,330	27.7280
1996	15,182	21.5	54	76.92%	11,678	0.3241	3,785	27.0360
1995	126,108	22.5	56	75.95%	95,776	0.3356	32,143	26.5760
1994	696,260	23.5	59	74.47%	518,491	0.3527	182,872	25.8920
1993	(127,216)	24.5	61	73.47%	(93,462)	0.3640	(34,020)	25.4400
1992	16,122	25.5	64	71.94%	11,598	0.3809	4,418	24.7640
1991	485,609	26.5	66	70.91%	344,345	0.3920	134,983	24.3200
1990	1,302,402	27.5	69	69.34%	903,059	0.4086	368,990	23.6560
1989	721,976	28.5	71	68.28%	492,929	0.4195	206,784	23.2200
1988	856,851	29.5	74	66.65%	571,125	0.4358	248,896	22.5680
1987	1,691,437	30.5	76	65.56%	1,108,872	0.4465	495,111	22.1400
1986	64,894	31.5	79	63.89%	41,460	0.4624	19,171	21.5040
1985	329,241	32.5	81	62.76%	206,635	0.4729	97,718	21.0840
1984	891,566	33.5	84	61.04%	544,248	0.4885	265,865	20.4600
1983	910,628	34.5	86	59.88%	545,320	0.4988	272,006	20.0480
1982	209,811	35.5	89	58.12%	121,946	0.5141	62,693	19.4360
1981	749,411	36.5	91	56.93%	426,655	0.5241	223,610	19.0360
1980	395,217	37.5	94	55.13%	217,871	0.5391	117,454	18.4360
1979	973,799	38.5	96	53.91%	524,975	0.5489	288,159	18.0440
1978	478,841	39.5	99	52.07%	249,318	0.5634	140,466	17.4640
1977	607,628	40.5	101	50.83%	308,839	0.5730	176,965	17.0800
1976	907,066	41.5	104	48.95%	444,018	0.5872	260,727	16.5120
1975	372,299	42.5	106	47.69%	177,557	0.5966	105,930	16.1360
1974	67,261	43.5	109	45.79%	30,799	0.6105	18,803	15.5800
1973	653,461	44.5	111	44.52%	290,908	0.6196	180,246	15.2160
1972	20,247	45.5	114	42.60%	8,625	0.6332	5,461	14.6720
1971	265,466	46.5	116	41.32%	109,685	0.6421	70,429	14.3160
1970	58,795	47.5	119	39.39%	23,161	0.6554	15,180	13.7840
1969	510,193	48.5	121	38.11%	194,429	0.6641	129,121	13.4360
1968	1,730	49.5	124	36.19%	626	0.6770	424	12.9200
1967	68	50.5	126	34.91%	24	0.6856	16	12.5760
1966	722	51.5	129	33.00%	238	0.6983	166	12.0680
1965	95	52.5	131	31.74%	30	0.7066	21	11.7360
1964	92	53.5	134	29.85%	27	0.7191	20	11.2360
1963	91,149	54.5	136	28.61%	26,076	0.7273	18,965	10.9080
1962	1,771	55.5	139	26.76%	474	0.7395	351	10.4200
1961	18,913	56.5	141	25.55%	4,832	0.7476	3,612	10.0960
1960	84,517	57.5	144	23.75%	20,076	0.7597	15,252	9.6120
1959	0	58.5	146	22.58%	0	0.7677	0	9.2920

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**353.00**
Plant Account	**STATION EQUIPMENT**
Survivor Curve	R0.5
Average Service Life	40
Net Salvage	-10.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	0	59.5	149	20.85%	0	0.7796	0	8.8160
1957	24,609	60.5	151	19.72%	4,852	0.7876	3,821	8.4960
1956	8,759	61.5	154	18.06%	1,582	0.7994	1,264	8.0240
1955	163	62.5	156	16.98%	28	0.8074	22	7.7040
1954	28,791	63.5	159	15.41%	4,437	0.8192	3,635	7.2320
1953	6,474	64.5	161	14.40%	932	0.8272	771	6.9120
1952	7,366	65.5	164	12.92%	952	0.8392	799	6.4320
1951	60,353	66.5	166	11.97%	7,225	0.8472	6,121	6.1120
1950	13,666	67.5	169	10.60%	1,449	0.8594	1,245	5.6240
1949	0	68.5	171	9.72%	0	0.8676	0	5.2960
1948	0	69.5	174	8.46%	0	0.8801	0	4.7960
1947	0	70.5	176	7.66%	0	0.8885	0	4.4600
1946	0	71.5	179	6.51%	0	0.9014	0	3.9440
1945	0	72.5	181	5.78%	0	0.9102	0	3.5920
1944	0	73.5	184	4.73%	0	0.9236	0	3.0560
1943	0	74.5	186	4.07%	0	0.9328	0	2.6880
1942	0	75.5	189	3.11%	0	0.9468	0	2.1280
1941	1,930	76.5	191	2.50%	48	0.9562	46	1.7520
1940	0	77.5	194	1.62%	0	0.9705	0	1.1800
1939	0	78.5	196	1.06%	0	0.9802	0	0.7920
1938	2,163	79.5	199	0.26%	6	0.9949	6	0.2040
1937	0	80.5	201	0.00%	0	1.0000	0	0.0000
1936	0	81.5	204	0.00%	0	1.0000	0	0.0000
1935	0	82.5	206	0.00%	0	1.0000	0	0.0000
1934	0	83.5	209	0.00%	0	1.0000	0	0.0000
1933	0	84.5	211	0.00%	0	1.0000	0	0.0000
Total					$26,093,925		$6,902,669	
Net Salvage Value							-10%	
Theoretical Reserve Including Net Salvage							$7,592,936	
Average Remaining Life								29.42

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**354.00**
Plant Account	**TOWERS AND FIXTURES**
Survivor Curve	R2
Average Service Life	50
Net Salvage	-15.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	1	99.91%	$0	0.0091	$0	49.5450
2016	0	1.5	3	99.71%	0	0.0271	0	48.6450
2015	0	2.5	5	99.49%	0	0.0450	0	47.7500
2014	0	3.5	7	99.26%	0	0.0629	0	46.8550
2013	0	4.5	9	99.02%	0	0.0806	0	45.9700
2012	0	5.5	11	98.76%	0	0.0982	0	45.0900
2011	0	6.5	13	98.49%	0	0.1157	0	44.2150
2010	0	7.5	15	98.19%	0	0.1331	0	43.3450
2009	0	8.5	17	97.88%	0	0.1503	0	42.4850
2008	0	9.5	19	97.55%	0	0.1675	0	41.6250
2007	0	10.5	21	97.19%	0	0.1845	0	40.7750
2006	0	11.5	23	96.82%	0	0.2014	0	39.9300
2005	0	12.5	25	96.42%	0	0.2182	0	39.0900
2004	0	13.5	27	96.01%	0	0.2348	0	38.2600
2003	0	14.5	29	95.56%	0	0.2513	0	37.4350
2002	0	15.5	31	95.09%	0	0.2676	0	36.6200
2001	0	16.5	33	94.59%	0	0.2838	0	35.8100
2000	0	17.5	35	94.07%	0	0.2999	0	35.0050
1999	58,189	18.5	37	93.52%	54,417	0.3158	17,185	34.2100
Total					$54,417		$17,185	
Net Salvage Value							-15%	
Theoretical Reserve Including Net Salvage							$19,763	
Average Remaining Life								34.21

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**355.00**
Plant Account	**POLES AND FIXTURES**
Survivor Curve	R2
Average Service Life	56
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$44,740	0.5	1	99.91%	$44,698	0.0091	$407	55.4904
2016	111,754	1.5	3	99.71%	111,425	0.0271	3,020	54.4824
2015	294,585	2.5	4	99.60%	293,409	0.0361	10,592	53.9784
2014	257,797	3.5	6	99.38%	256,199	0.0540	13,835	52.9760
2013	328,540	4.5	8	99.14%	325,730	0.0717	23,355	51.9848
2012	223,070	5.5	10	98.89%	220,602	0.0894	19,722	50.9936
2011	319,219	6.5	12	98.63%	314,833	0.1070	33,687	50.0080
2010	59,564	7.5	13	98.49%	58,662	0.1157	6,787	49.5208
2009	770,312	8.5	15	98.19%	756,383	0.1331	100,675	48.5464
2008	25,763	9.5	17	97.88%	25,217	0.1503	3,790	47.5832
2007	12,112	10.5	19	97.55%	11,815	0.1675	1,979	46.6200
2006	10,454	11.5	21	97.19%	10,161	0.1845	1,875	45.6680
2005	(441)	12.5	22	97.01%	(428)	0.1930	(83)	45.1920
2004	118,922	13.5	24	96.63%	114,909	0.2098	24,108	44.2512
2003	20,278	14.5	26	96.22%	19,511	0.2265	4,419	43.3160
2002	426,696	15.5	28	95.79%	408,716	0.2430	99,318	42.3920
2001	(12,179)	16.5	29	95.56%	(11,638)	0.2513	(2,925)	41.9272
2000	10,605	17.5	31	95.09%	10,085	0.2676	2,699	41.0144
1999	20,507	18.5	33	94.59%	19,399	0.2838	5,505	40.1072
1998	109,718	19.5	35	94.07%	103,212	0.2999	30,953	39.2056
1997	192,547	20.5	37	93.52%	180,065	0.3158	56,865	38.3152
1996	427,968	21.5	38	93.23%	398,993	0.3237	129,154	37.8728
1995	7,488,272	22.5	40	92.63%	6,936,434	0.3394	2,354,226	36.9936
1994	1,066,363	23.5	42	92.00%	981,049	0.3549	348,174	36.1256
1993	6,830,353	24.5	44	91.33%	6,238,491	0.3703	2,310,113	35.2632
1992	4,212,756	25.5	46	90.64%	3,818,249	0.3855	1,471,935	34.4120
1991	1,560,803	26.5	47	90.27%	1,408,972	0.3931	553,867	33.9864
1990	3,396,666	27.5	49	89.52%	3,040,628	0.4081	1,240,880	33.1464
1989	2,132,587	28.5	51	88.73%	1,892,150	0.4229	800,190	32.3176
1988	407,421	29.5	53	87.89%	358,096	0.4375	156,667	31.5000
1987	87,202	30.5	54	87.46%	76,269	0.4447	33,917	31.0968
1986	62,447	31.5	56	86.57%	54,059	0.4591	24,818	30.2904
1985	154,464	32.5	58	85.63%	132,267	0.4733	62,602	29.4952
1984	481,409	33.5	60	84.65%	407,499	0.4873	198,574	28.7112
1983	243,511	34.5	62	83.62%	203,619	0.5011	102,034	27.9384
1982	37,174	35.5	63	83.09%	30,886	0.5080	15,690	27.5520
1981	28,242	36.5	65	81.98%	23,154	0.5215	12,075	26.7960
1980	47,197	37.5	67	80.83%	38,151	0.5348	20,403	26.0512
1979	7,184	38.5	69	79.63%	5,721	0.5479	3,134	25.3176
1978	17,392	39.5	71	78.38%	13,631	0.5609	7,646	24.5896
1977	12,130	40.5	72	77.73%	9,429	0.5673	5,349	24.2312
1976	203,216	41.5	74	76.40%	155,247	0.5799	90,028	23.5256
1975	103,576	42.5	76	75.01%	77,687	0.5923	46,014	22.8312
1974	15,999	43.5	78	73.56%	11,769	0.6044	7,113	22.1536
1973	94,843	44.5	79	72.82%	69,060	0.6105	42,161	21.8120
1972	0	45.5	81	71.29%	0	0.6223	0	21.1512
1971	20,051	46.5	83	69.70%	13,975	0.6339	8,859	20.5016
1970	7,541	47.5	85	68.05%	5,132	0.6453	3,312	19.8632
1969	77,284	48.5	87	66.35%	51,281	0.6565	33,666	19.2360
1968	78,074	49.5	88	65.48%	51,125	0.6620	33,845	18.9280
1967	3,488	50.5	90	63.70%	2,222	0.6728	1,495	18.3232
1966	2,990	51.5	92	61.86%	1,850	0.6834	1,264	17.7296
1965	43,366	52.5	94	59.98%	26,009	0.6938	18,045	17.1472
1964	1,854	53.5	96	58.04%	1,076	0.7039	757	16.5816
1963	75,113	54.5	97	57.05%	42,852	0.7088	30,374	16.3072
1962	5,497	55.5	99	55.04%	3,026	0.7186	2,174	15.7584
1961	278	56.5	101	53.00%	147	0.7281	107	15.2264
1960	56,218	57.5	103	50.91%	28,621	0.7374	21,105	14.7056
1959	0	58.5	104	49.86%	0	0.7419	0	14.4536

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**355.00**
Plant Account	**POLES AND FIXTURES**
Survivor Curve	R2
Average Service Life	56
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	1,665	59.5	106	47.72%	795	0.7508	597	13.9552
1957	5,476	60.5	108	45.57%	2,495	0.7595	1,895	13.4680
1956	0	61.5	110	43.40%	0	0.7680	0	12.9920
1955	59	62.5	112	41.21%	24	0.7762	19	12.5328
1954	1,284	63.5	113	40.12%	515	0.7803	402	12.3032
1953	0	64.5	115	37.93%	0	0.7882	0	11.8608
1952	1,619	65.5	117	35.75%	579	0.7958	461	11.4352
1951	38,634	66.5	119	33.59%	12,975	0.8033	10,423	11.0152
Total					$29,899,173		$10,646,147	
Net Salvage Value							-20%	
Theoretical Reserve Including Net Salvage							$12,775,376	
Average Remaining Life								36.06

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**356.00**
Plant Account	**OVERHEAD CONDUCTORS AND DEVICES**
Survivor Curve	R2
Average Service Life	44
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$162,978	0.5	1	99.91%	$162,824	0.0091	$1,482	43.5996
2016	242,508	1.5	3	99.71%	241,794	0.0271	6,553	42.8076
2015	400,066	2.5	6	99.38%	397,587	0.0540	21,470	41.6240
2014	103,961	3.5	8	99.14%	103,072	0.0717	7,390	40.8452
2013	1,764,773	4.5	10	98.89%	1,745,247	0.0894	156,025	40.0664
2012	183,981	5.5	13	98.49%	181,195	0.1157	20,964	38.9092
2011	500,150	6.5	15	98.19%	491,106	0.1331	65,366	38.1436
2010	210,991	7.5	17	97.88%	206,516	0.1503	31,039	37.3868
2009	979,342	8.5	19	97.55%	955,322	0.1675	160,016	36.6300
2008	1,016,035	9.5	22	97.01%	985,662	0.1930	190,233	35.5080
2007	885,179	10.5	24	96.63%	855,311	0.2098	179,444	34.7688
2006	261,584	11.5	26	96.22%	251,690	0.2265	57,008	34.0340
2005	181,035	12.5	28	95.79%	173,407	0.2430	42,138	33.3080
2004	89,150	13.5	31	95.09%	84,774	0.2676	22,685	32.2256
2003	171,357	14.5	33	94.59%	162,095	0.2838	46,003	31.5128
2002	143,994	15.5	35	94.07%	135,456	0.2999	40,623	30.8044
2001	8,751	16.5	38	93.23%	8,158	0.3237	2,641	29.7572
2000	2,461	17.5	40	92.63%	2,280	0.3394	774	29.0664
1999	21,371	18.5	42	92.00%	19,661	0.3549	6,978	28.3844
1998	146,636	19.5	44	91.33%	133,930	0.3703	49,594	27.7068
1997	128,435	20.5	47	90.27%	115,941	0.3931	45,576	26.7036
1996	1,128,759	21.5	49	89.52%	1,010,442	0.4081	412,362	26.0436
1995	2,034,059	22.5	51	88.73%	1,804,730	0.4229	763,220	25.3924
1994	259,562	23.5	53	87.89%	228,138	0.4375	99,810	24.7500
1993	2,543,978	24.5	56	86.57%	2,202,259	0.4591	1,011,057	23.7996
1992	2,069,504	25.5	58	85.63%	1,772,110	0.4733	838,740	23.1748
1991	1,046,447	26.5	60	84.65%	885,787	0.4873	431,644	22.5588
1990	2,694,687	27.5	63	83.09%	2,238,904	0.5080	1,137,363	21.6480
1989	1,615,989	28.5	65	81.98%	1,324,865	0.5215	690,917	21.0540
1988	170,874	29.5	67	80.83%	138,124	0.5348	73,869	20.4688
1987	89,722	30.5	69	79.63%	71,447	0.5479	39,146	19.8924
1986	53,983	31.5	72	77.73%	41,961	0.5673	23,805	19.0388
1985	96,528	32.5	74	76.40%	73,743	0.5799	42,763	18.4844
1984	500,686	33.5	76	75.01%	375,541	0.5923	222,433	17.9388
1983	153,988	34.5	78	73.56%	113,273	0.6044	68,462	17.4064
1982	47,425	35.5	81	71.29%	33,807	0.6223	21,038	16.6188
1981	148,440	36.5	83	69.70%	103,459	0.6339	65,583	16.1084
1980	59,653	37.5	85	68.05%	40,596	0.6453	26,197	15.6068
1979	11,949	38.5	88	65.48%	7,825	0.6620	5,180	14.8720
1978	26,534	39.5	90	63.70%	16,902	0.6728	11,372	14.3968
1977	13,916	40.5	92	61.86%	8,609	0.6834	5,883	13.9304
1976	520,620	41.5	94	59.98%	312,242	0.6938	216,634	13.4728
1975	124,861	42.5	97	57.05%	71,234	0.7088	50,491	12.8128
1974	121,611	43.5	99	55.04%	66,940	0.7186	48,103	12.3816
1973	204,976	44.5	101	53.00%	108,630	0.7281	79,093	11.9636
1972	8,557	45.5	103	50.91%	4,356	0.7374	3,212	11.5544
1971	16,728	46.5	106	47.72%	7,983	0.7508	5,994	10.9648
1970	3,661	47.5	108	45.57%	1,668	0.7595	1,267	10.5820
1969	65,375	48.5	110	43.40%	28,370	0.7680	21,788	10.2080
1968	53,382	49.5	113	40.12%	21,415	0.7803	16,711	9.6668
1967	5,548	50.5	115	37.93%	2,104	0.7882	1,659	9.3192
1966	5,489	51.5	117	35.75%	1,962	0.7958	1,562	8.9848
1965	67,136	52.5	119	33.59%	22,548	0.8033	18,113	8.6548
1964	9	53.5	122	30.39%	3	0.8142	2	8.1752
1963	73,779	54.5	124	28.30%	20,876	0.8212	17,143	7.8672
1962	3,631	55.5	126	26.25%	953	0.8281	789	7.5636
1961	2,506	56.5	128	24.25%	608	0.8347	507	7.2732
1960	34,756	57.5	131	21.38%	7,429	0.8445	6,274	6.8420
1959	0	58.5	133	19.54%	0	0.8508	0	6.5648

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**356.00**
Plant Account	**OVERHEAD CONDUCTORS AND DEVICES**
Survivor Curve	R2
Average Service Life	44
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	644	59.5	135	17.78%	115	0.8570	98	6.2920
1957	2,639	60.5	138	15.29%	404	0.8662	350	5.8872
1956	0	61.5	140	13.74%	0	0.8722	0	5.6232
1955	0	62.5	142	12.28%	0	0.8782	0	5.3592
1954	1,833	63.5	144	10.90%	200	0.8841	177	5.0996
1953	296	64.5	147	9.02%	27	0.8928	24	4.7168
1952	3,865	65.5	149	7.87%	304	0.8987	273	4.4572
1951	26,470	66.5	151	6.81%	1,803	0.9045	1,631	4.2020
Total					$20,587,724		$7,636,741	
Net Salvage Value							-20%	
Theoretical Reserve Including Net Salvage							$9,164,089	
Average Remaining Life								27.68

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**357.00**
Plant Account	**UNDERGROUND CONDUIT**
Survivor Curve	R3
Average Service Life	60
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	1	99.98%	$0	0.0098	$0	59.4120
2016	0	1.5	3	99.95%	0	0.0295	0	58.2300
2015	0	2.5	4	99.93%	0	0.0393	0	57.6420
2014	0	3.5	6	99.88%	0	0.0589	0	56.4660
2013	0	4.5	8	99.83%	0	0.0784	0	55.2960
2012	0	5.5	9	99.80%	0	0.0881	0	54.7140
2011	0	6.5	11	99.74%	0	0.1075	0	53.5500
2010	0	7.5	13	99.66%	0	0.1269	0	52.3860
2009	3,849	8.5	14	99.62%	3,835	0.1365	523	51.8100
2008	0	9.5	16	99.53%	0	0.1557	0	50.6580
2007	0	10.5	18	99.42%	0	0.1748	0	49.5120
2006	0	11.5	19	99.36%	0	0.1843	0	48.9420
2005	5,016	12.5	21	99.23%	4,977	0.2033	1,012	47.8020
Total					$8,812		$1,535	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$1,535	
Average Remaining Life								49.55

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**358.00**
Plant Account	**UNDERGROUND CONDUCTORS**
Survivor Curve	R3
Average Service Life	50
Net Salvage	-10.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	1	99.98%	$0	0.0098	$0	49.5100
2016	0	1.5	3	99.95%	0	0.0295	0	48.5250
2015	0	2.5	5	99.91%	0	0.0491	0	47.5450
2014	0	3.5	7	99.86%	0	0.0686	0	46.5700
2013	0	4.5	9	99.80%	0	0.0881	0	45.5950
2012	0	5.5	11	99.74%	0	0.1075	0	44.6250
2011	8,578	6.5	13	99.66%	8,549	0.1269	1,085	43.6550
2010	0	7.5	15	99.57%	0	0.1461	0	42.6950
2009	285,809	8.5	17	99.48%	284,309	0.1653	46,996	41.7350
2008	141,367	9.5	19	99.36%	140,465	0.1843	25,888	40.7850
2007	0	10.5	21	99.23%	0	0.2033	0	39.8350
2006	0	11.5	23	99.09%	0	0.2221	0	38.8950
2005	95,295	12.5	25	98.92%	94,267	0.2408	22,699	37.9600
2004	0	13.5	27	98.74%	0	0.2594	0	37.0300
2003	0	14.5	29	98.53%	0	0.2779	0	36.1050
2002	0	15.5	31	98.30%	0	0.2962	0	35.1900
2001	0	16.5	33	98.04%	0	0.3144	0	34.2800
2000	0	17.5	35	97.75%	0	0.3324	0	33.3800
1999	0	18.5	37	97.43%	0	0.3503	0	32.4850
1998	0	19.5	39	97.08%	0	0.3679	0	31.6050
1997	0	20.5	41	96.70%	0	0.3855	0	30.7250
1996	0	21.5	43	96.28%	0	0.4028	0	29.8600
1995	0	22.5	45	95.81%	0	0.4200	0	29.0000
1994	0	23.5	47	95.31%	0	0.4370	0	28.1500
1993	0	24.5	49	94.76%	0	0.4538	0	27.3100
1992	0	25.5	51	94.16%	0	0.4704	0	26.4800
1991	0	26.5	53	93.51%	0	0.4868	0	25.6600
1990	0	27.5	55	92.81%	0	0.5029	0	24.8550
1989	0	28.5	57	92.05%	0	0.5189	0	24.0550
1988	0	29.5	59	91.23%	0	0.5347	0	23.2650
1987	0	30.5	61	90.35%	0	0.5503	0	22.4850
1986	0	31.5	63	89.40%	0	0.5656	0	21.7200
1985	0	32.5	65	88.38%	0	0.5807	0	20.9650
1984	0	33.5	67	87.29%	0	0.5956	0	20.2200
1983	0	34.5	69	86.11%	0	0.6102	0	19.4900
1982	0	35.5	71	84.85%	0	0.6245	0	18.7750
1981	0	36.5	73	83.51%	0	0.6387	0	18.0650
1980	0	37.5	75	82.07%	0	0.6525	0	17.3750
1979	0	38.5	77	80.53%	0	0.6661	0	16.6950
1978	0	39.5	79	78.89%	0	0.6793	0	16.0350
1977	0	40.5	81	77.14%	0	0.6923	0	15.3850
1976	0	41.5	83	75.28%	0	0.7049	0	14.7550
1975	0	42.5	85	73.30%	0	0.7172	0	14.1400
1974	0	43.5	87	71.21%	0	0.7292	0	13.5400
1973	0	44.5	89	69.00%	0	0.7409	0	12.9550
1972	0	45.5	91	66.66%	0	0.7521	0	12.3950
1971	0	46.5	93	64.21%	0	0.7630	0	11.8500
1970	0	47.5	95	61.64%	0	0.7736	0	11.3200
1969	0	48.5	97	58.95%	0	0.7837	0	10.8150
1968	0	49.5	99	56.17%	0	0.7935	0	10.3250
1967	0	50.5	101	53.29%	0	0.8029	0	9.8550
1966	0	51.5	103	50.34%	0	0.8119	0	9.4050
1965	0	52.5	105	47.32%	0	0.8206	0	8.9700
1964	0	53.5	107	44.25%	0	0.8288	0	8.5600
1963	0	54.5	109	41.16%	0	0.8367	0	8.1650
1962	0	55.5	111	38.07%	0	0.8443	0	7.7850
1961	0	56.5	113	35.00%	0	0.8515	0	7.4250
1960	0	57.5	115	31.98%	0	0.8584	0	7.0800
1959	0	58.5	117	29.03%	0	0.8650	0	6.7500

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**358.00**
Plant Account	**UNDERGROUND CONDUCTORS**
Survivor Curve	R3
Average Service Life	50
Net Salvage	-10.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	0	59.5	119	26.17%	0	0.8714	0	6.4300
1957	0	60.5	121	23.42%	0	0.8775	0	6.1250
1956	0	61.5	123	20.81%	0	0.8833	0	5.8350
1955	0	62.5	125	18.35%	0	0.8890	0	5.5500
1954	0	63.5	127	16.05%	0	0.8945	0	5.2750
1953	0	64.5	129	13.92%	0	0.8999	0	5.0050
1952	0	65.5	131	11.97%	0	0.9052	0	4.7400
1951	0	66.5	133	10.20%	0	0.9104	0	4.4800
1950	0	67.5	135	8.60%	0	0.9156	0	4.2200
1949	0	68.5	137	7.17%	0	0.9207	0	3.9650
1948	0	69.5	139	5.91%	0	0.9259	0	3.7050
1947	0	70.5	141	4.80%	0	0.9310	0	3.4500
1946	0	71.5	143	3.83%	0	0.9362	0	3.1900
1945	0	72.5	145	3.01%	0	0.9413	0	2.9350
1944	0	73.5	147	2.31%	0	0.9465	0	2.6750
1943	0	74.5	149	1.72%	0	0.9516	0	2.4200
1942	0	75.5	151	1.24%	0	0.9566	0	2.1700
1941	0	76.5	153	0.86%	0	0.9616	0	1.9200
1940	0	77.5	155	0.56%	0	0.9665	0	1.6750
1939	0	78.5	157	0.34%	0	0.9714	0	1.4300
1938	0	79.5	159	0.19%	0	0.9761	0	1.1950
1937	0	80.5	161	0.09%	0	0.9807	0	0.9650
1936	0	81.5	163	0.04%	0	0.9853	0	0.7350
1935	0	82.5	165	0.01%	0	0.9896	0	0.5200
1934	0	83.5	167	0.00%	0	0.9936	0	0.3200
1933	0	84.5	169	0.00%	0	1.0000	0	0.0000
Total					$527,589		$96,668	
Net Salvage Value							-10%	
Theoretical Reserve Including Net Salvage							$106,335	
Average Remaining Life								40.84

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**361.00**
Plant Account	**STRUCTURES AND IMPROVEMENTS**
Survivor Curve	R2
Average Service Life	55
Net Salvage	-5.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$29,411	0.5	1	99.91%	$29,383	0.0091	$267	54.4995
2016	47,537	1.5	3	99.71%	47,397	0.0271	1,284	53.5095
2015	19,177	2.5	5	99.49%	19,079	0.0450	859	52.5250
2014	7,125	3.5	6	99.38%	7,081	0.0540	382	52.0300
2013	0	4.5	8	99.14%	0	0.0717	0	51.0565
2012	15,622	5.5	10	98.89%	15,449	0.0894	1,381	50.0830
2011	3,234,397	6.5	12	98.63%	3,189,956	0.1070	341,325	49.1150
2010	24,510	7.5	14	98.34%	24,104	0.1244	2,998	48.1580
2009	25,717	8.5	15	98.19%	25,252	0.1331	3,361	47.6795
2008	1,044	9.5	17	97.88%	1,022	0.1503	154	46.7335
2007	0	10.5	19	97.55%	0	0.1675	0	45.7875
2006	0	11.5	21	97.19%	0	0.1845	0	44.8525
2005	0	12.5	23	96.82%	0	0.2014	0	43.9230
2004	0	13.5	25	96.42%	0	0.2182	0	42.9990
2003	216,163	14.5	26	96.22%	207,988	0.2265	47,109	42.5425
2002	0	15.5	28	95.79%	0	0.2430	0	41.6350
2001	375	16.5	30	95.33%	357	0.2595	93	40.7275
2000	0	17.5	32	94.85%	0	0.2757	0	39.8365
1999	0	18.5	34	94.34%	0	0.2919	0	38.9455
1998	1,875	19.5	35	94.07%	1,764	0.2999	529	38.5055
1997	0	20.5	37	93.52%	0	0.3158	0	37.6310
1996	0	21.5	39	92.93%	0	0.3316	0	36.7620
1995	(545)	22.5	41	92.32%	(503)	0.3472	(175)	35.9040
1994	176	23.5	43	91.67%	161	0.3627	59	35.0515
1993	(1,069)	24.5	45	90.99%	(973)	0.3780	(368)	34.2100
1992	0	25.5	46	90.64%	0	0.3855	0	33.7975
1991	0	26.5	48	89.90%	0	0.4006	0	32.9670
1990	0	27.5	50	89.13%	0	0.4155	0	32.1475
1989	15,455	28.5	52	88.31%	13,649	0.4302	5,872	31.3390
1988	5,843	29.5	54	87.46%	5,110	0.4447	2,273	30.5415
1987	0	30.5	55	87.02%	0	0.4520	0	30.1400
1986	0	31.5	57	86.10%	0	0.4662	0	29.3590
1985	9,339	32.5	59	85.14%	7,952	0.4803	3,819	28.5835
1984	999	33.5	61	84.14%	841	0.4942	415	27.8190
1983	0	34.5	63	83.09%	0	0.5080	0	27.0600
1982	0	35.5	65	81.98%	0	0.5215	0	26.3175
1981	0	36.5	66	81.42%	0	0.5282	0	25.9490
1980	6,857	37.5	68	80.24%	5,502	0.5414	2,979	25.2230
1979	4,339	38.5	70	79.01%	3,428	0.5544	1,901	24.5080
1978	0	39.5	72	77.73%	0	0.5673	0	23.7985
1977	0	40.5	74	76.40%	0	0.5799	0	23.1055
1976	17,656	41.5	75	75.71%	13,367	0.5861	7,834	22.7645
1975	0	42.5	77	74.29%	0	0.5984	0	22.0880
1974	0	43.5	79	72.82%	0	0.6105	0	21.4225
1973	0	44.5	81	71.29%	0	0.6223	0	20.7735
1972	0	45.5	83	69.70%	0	0.6339	0	20.1355
1971	23,502	46.5	85	68.05%	15,994	0.6453	10,321	19.5085
1970	0	47.5	86	67.21%	0	0.6510	0	19.1950
1969	0	48.5	88	65.48%	0	0.6620	0	18.5900
1968	0	49.5	90	63.70%	0	0.6728	0	17.9960
1967	0	50.5	92	61.86%	0	0.6834	0	17.4130
1966	0	51.5	94	59.98%	0	0.6938	0	16.8410
1965	0	52.5	95	59.01%	0	0.6988	0	16.5660
1964	0	53.5	97	57.05%	0	0.7088	0	16.0160
1963	0	54.5	99	55.04%	0	0.7186	0	15.4770
1962	0	55.5	101	53.00%	0	0.7281	0	14.9545
1961	0	56.5	103	50.91%	0	0.7374	0	14.4430
1960	21,055	57.5	105	48.79%	10,274	0.7464	7,668	13.9480
1959	0	58.5	106	47.72%	0	0.7508	0	13.7060

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**361.00**
Plant Account	**STRUCTURES AND IMPROVEMENTS**
Survivor Curve	R2
Average Service Life	55
Net Salvage	-5.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	0	59.5	108	45.57%	0	0.7595	0	13.2275
1957	0	60.5	110	43.40%	0	0.7680	0	12.7600
1956	0	61.5	112	41.21%	0	0.7762	0	12.3090
1955	0	62.5	114	39.02%	0	0.7842	0	11.8690
1954	0	63.5	115	37.93%	0	0.7882	0	11.6490
1953	0	64.5	117	35.75%	0	0.7958	0	11.2310
1952	0	65.5	119	33.59%	0	0.8033	0	10.8185
1951	0	66.5	121	31.44%	0	0.8106	0	10.4170
Total					$3,643,634		$442,340	
Net Salvage Value							-5%	
Theoretical Reserve Including Net Salvage							$464,457	
Average Remaining Life								48.32

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**362.00**
Plant Account	**STATION EQUIPMENT**
Survivor Curve	R0.5
Average Service Life	30
Net Salvage	-15.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$530,255	0.5	2	99.24%	$526,225	0.0124	$6,525	29.6280
2016	1,279,386	1.5	5	98.09%	1,254,911	0.0310	38,902	29.0700
2015	1,434,731	2.5	8	96.92%	1,390,498	0.0495	68,830	28.5150
2014	526,503	3.5	12	95.33%	501,926	0.0740	37,143	27.7800
2013	2,489,788	4.5	15	94.12%	2,343,488	0.0923	216,304	27.2310
2012	999,087	5.5	18	92.90%	928,152	0.1105	102,561	26.6850
2011	2,588,891	6.5	22	91.24%	2,362,182	0.1347	318,186	25.9590
2010	596,791	7.5	25	89.98%	537,004	0.1528	82,054	25.4160
2009	1,566,365	8.5	28	88.71%	1,389,460	0.1709	237,459	24.8730
2008	1,381,339	9.5	32	86.98%	1,201,489	0.1948	234,050	24.1560
2007	1,137,359	10.5	35	85.67%	974,353	0.2127	207,245	23.6190
2006	1,517,027	11.5	38	84.34%	1,279,430	0.2305	294,909	23.0850
2005	1,069,172	12.5	42	82.54%	882,484	0.2542	224,327	22.3740
2004	423,795	13.5	45	81.17%	343,977	0.2718	93,493	21.8460
2003	1,197,125	14.5	48	79.77%	954,994	0.2894	276,375	21.3180
2002	1,289,898	15.5	52	77.88%	1,004,598	0.3126	314,037	20.6220
2001	826,772	16.5	55	76.44%	631,952	0.3299	208,481	20.1030
2000	2,943	17.5	58	74.96%	2,207	0.3470	766	19.5900
1999	729	18.5	62	72.96%	532	0.3697	197	18.9090
1998	43,300	19.5	65	71.43%	30,928	0.3865	11,954	18.4050
1997	190,504	20.5	68	69.87%	133,096	0.4031	53,651	17.9070
1996	495,669	21.5	72	67.74%	335,756	0.4249	142,663	17.2530
1995	96,501	22.5	75	66.11%	63,795	0.4411	28,140	16.7670
1994	478,681	23.5	78	64.45%	308,505	0.4571	141,018	16.2870
1993	(102,832)	24.5	82	62.19%	(63,953)	0.4782	(30,582)	15.6540
1992	6,924	25.5	85	60.47%	4,187	0.4937	2,067	15.1890
1991	125,408	26.5	88	58.71%	73,630	0.5090	37,477	14.7300
1990	2,797	27.5	92	56.33%	1,576	0.5291	834	14.1270
1989	39,527	28.5	95	54.52%	21,550	0.5440	11,723	13.6800
1988	851,320	29.5	98	52.68%	448,509	0.5586	250,537	13.2420
1987	259,039	30.5	102	50.20%	130,048	0.5778	75,142	12.6660
1986	187,522	31.5	105	48.32%	90,614	0.5919	53,635	12.2430
1985	372,967	32.5	108	46.43%	173,154	0.6059	104,914	11.8230
1984	42,906	33.5	112	43.88%	18,827	0.6242	11,752	11.2740
1983	625,750	34.5	115	41.96%	262,558	0.6377	167,434	10.8690
1982	6,964	35.5	118	40.04%	2,788	0.6510	1,815	10.4700
1981	0	36.5	122	37.47%	0	0.6684	0	9.9480
1980	181,314	37.5	125	35.55%	64,452	0.6813	43,911	9.5610
1979	43,273	38.5	128	33.64%	14,555	0.6941	10,103	9.1770
1978	21,873	39.5	132	31.11%	6,804	0.7108	4,836	8.6760
1977	39,834	40.5	135	29.23%	11,643	0.7232	8,420	8.3040
1976	234,706	41.5	138	27.38%	64,251	0.7355	47,256	7.9350
1975	83,583	42.5	142	24.95%	20,851	0.7517	15,674	7.4490
1974	103,930	43.5	145	23.16%	24,074	0.7637	18,386	7.0890
1973	90,271	44.5	148	21.42%	19,335	0.7757	14,998	6.7290
1972	5,761	45.5	152	19.16%	1,104	0.7915	874	6.2550
1971	48,127	46.5	155	17.52%	8,431	0.8034	6,773	5.8980
1970	36,801	47.5	158	15.93%	5,862	0.8153	4,779	5.5410
1969	35,216	48.5	162	13.90%	4,894	0.8312	4,068	5.0640
1968	219,147	49.5	165	12.44%	27,268	0.8432	22,993	4.7040
1967	120,712	50.5	168	11.05%	13,340	0.8553	11,410	4.3410
1966	119,044	51.5	172	9.30%	11,065	0.8717	9,645	3.8490
1965	30,397	52.5	175	8.06%	2,449	0.8843	2,165	3.4710
1964	81,371	53.5	178	6.88%	5,601	0.8971	5,024	3.0870
1963	95,562	54.5	182	5.42%	5,179	0.9146	4,737	2.5620
1962	26,171	55.5	185	4.40%	1,150	0.9282	1,068	2.1540
1961	3,808	56.5	188	3.43%	130	0.9421	123	1.7370
1960	63,607	57.5	192	2.20%	1,402	0.9610	1,347	1.1700
1959	0	58.5	195	1.34%	0	0.9753	0	0.7410

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**362.00**
Plant Account	**STATION EQUIPMENT**
Survivor Curve	R0.5
Average Service Life	30
Net Salvage	-15.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	0	59.5	198	0.52%	0	0.9900	0	0.3000
1957	14,442	60.5	202	0.00%	0	1.0000	0	0.0000
1956	454	61.5	205	0.00%	0	1.0000	0	0.0000
1955	21,823	62.5	208	0.00%	0	1.0000	0	0.0000
1954	0	63.5	212	0.00%	0	1.0000	0	0.0000
1953	6,283	64.5	215	0.00%	0	1.0000	0	0.0000
1952	9,529	65.5	218	0.00%	0	1.0000	0	0.0000
1951	22,933	66.5	222	0.00%	0	1.0000	0	0.0000
Total					$20,859,271		$4,264,608	
Net Salvage Value							-15%	
Theoretical Reserve Including Net Salvage							$4,904,299	
Average Remaining Life								23.87

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**364.00**
Plant Account	**POLES, TOWERS AND FIXTURES**
Survivor Curve	R2
Average Service Life	44
Net Salvage	-25.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$775,490	0.5	1	99.91%	$774,755	0.0091	$7,050	43.5996
2016	558,043	1.5	3	99.71%	556,400	0.0271	15,078	42.8076
2015	620,804	2.5	6	99.38%	616,956	0.0540	33,316	41.6240
2014	579,034	3.5	8	99.14%	574,082	0.0717	41,162	40.8452
2013	1,278,517	4.5	10	98.89%	1,264,371	0.0894	113,035	40.0664
2012	528,597	5.5	13	98.49%	520,593	0.1157	60,233	38.9092
2011	379,879	6.5	15	98.19%	373,010	0.1331	49,648	38.1436
2010	243,335	7.5	17	97.88%	238,174	0.1503	35,798	37.3868
2009	264,371	8.5	19	97.55%	257,887	0.1675	43,196	36.6300
2008	485,420	9.5	22	97.01%	470,909	0.1930	90,886	35.5080
2007	364,150	10.5	24	96.63%	351,863	0.2098	73,821	34.7688
2006	487,457	11.5	26	96.22%	469,021	0.2265	106,233	34.0340
2005	149,925	12.5	28	95.79%	143,608	0.2430	34,897	33.3080
2004	9,071	13.5	31	95.09%	8,626	0.2676	2,308	32.2256
2003	699,730	14.5	33	94.59%	661,909	0.2838	187,850	31.5128
2002	144,586	15.5	35	94.07%	136,013	0.2999	40,790	30.8044
2001	(3,621)	16.5	38	93.23%	(3,376)	0.3237	(1,093)	29.7572
2000	587,795	17.5	40	92.63%	544,478	0.3394	184,796	29.0664
1999	399,704	18.5	42	92.00%	367,726	0.3549	130,506	28.3844
1998	755,859	19.5	44	91.33%	690,362	0.3703	255,641	27.7068
1997	464,375	20.5	47	90.27%	419,202	0.3931	164,788	26.7036
1996	1,178,900	21.5	49	89.52%	1,055,328	0.4081	430,679	26.0436
1995	617,138	22.5	51	88.73%	547,559	0.4229	231,563	25.3924
1994	5,435,349	23.5	53	87.89%	4,777,314	0.4375	2,090,075	24.7500
1993	16,421,065	24.5	56	86.57%	14,215,310	0.4591	6,526,249	23.7996
1992	421,731	25.5	58	85.63%	361,127	0.4733	170,921	23.1748
1991	321,781	26.5	60	84.65%	272,378	0.4873	132,730	22.5588
1990	548,692	27.5	63	83.09%	455,885	0.5080	231,590	21.6480
1989	849,961	28.5	65	81.98%	696,839	0.5215	363,401	21.0540
1988	509,267	29.5	67	80.83%	411,660	0.5348	220,156	20.4688
1987	255,649	30.5	69	79.63%	203,578	0.5479	111,540	19.8924
1986	312,775	31.5	72	77.73%	243,121	0.5673	137,923	19.0388
1985	434,788	32.5	74	76.40%	332,157	0.5799	192,618	18.4844
1984	370,324	33.5	76	75.01%	277,762	0.5923	164,519	17.9388
1983	1,088,210	34.5	78	73.56%	800,481	0.6044	483,811	17.4064
1982	662,817	35.5	81	71.29%	472,489	0.6223	294,030	16.6188
1981	365,429	36.5	83	69.70%	254,696	0.6339	161,452	16.1084
1980	344,253	37.5	85	68.05%	234,278	0.6453	151,180	15.6068
1979	153,081	38.5	88	65.48%	100,242	0.6620	66,360	14.8720
1978	252,004	39.5	90	63.70%	160,527	0.6728	108,002	14.3968
1977	111,644	40.5	92	61.86%	69,067	0.6834	47,200	13.9304
1976	149,238	41.5	94	59.98%	89,506	0.6938	62,099	13.4728
1975	324,851	42.5	97	57.05%	185,330	0.7088	131,362	12.8128
1974	201,933	43.5	99	55.04%	111,152	0.7186	79,874	12.3816
1973	120,768	44.5	101	53.00%	64,002	0.7281	46,600	11.9636
1972	197,053	45.5	103	50.91%	100,322	0.7374	73,978	11.5544
1971	143,877	46.5	106	47.72%	68,665	0.7508	51,554	10.9648
1970	188,685	47.5	108	45.57%	85,983	0.7595	65,304	10.5820
1969	159,337	48.5	110	43.40%	69,146	0.7680	53,104	10.2080
1968	109,011	49.5	113	40.12%	43,732	0.7803	34,124	9.6668
1967	171,368	50.5	115	37.93%	65,000	0.7882	51,233	9.3192
1966	164,847	51.5	117	35.75%	58,932	0.7958	46,898	8.9848
1965	104,678	52.5	119	33.59%	35,156	0.8033	28,241	8.6548
1964	111,686	53.5	122	30.39%	33,936	0.8142	27,631	8.1752
1963	88,823	54.5	124	28.30%	25,133	0.8212	20,639	7.8672
1962	92,109	55.5	126	26.25%	24,178	0.8281	20,021	7.5636
1961	123,770	56.5	128	24.25%	30,020	0.8347	25,058	7.2732
1960	601,268	57.5	131	21.38%	128,522	0.8445	108,537	6.8420
1959	27,210	58.5	133	19.54%	5,317	0.8508	4,524	6.5648

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**364.00**
Plant Account	**POLES, TOWERS AND FIXTURES**
Survivor Curve	R2
Average Service Life	44
Net Salvage	-25.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	31,758	59.5	135	17.78%	5,647	0.8570	4,840	6.2920
1957	40,609	60.5	138	15.29%	6,211	0.8662	5,380	5.8872
1956	13,800	61.5	140	13.74%	1,896	0.8722	1,654	5.6232
1955	40,521	62.5	142	12.28%	4,975	0.8782	4,369	5.3592
1954	58,475	63.5	144	10.90%	6,377	0.8841	5,638	5.0996
1953	58,606	64.5	147	9.02%	5,283	0.8928	4,717	4.7168
1952	37,312	65.5	149	7.87%	2,936	0.8987	2,639	4.4572
1951	84,819	66.5	151	6.81%	5,778	0.9045	5,226	4.2020
1950	81,663	67.5	153	5.84%	4,772	0.9103	4,344	3.9468
1949	24,205	68.5	156	4.55%	1,102	0.9190	1,012	3.5640
1948	16,614	69.5	158	3.79%	630	0.9248	583	3.3088
1947	5,876	70.5	160	3.11%	183	0.9305	170	3.0580
1946	2,695	71.5	163	2.24%	60	0.9391	57	2.6796
1945	1,406	72.5	165	1.75%	25	0.9448	23	2.4288
1944	473	73.5	167	1.33%	6	0.9504	6	2.1824
1943	11,126	74.5	169	0.97%	108	0.9559	104	1.9404
1942	1,377	75.5	172	0.56%	8	0.9641	7	1.5796
1941	1,731	76.5	174	0.36%	6	0.9695	6	1.3420
1940	1,706	77.5	176	0.21%	4	0.9748	4	1.1088
1939	1,923	78.5	178	0.11%	2	0.9800	2	0.8800
1938	709	79.5	181	0.03%	0	0.9876	0	0.5456
1937	1,856	80.5	183	0.01%	0	0.9923	0	0.3388
1936	2,004	81.5	185	0.00%	0	1.0000	0	0.0000
1935	1,644	82.5	188	0.00%	0	1.0000	0	0.0000
1934	513	83.5	190	0.00%	0	1.0000	0	0.0000
1933	1,126	84.5	192	0.00%	0	1.0000	0	0.0000
Total					$36,648,410		$14,957,500	
Net Salvage Value							-25%	
Theoretical Reserve Including Net Salvage							$18,696,875	
Average Remaining Life								26.04

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**365.00**
Plant Account	**OVERHEAD CONDUCTORS AND DEVICES**
Survivor Curve	R1
Average Service Life	44
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$1,096,303	0.5	1	99.74%	$1,093,473	0.0074	$8,092	43.6744
2016	681,706	1.5	3	99.21%	676,354	0.0222	15,015	43.0232
2015	715,554	2.5	6	98.40%	704,083	0.0442	31,120	42.0552
2014	694,684	3.5	8	97.83%	679,633	0.0587	39,894	41.4172
2013	1,876,284	4.5	10	97.26%	1,824,789	0.0732	133,575	40.7792
2012	714,177	5.5	13	96.36%	688,191	0.0947	65,172	39.8332
2011	747,954	6.5	15	95.75%	716,146	0.1090	78,060	39.2040
2010	494,372	7.5	17	95.12%	470,241	0.1232	57,934	38.5792
2009	709,593	8.5	19	94.48%	670,399	0.1373	92,046	37.9588
2008	1,197,333	9.5	22	93.49%	1,119,341	0.1583	177,192	37.0348
2007	566,135	10.5	24	92.81%	525,421	0.1722	90,478	36.4232
2006	707,831	11.5	26	92.12%	652,032	0.1861	121,343	35.8116
2005	1,465,817	12.5	28	91.41%	1,339,927	0.1999	267,851	35.2044
2004	1,190,543	13.5	31	90.33%	1,075,396	0.2205	237,125	34.2980
2003	1,507,280	14.5	33	89.59%	1,350,353	0.2341	316,118	33.6996
2002	814,850	15.5	35	88.84%	723,872	0.2477	179,303	33.1012
2001	1,231,714	16.5	38	87.68%	1,079,927	0.2680	289,420	32.2080
2000	615,263	17.5	40	86.89%	534,572	0.2814	150,429	31.6184
1999	454,947	18.5	42	86.08%	391,605	0.2947	115,406	31.0332
1998	448,638	19.5	44	85.25%	382,472	0.3080	117,801	30.4480
1997	835,329	20.5	47	83.98%	701,511	0.3278	229,955	29.5768
1996	843,030	21.5	49	83.11%	700,630	0.3408	238,775	29.0048
1995	1,370,299	22.5	51	82.22%	1,126,620	0.3538	398,598	28.4328
1994	3,416,396	23.5	53	81.30%	2,777,690	0.3666	1,018,301	27.8696
1993	11,260,828	24.5	56	79.90%	8,996,901	0.3857	3,470,105	27.0292
1992	503,734	25.5	58	78.93%	397,587	0.3983	158,359	26.4748
1991	375,931	26.5	60	77.94%	292,990	0.4108	120,360	25.9248
1990	930,732	27.5	63	76.41%	711,136	0.4293	305,291	25.1108
1989	1,247,162	28.5	65	75.35%	939,794	0.4415	414,919	24.5740
1988	755,176	29.5	67	74.28%	560,930	0.4535	254,382	24.0460
1987	434,833	30.5	69	73.18%	318,194	0.4655	148,119	23.5180
1986	661,980	31.5	72	71.47%	473,149	0.4831	228,578	22.7436
1985	539,851	32.5	74	70.31%	379,560	0.4947	187,768	22.2332
1984	687,806	33.5	76	69.12%	475,382	0.5061	240,591	21.7316
1983	1,301,351	34.5	78	67.90%	883,580	0.5174	457,164	21.2344
1982	503,866	35.5	81	66.02%	332,657	0.5342	177,705	20.4952
1981	605,103	36.5	83	64.74%	391,733	0.5451	213,534	20.0156
1980	395,883	37.5	85	63.43%	251,111	0.5560	139,618	19.5360
1979	277,735	38.5	88	61.42%	170,594	0.5719	97,563	18.8364
1978	353,811	39.5	90	60.06%	212,484	0.5824	123,751	18.3744
1977	280,647	40.5	92	58.67%	164,642	0.5928	97,600	17.9168
1976	332,864	41.5	94	57.25%	190,574	0.6030	114,916	17.4680
1975	239,834	42.5	97	55.10%	132,138	0.6180	81,661	16.8080
1974	173,809	43.5	99	53.63%	93,219	0.6279	58,532	16.3724
1973	89,196	44.5	101	52.15%	46,518	0.6376	29,660	15.9456
1972	166,176	45.5	103	50.66%	84,178	0.6472	54,480	15.5232
1971	120,409	46.5	106	48.38%	58,258	0.6613	38,526	14.9028
1970	131,323	47.5	108	46.85%	61,527	0.6706	41,260	14.4936
1969	139,468	48.5	110	45.31%	63,192	0.6797	42,952	14.0932
1968	89,235	49.5	113	42.98%	38,353	0.6931	26,582	13.5036
1967	126,376	50.5	115	41.42%	52,342	0.7019	36,739	13.1164
1966	130,397	51.5	117	39.85%	51,967	0.7106	36,927	12.7336
1965	84,206	52.5	119	38.29%	32,238	0.7192	23,186	12.3552
1964	84,310	53.5	122	35.94%	30,297	0.7318	22,171	11.8008
1963	71,374	54.5	124	34.37%	24,533	0.7401	18,157	11.4356
1962	70,208	55.5	126	32.82%	23,040	0.7482	17,239	11.0792
1961	95,035	56.5	128	31.27%	29,717	0.7563	22,475	10.7228
1960	523,440	57.5	131	28.97%	151,640	0.7681	116,474	10.2036
1959	19,721	58.5	133	27.45%	5,414	0.7759	4,201	9.8604

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**365.00**
Plant Account	**OVERHEAD CONDUCTORS AND DEVICES**
Survivor Curve	R1
Average Service Life	44
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	21,899	59.5	135	25.96%	5,684	0.7835	4,454	9.5260
1957	25,184	60.5	138	23.75%	5,981	0.7948	4,754	9.0288
1956	14,818	61.5	140	22.31%	3,306	0.8022	2,652	8.7032
1955	40,521	62.5	142	20.89%	8,467	0.8094	6,853	8.3864
1954	40,679	63.5	144	19.51%	7,936	0.8166	6,481	8.0696
1953	31,891	64.5	147	17.49%	5,579	0.8272	4,615	7.6032
1952	27,512	65.5	149	16.19%	4,455	0.8341	3,716	7.2996
1951	76,796	66.5	151	14.93%	11,467	0.8410	9,644	6.9960
1950	96,007	67.5	153	13.71%	13,165	0.8477	11,160	6.7012
1949	14,630	68.5	156	11.97%	1,751	0.8576	1,501	6.2656
1948	9,772	69.5	158	10.86%	1,061	0.8641	917	5.9796
1947	5,794	70.5	160	9.80%	568	0.8706	494	5.6936
1946	3,178	71.5	163	8.31%	264	0.8800	232	5.2800
1945	1,414	72.5	165	7.39%	104	0.8862	93	5.0072
1944	1,432	73.5	167	6.52%	93	0.8924	83	4.7344
1943	10,636	74.5	169	5.70%	607	0.8984	545	4.4704
1942	3,307	75.5	172	4.59%	152	0.9074	138	4.0744
1941	5,003	76.5	174	3.92%	196	0.9134	179	3.8104
1940	1,807	77.5	176	3.32%	60	0.9193	55	3.5508
1939	1,982	78.5	178	2.77%	55	0.9252	51	3.2912
1938	564	79.5	181	2.05%	12	0.9342	11	2.8952
1937	1,602	80.5	183	1.64%	26	0.9403	25	2.6268
1936	1,527	81.5	185	1.29%	20	0.9467	19	2.3452
1935	1,658	82.5	188	0.85%	14	0.9567	14	1.9052
1934	1,578	83.5	190	0.61%	10	0.9634	9	1.6104
1933	1,234	84.5	192	0.41%	5	0.9701	5	1.3156
Total					$39,197,289		$12,149,248	
Net Salvage Value							-20%	
Theoretical Reserve Including Net Salvage							$14,579,098	
Average Remaining Life								30.36

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**366.00**
Plant Account	**UNDERGROUND CONDUIT**
Survivor Curve	R1.5
Average Service Life	58
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$999,523	0.5	1	99.82%	$997,764	0.0083	$8,281	57.5186
2016	337,187	1.5	3	99.46%	335,366	0.0247	8,284	56.5674
2015	192,193	2.5	4	99.27%	190,796	0.0329	6,277	56.0918
2014	106,275	3.5	6	98.89%	105,094	0.0492	5,171	55.1464
2013	961,030	4.5	8	98.49%	946,509	0.0653	61,807	54.2126
2012	24,983	5.5	9	98.28%	24,554	0.0734	1,802	53.7428
2011	258,628	6.5	11	97.86%	253,096	0.0894	22,627	52.8148
2010	194,866	7.5	13	97.42%	189,846	0.1054	20,010	51.8868
2009	121,496	8.5	15	96.97%	117,815	0.1213	14,291	50.9646
2008	46,203	9.5	16	96.74%	44,695	0.1291	5,770	50.5122
2007	53,677	10.5	18	96.26%	51,668	0.1449	7,487	49.5958
2006	660,200	11.5	20	95.76%	632,220	0.1605	101,471	48.6910
2005	785,627	12.5	22	95.25%	748,294	0.1760	131,700	47.7920
2004	69,836	13.5	23	94.99%	66,333	0.1837	12,185	47.3454
2003	104,169	14.5	25	94.45%	98,382	0.1991	19,588	46.4522
2002	40,003	15.5	27	93.89%	37,557	0.2144	8,052	45.5648
2001	8,541	16.5	28	93.60%	7,994	0.2220	1,775	45.1240
2000	(716)	17.5	30	93.01%	(666)	0.2372	(158)	44.2424
1999	46,384	18.5	32	92.40%	42,860	0.2522	10,809	43.3724
1998	5,211	19.5	34	91.78%	4,783	0.2672	1,278	42.5024
1997	25,746	20.5	35	91.45%	23,546	0.2746	6,466	42.0732
1996	94,411	21.5	37	90.79%	85,717	0.2894	24,807	41.2148
1995	28,803	22.5	39	90.11%	25,954	0.3041	7,893	40.3622
1994	289,045	23.5	41	89.40%	258,409	0.3187	82,355	39.5154
1993	(26,088)	24.5	42	89.04%	(23,228)	0.3259	(7,570)	39.0978
1992	136,580	25.5	44	88.29%	120,591	0.3403	41,037	38.2626
1991	220,275	26.5	46	87.52%	192,789	0.3546	68,363	37.4332
1990	24,203	27.5	47	87.13%	21,087	0.3617	7,627	37.0214
1989	17,266	28.5	49	86.31%	14,903	0.3757	5,599	36.2094
1988	85,360	29.5	51	85.47%	72,958	0.3897	28,432	35.3974
1987	39,474	30.5	53	84.60%	33,394	0.4035	13,475	34.5970
1986	456,817	31.5	54	84.15%	384,416	0.4104	157,765	34.1968
1985	126,264	32.5	56	83.23%	105,092	0.4240	44,559	33.4080
1984	445,007	33.5	58	82.28%	366,147	0.4374	160,153	32.6308
1983	646,697	34.5	59	81.79%	528,933	0.4441	234,899	32.2422
1982	326,894	35.5	61	80.79%	264,085	0.4573	120,766	31.4766
1981	267,742	36.5	63	79.75%	213,514	0.4703	100,415	30.7226
1980	178,634	37.5	65	78.67%	140,531	0.4832	67,905	29.9744
1979	105,473	38.5	66	78.12%	82,393	0.4896	40,340	29.6032
1978	198,622	39.5	68	76.99%	152,909	0.5023	76,806	28.8666
1977	125,554	40.5	70	75.81%	95,188	0.5147	48,993	28.1474
1976	36,763	41.5	72	74.60%	27,426	0.5270	14,454	27.4340
1975	256,427	42.5	73	73.98%	189,710	0.5331	101,134	27.0802
1974	263,829	43.5	75	72.71%	191,833	0.5451	104,568	26.3842
1973	177,906	44.5	77	71.40%	127,025	0.5569	70,740	25.6998
1972	49,555	45.5	78	70.73%	35,049	0.5628	19,726	25.3576
1971	24,367	46.5	80	69.36%	16,900	0.5743	9,706	24.6906
1970	33,367	47.5	82	67.94%	22,670	0.5857	13,278	24.0294
1969	8,519	48.5	84	66.49%	5,664	0.5968	3,380	23.3856

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**366.00**
Plant Account	**UNDERGROUND CONDUIT**
Survivor Curve	R1.5
Average Service Life	58
Net Salvage	-20.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1968	12,974	49.5	85	65.74%	8,529	0.6023	5,137	23.0666
1967	50,084	50.5	87	64.23%	32,167	0.6132	19,725	22.4344
1966	491	51.5	89	62.67%	308	0.6238	192	21.8196
1965	217	52.5	91	61.08%	133	0.6342	84	21.2164
1964	328	53.5	92	60.26%	198	0.6394	126	20.9148
Total					$8,711,899		$2,141,842	
Net Salvage Value							-20%	
Theoretical Reserve Including Net Salvage							$2,570,210	
Average Remaining Life								43.74

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**367.00**
Plant Account	**UNDERGROUND CONDUCTORS AND DEVICES**
Survivor Curve	R1.5
Average Service Life	43
Net Salvage	-25.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$1,495,868	0.5	1	99.82%	$1,493,235	0.0083	$12,394	42.6431
2016	647,077	1.5	3	99.46%	643,583	0.0247	15,896	41.9379
2015	1,683,544	2.5	6	98.89%	1,664,840	0.0492	81,910	40.8844
2014	578,537	3.5	8	98.49%	569,795	0.0653	37,208	40.1921
2013	480,980	4.5	10	98.08%	471,721	0.0814	38,398	39.4998
2012	773,565	5.5	13	97.42%	753,638	0.1054	79,433	38.4678
2011	410,483	6.5	15	96.97%	398,046	0.1213	48,283	37.7841
2010	1,125,276	7.5	17	96.50%	1,085,880	0.1370	148,766	37.1090
2009	2,040,863	8.5	20	95.76%	1,954,371	0.1605	313,677	36.0985
2008	2,469,121	9.5	22	95.25%	2,351,789	0.1760	413,915	35.4320
2007	1,412,287	10.5	24	94.72%	1,337,676	0.1914	256,031	34.7698
2006	1,181,633	11.5	27	93.89%	1,109,376	0.2144	237,850	33.7808
2005	481,334	12.5	29	93.31%	449,118	0.2296	103,117	33.1272
2004	(80,680)	13.5	31	92.71%	(74,798)	0.2447	(18,303)	32.4779
2003	981,015	14.5	34	91.78%	900,327	0.2672	240,567	31.5104
2002	616,340	15.5	36	91.13%	561,640	0.2820	158,382	30.8740
2001	602,670	16.5	38	90.45%	545,133	0.2968	161,796	30.2376
2000	428,154	17.5	41	89.40%	382,774	0.3187	121,990	29.2959
1999	373,844	18.5	43	88.67%	331,484	0.3331	110,417	28.6767
1998	430,295	19.5	45	87.91%	378,277	0.3475	131,451	28.0575
1997	403,712	20.5	48	86.72%	350,111	0.3687	129,086	27.1459
1996	1,217,867	21.5	50	85.90%	1,046,099	0.3827	400,342	26.5439
1995	210,450	22.5	52	85.04%	178,965	0.3966	70,977	25.9462
1994	583,130	23.5	55	83.70%	488,057	0.4172	203,617	25.0604
1993	572,480	24.5	57	82.76%	473,779	0.4307	204,057	24.4799
1992	448,127	25.5	59	81.79%	366,523	0.4441	162,773	23.9037
1991	821,521	26.5	62	80.27%	659,435	0.4638	305,846	23.0566
1990	1,220,647	27.5	64	79.21%	966,911	0.4768	461,023	22.4976
1989	550,510	28.5	66	78.12%	430,047	0.4896	210,551	21.9472
1988	672,472	29.5	69	76.40%	513,796	0.5085	261,265	21.1345
1987	336,529	30.5	71	75.21%	253,114	0.5209	131,847	20.6013
1986	224,494	31.5	73	73.98%	166,085	0.5331	88,540	20.0767
1985	390,521	32.5	76	72.06%	281,413	0.5510	155,059	19.3070
1984	350,199	33.5	78	70.73%	247,689	0.5628	139,399	18.7996
1983	377,342	34.5	80	69.36%	261,706	0.5743	150,297	18.3051
1982	253,611	35.5	83	67.22%	170,472	0.5913	100,800	17.5741
1981	606,770	36.5	85	65.74%	398,903	0.6023	240,259	17.1011
1980	432,777	37.5	87	64.23%	277,955	0.6132	170,442	16.6324
1979	203,138	38.5	90	61.88%	125,698	0.6290	79,064	15.9530
1978	191,485	39.5	92	60.26%	115,397	0.6394	73,785	15.5058
1977	220,646	40.5	94	58.61%	129,329	0.6495	83,999	15.0715
1976	92,083	41.5	97	56.07%	51,634	0.6643	34,300	14.4351
1975	268,087	42.5	99	54.34%	145,676	0.6739	98,171	14.0223
1974	490,340	43.5	101	52.58%	257,796	0.6833	176,152	13.6181
1973	543,961	44.5	103	50.78%	276,245	0.6925	191,300	13.2225
1972	163,874	45.5	106	48.05%	78,748	0.7059	55,588	12.6463
1971	89,987	46.5	108	46.21%	41,584	0.7145	29,712	12.2765
1970	65,746	47.5	110	44.35%	29,160	0.7230	21,083	11.9110
1969	64,240	48.5	113	41.55%	26,691	0.7353	19,626	11.3821

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**367.00**
Plant Account	**UNDERGROUND CONDUCTORS AND DEVICES**
Survivor Curve	R1.5
Average Service Life	43
Net Salvage	-25.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1968	44,843	49.5	115	39.67%	17,791	0.7433	13,224	11.0381
1967	22,634	50.5	117	37.80%	8,556	0.7511	6,426	10.7027
1966	10,198	51.5	120	35.01%	3,570	0.7624	2,722	10.2168
1965	168	52.5	122	33.16%	56	0.7697	43	9.9029
1964	5,294	53.5	124	31.33%	1,659	0.7769	1,289	9.5933
Total					$26,148,553		$7,165,842	
Net Salvage Value							-25%	
Theoretical Reserve Including Net Salvage							$8,957,303	
Average Remaining Life								31.22

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**368.00**
Plant Account	**LINE TRANSFORMERS**
Survivor Curve	L1
Average Service Life	32
Net Salvage	-18.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$852,403	0.5	2	99.88%	$851,357	0.0187	$15,920	31.4016
2016	534,665	1.5	5	99.64%	532,725	0.0464	24,718	30.5152
2015	781,344	2.5	8	99.32%	776,012	0.0734	56,959	29.6512
2014	649,288	3.5	11	98.91%	642,184	0.0996	63,962	28.8128
2013	872,362	4.5	14	98.39%	858,302	0.1249	107,202	28.0032
2012	992,777	5.5	17	97.75%	970,469	0.1493	144,891	27.2224
2011	478,764	6.5	20	96.99%	464,351	0.1728	80,240	26.4704
2010	929,657	7.5	23	96.09%	893,300	0.1952	174,372	25.7536
2009	763,088	8.5	27	94.67%	722,380	0.2234	161,380	24.8512
2008	1,937,820	9.5	30	93.43%	1,810,416	0.2433	440,474	24.2144
2007	1,818,285	10.5	33	92.04%	1,673,515	0.2621	438,628	23.6128
2006	801,780	11.5	36	90.51%	725,663	0.2799	203,113	23.0432
2005	856,561	12.5	39	88.84%	760,943	0.2966	225,696	22.5088
2004	786,722	13.5	42	87.04%	684,754	0.3124	213,917	22.0032
2003	50,550	14.5	45	85.12%	43,030	0.3273	14,084	21.5264
2002	808,193	15.5	48	83.11%	671,675	0.3413	229,243	21.0784
2001	1,985,734	16.5	52	80.29%	1,594,398	0.3589	572,229	20.5152
2000	538,746	17.5	55	78.11%	420,817	0.3714	156,291	20.1152
1999	326,220	18.5	58	75.89%	247,572	0.3835	94,944	19.7280
1998	793,711	19.5	61	73.66%	584,623	0.3952	231,043	19.3536
1997	621,753	20.5	64	71.42%	444,073	0.4068	180,649	18.9824
1996	1,495,445	21.5	67	69.19%	1,034,730	0.4182	432,724	18.6176
1995	1,689,912	22.5	70	66.97%	1,131,699	0.4293	485,838	18.2624
1994	1,331,952	23.5	73	64.75%	862,475	0.4403	379,748	17.9104
1993	2,140,052	24.5	77	61.82%	1,322,935	0.4547	601,538	17.4496
1992	628,033	25.5	80	59.63%	374,522	0.4653	174,265	17.1104
1991	1,032,515	26.5	83	57.47%	593,369	0.4757	282,266	16.7776
1990	910,968	27.5	86	55.32%	503,973	0.4859	244,881	16.4512
1989	1,536,689	28.5	89	53.20%	817,521	0.4960	405,490	16.1280
1988	714,691	29.5	92	51.10%	365,227	0.5059	184,768	15.8112
1987	696,959	30.5	95	49.03%	341,739	0.5157	176,235	15.4976
1986	528,583	31.5	98	46.99%	248,397	0.5254	130,508	15.1872
1985	685,065	32.5	102	44.32%	303,642	0.5380	163,359	14.7840
1984	355,787	33.5	105	42.36%	150,715	0.5473	82,486	14.4864
1983	460,769	34.5	108	40.44%	186,315	0.5564	103,666	14.1952
1982	378,620	35.5	111	38.55%	145,954	0.5654	82,522	13.9072
1981	710,328	36.5	114	36.70%	260,708	0.5743	149,724	13.6224
1980	429,706	37.5	117	34.90%	149,958	0.5831	87,441	13.3408
1979	239,245	38.5	120	33.14%	79,278	0.5917	46,909	13.0656
1978	263,055	39.5	123	31.42%	82,653	0.6002	49,608	12.7936
1977	218,208	40.5	127	29.20%	63,726	0.6114	38,962	12.4352
1976	119,293	41.5	130	27.60%	32,921	0.6196	20,398	12.1728
1975	215,856	42.5	133	26.04%	56,206	0.6278	35,286	11.9104
1974	272,992	43.5	136	24.53%	66,964	0.6358	42,576	11.6544
1973	281,461	44.5	139	23.07%	64,936	0.6437	41,799	11.4016
1972	154,675	45.5	142	21.66%	33,507	0.6515	21,830	11.1520
1971	117,893	46.5	145	20.31%	23,939	0.6592	15,781	10.9056
1970	132,097	47.5	148	19.00%	25,099	0.6668	16,736	10.6624
1969	109,493	48.5	152	17.34%	18,986	0.6768	12,850	10.3424
1968	129,244	49.5	155	16.15%	20,879	0.6842	14,285	10.1056
1967	60,795	50.5	158	15.02%	9,132	0.6915	6,315	9.8720
1966	84,361	51.5	161	13.94%	11,759	0.6987	8,216	9.6416
1965	75,836	52.5	164	12.91%	9,789	0.7058	6,909	9.4144
1964	47,089	53.5	167	11.93%	5,616	0.7129	4,004	9.1872
1963	30,671	54.5	170	11.00%	3,373	0.7198	2,428	8.9664
1962	58,750	55.5	173	10.11%	5,942	0.7267	4,318	8.7456
1961	34,799	56.5	177	9.01%	3,137	0.7357	2,308	8.4576
1960	260,394	57.5	180	8.24%	21,464	0.7424	15,935	8.2432
1959	11,113	58.5	183	7.52%	836	0.7490	626	8.0320

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**368.00**
Plant Account	**LINE TRANSFORMERS**
Survivor Curve	L1
Average Service Life	32
Net Salvage	-18.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	9,482	59.5	186	6.84%	648	0.7555	490	7.8240
1957	8,950	60.5	189	6.20%	555	0.7620	423	7.6160
1956	17,323	61.5	192	5.61%	972	0.7684	747	7.4112
1955	12,504	62.5	195	5.06%	632	0.7747	490	7.2096
1954	16,339	63.5	198	4.54%	743	0.7810	580	7.0080
1953	21,956	64.5	202	3.92%	861	0.7892	679	6.7456
1952	10,151	65.5	205	3.49%	355	0.7953	282	6.5504
1951	59,896	66.5	208	3.10%	1,859	0.8014	1,489	6.3552
1950	48,576	67.5	211	2.74%	1,333	0.8074	1,076	6.1632
1949	20,263	68.5	214	2.42%	490	0.8133	398	5.9744
1948	5,041	69.5	217	2.12%	107	0.8192	88	5.7856
1947	6,037	70.5	220	1.85%	112	0.8250	92	5.6000
1946	2,707	71.5	223	1.61%	44	0.8308	36	5.4144
1945	1,347	72.5	227	1.32%	18	0.8384	15	5.1712
1944	670	73.5	230	1.13%	8	0.8440	6	4.9920
1943	4,690	74.5	233	0.97%	45	0.8496	39	4.8128
1942	2,542	75.5	236	0.82%	21	0.8551	18	4.6368
1941	1,909	76.5	239	0.69%	13	0.8606	11	4.4608
1940	1,408	77.5	242	0.58%	8	0.8661	7	4.2848
1939	2,401	78.5	245	0.48%	11	0.8714	10	4.1152
1938	1,851	79.5	248	0.39%	7	0.8768	6	3.9424
1937	3,037	80.5	252	0.30%	9	0.8839	8	3.7152
1936	1,985	81.5	255	0.24%	5	0.8891	4	3.5488
1935	1,142	82.5	258	0.19%	2	0.8943	2	3.3824
1934	123	83.5	261	0.15%	0	0.8995	0	3.2160
1933	8,967	84.5	264	0.12%	10	0.9046	9	3.0528
Total					$25,815,444		$8,412,498	
Net Salvage Value							-18%	
Theoretical Reserve Including Net Salvage							$9,926,748	
Average Remaining Life								21.57

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**369.00**
Plant Account	**SERVICES**
Survivor Curve	R2
Average Service Life	50
Net Salvage	-25.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$95,928	0.5	1	99.91%	$95,837	0.0091	$872	49.5450
2016	107,696	1.5	3	99.71%	107,379	0.0271	2,910	48.6450
2015	111,943	2.5	5	99.49%	111,375	0.0450	5,012	47.7500
2014	105,032	3.5	7	99.26%	104,260	0.0629	6,558	46.8550
2013	97,274	4.5	9	99.02%	96,322	0.0806	7,764	45.9700
2012	57,280	5.5	11	98.76%	56,571	0.0982	5,555	45.0900
2011	89,612	6.5	13	98.49%	88,255	0.1157	10,211	44.2150
2010	111,156	7.5	15	98.19%	109,146	0.1331	14,527	43.3450
2009	132,011	8.5	17	97.88%	129,212	0.1503	19,421	42.4850
2008	254,366	9.5	19	97.55%	248,127	0.1675	41,561	41.6250
2007	227,062	10.5	21	97.19%	220,693	0.1845	40,718	40.7750
2006	237,225	11.5	23	96.82%	229,683	0.2014	46,258	39.9300
2005	262,190	12.5	25	96.42%	252,816	0.2182	55,164	39.0900
2004	162,162	13.5	27	96.01%	155,684	0.2348	36,555	38.2600
2003	128,378	14.5	29	95.56%	122,679	0.2513	30,829	37.4350
2002	151,999	15.5	31	95.09%	144,538	0.2676	38,678	36.6200
2001	98,864	16.5	33	94.59%	93,520	0.2838	26,541	35.8100
2000	74,538	17.5	35	94.07%	70,118	0.2999	21,028	35.0050
1999	38,081	18.5	37	93.52%	35,612	0.3158	11,246	34.2100
1998	134,786	19.5	39	92.93%	125,262	0.3316	41,537	33.4200
1997	138,516	20.5	41	92.32%	127,877	0.3472	44,399	32.6400
1996	241,222	21.5	43	91.67%	221,131	0.3627	80,204	31.8650
1995	444,166	22.5	45	90.99%	404,145	0.3780	152,767	31.1000
1994	304,471	23.5	47	90.27%	274,853	0.3931	108,045	30.3450
1993	145,349	24.5	49	89.52%	130,113	0.4081	53,099	29.5950
1992	120,838	25.5	51	88.73%	107,214	0.4229	45,341	28.8550
1991	152,582	26.5	53	87.89%	134,110	0.4375	58,673	28.1250
1990	328,341	27.5	55	87.02%	285,723	0.4520	129,147	27.4000
1989	282,348	28.5	57	86.10%	243,113	0.4662	113,339	26.6900
1988	212,804	29.5	59	85.14%	181,190	0.4803	87,026	25.9850
1987	206,513	30.5	61	84.14%	173,757	0.4942	85,871	25.2900
1986	176,762	31.5	63	83.09%	146,864	0.5080	74,607	24.6000
1985	167,099	32.5	65	81.98%	136,996	0.5215	71,443	23.9250
1984	165,531	33.5	67	80.83%	133,805	0.5348	71,559	23.2600
1983	205,654	34.5	69	79.63%	163,766	0.5479	89,728	22.6050
1982	73,338	35.5	71	78.38%	57,481	0.5609	32,241	21.9550
1981	87,966	36.5	73	77.07%	67,795	0.5736	38,887	21.3200
1980	93,230	37.5	75	75.71%	70,582	0.5861	41,368	20.6950
1979	105,854	38.5	77	74.29%	78,638	0.5984	47,057	20.0800
1978	82,773	39.5	79	72.82%	60,272	0.6105	36,796	19.4750
1977	76,583	40.5	81	71.29%	54,592	0.6223	33,973	18.8850
1976	69,939	41.5	83	69.70%	48,746	0.6339	30,900	18.3050
1975	85,982	42.5	85	68.05%	58,514	0.6453	37,759	17.7350
1974	72,228	43.5	87	66.35%	47,926	0.6565	31,463	17.1750
1973	61,035	44.5	89	64.60%	39,428	0.6674	26,314	16.6300
1972	66,803	45.5	91	62.79%	41,944	0.6781	28,443	16.0950
1971	45,968	46.5	93	60.93%	28,006	0.6886	19,285	15.5700
1970	69,364	47.5	95	59.01%	40,933	0.6988	28,604	15.0600
1969	38,647	48.5	97	57.05%	22,048	0.7088	15,628	14.5600
1968	21,803	49.5	99	55.04%	12,001	0.7186	8,624	14.0700
1967	18,756	50.5	101	53.00%	9,940	0.7281	7,237	13.5950
1966	21,411	51.5	103	50.91%	10,901	0.7374	8,038	13.1300
1965	18,999	52.5	105	48.79%	9,270	0.7464	6,919	12.6800
1964	20,038	53.5	107	46.65%	9,348	0.7552	7,059	12.2400
1963	14,782	54.5	109	44.48%	6,576	0.7638	5,023	11.8100
1962	15,110	55.5	111	42.30%	6,392	0.7721	4,935	11.3950
1961	16,825	56.5	113	40.12%	6,750	0.7803	5,267	10.9850
1960	100,501	57.5	115	37.93%	38,120	0.7882	30,046	10.5900
1959	11,554	58.5	117	35.75%	4,131	0.7958	3,287	10.2100

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**369.00**
Plant Account	**SERVICES**
Survivor Curve	R2
Average Service Life	50
Net Salvage	-25.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	12,418	59.5	119	33.59%	4,171	0.8033	3,350	9.8350
1957	11,089	60.5	121	31.44%	3,487	0.8106	2,826	9.4700
1956	9,427	61.5	123	29.34%	2,765	0.8177	2,261	9.1150
1955	11,849	62.5	125	27.27%	3,231	0.8247	2,664	8.7650
1954	15,297	63.5	127	25.24%	3,862	0.8314	3,211	8.4300
1953	16,498	64.5	129	23.28%	3,841	0.8380	3,218	8.1000
1952	17,318	65.5	131	21.38%	3,702	0.8445	3,126	7.7750
1951	24,274	66.5	133	19.54%	4,744	0.8508	4,036	7.4600
1950	14,025	67.5	135	17.78%	2,494	0.8570	2,137	7.1500
1949	4,745	68.5	137	16.10%	764	0.8632	660	6.8400
1948	5,302	69.5	139	14.51%	769	0.8692	669	6.5400
1947	5,047	70.5	141	13.00%	656	0.8752	574	6.2400
1946	2,646	71.5	143	11.58%	306	0.8811	270	5.9450
1945	773	72.5	145	10.25%	79	0.8870	70	5.6500
1944	217	73.5	147	9.02%	20	0.8928	17	5.3600
1943	217	74.5	149	7.87%	17	0.8987	15	5.0650
1942	586	75.5	151	6.81%	40	0.9045	36	4.7750
1941	563	76.5	153	5.84%	33	0.9103	30	4.4850
1940	286	77.5	155	4.96%	14	0.9161	13	4.1950
1939	403	78.5	157	4.16%	17	0.9219	15	3.9050
1938	853	79.5	159	3.44%	29	0.9277	27	3.6150
1937	429	80.5	161	2.80%	12	0.9334	11	3.3300
1936	694	81.5	163	2.24%	16	0.9391	15	3.0450
1935	330	82.5	165	1.75%	6	0.9448	5	2.7600
1934	774	83.5	167	1.33%	10	0.9504	10	2.4800
1933	2,159	84.5	169	0.97%	21	0.9559	20	2.2050
Total					$6,327,185		$2,292,632	
Net Salvage Value							-25%	
Theoretical Reserve Including Net Salvage							$2,865,790	
Average Remaining Life								31.88

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**370.00**
Plant Account	**METERS**
Survivor Curve	S2
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$187,146	0.5	3	100.00%	$187,145	0.0300	$5,614	14.5500
2016	140,133	1.5	10	99.99%	140,125	0.0999	13,999	13.5015
2015	26,878	2.5	17	99.94%	26,862	0.1695	4,553	12.4575
2014	187,006	3.5	23	99.77%	186,580	0.2281	42,559	11.5785
2013	3,684,901	4.5	30	99.29%	3,658,854	0.2946	1,077,898	10.5810
2012	43,675	5.5	37	98.32%	42,942	0.3580	15,373	9.6300
2011	63,851	6.5	43	96.95%	61,902	0.4094	25,342	8.8590
2010	133,736	7.5	50	94.55%	126,444	0.4653	58,834	8.0205
2009	202,625	8.5	57	91.16%	184,711	0.5168	95,459	7.2480
2008	294,810	9.5	63	87.41%	257,693	0.5574	143,638	6.6390
2007	288,929	10.5	70	82.05%	237,053	0.6009	142,445	5.9865
2006	323,340	11.5	77	75.68%	244,713	0.6403	156,690	5.3955
2005	215,130	12.5	83	69.54%	149,610	0.6712	100,418	4.9320
2004	236,059	13.5	90	61.77%	145,802	0.7043	102,689	4.4355
2003	281,096	14.5	97	53.57%	150,581	0.7344	110,587	3.9840
2002	272,986	15.5	103	46.43%	126,749	0.7582	96,101	3.6270
2001	502,713	16.5	110	38.23%	192,211	0.7839	150,674	3.2415
2000	226,768	17.5	117	30.46%	69,065	0.8075	55,770	2.8875
1999	140,674	18.5	123	24.32%	34,208	0.8264	28,269	2.6040
1998	246,086	19.5	130	17.95%	44,184	0.8469	37,419	2.2965
1997	289,198	20.5	137	12.59%	36,410	0.8661	31,535	2.0085
1996	200,568	21.5	143	8.84%	17,732	0.8817	15,634	1.7745
1995	904,207	22.5	150	5.45%	49,304	0.8988	44,315	1.5180
1994	345,829	23.5	157	3.05%	10,556	0.9150	9,659	1.2750
1993	2,113,374	24.5	163	1.68%	35,438	0.9282	32,893	1.0770
1992	153,661	25.5	170	0.71%	1,086	0.9430	1,024	0.8550
1991	191,391	26.5	177	0.23%	437	0.9571	418	0.6435
1990	186,124	27.5	183	0.06%	113	0.9687	110	0.4695
1989	333,113	28.5	190	0.01%	19	0.9817	18	0.2745
1988	269,042	29.5	197	0.00%	0	0.9950	0	0.0750
1987	164,727	30.5	203	0.00%	0	1.0000	0	0.0000
1986	227,053	31.5	210	0.00%	0	1.0000	0	0.0000
1985	211,278	32.5	217	0.00%	0	1.0000	0	0.0000
1984	58,039	33.5	223	0.00%	0	1.0000	0	0.0000
1983	232,129	34.5	230	0.00%	0	1.0000	0	0.0000
1982	157,545	35.5	237	0.00%	0	1.0000	0	0.0000
1981	109,547	36.5	243	0.00%	0	1.0000	0	0.0000
1980	97,444	37.5	250	0.00%	0	1.0000	0	0.0000
1979	161,833	38.5	257	0.00%	0	1.0000	0	0.0000
1978	99,852	39.5	263	0.00%	0	1.0000	0	0.0000
1977	74,014	40.5	270	0.00%	0	1.0000	0	0.0000
1976	57,695	41.5	277	0.00%	0	1.0000	0	0.0000
1975	55,579	42.5	283	0.00%	0	1.0000	0	0.0000
1974	66,865	43.5	290	0.00%	0	1.0000	0	0.0000
1973	27,901	44.5	297	0.00%	0	1.0000	0	0.0000
1972	81,399	45.5	303	0.00%	0	1.0000	0	0.0000
1971	90,212	46.5	310	0.00%	0	1.0000	0	0.0000
1970	24,063	47.5	317	0.00%	0	1.0000	0	0.0000
1969	18,447	48.5	323	0.00%	0	1.0000	0	0.0000
1968	14,845	49.5	330	0.00%	0	1.0000	0	0.0000
1967	13,397	50.5	337	0.00%	0	1.0000	0	0.0000
1966	22,671	51.5	343	0.00%	0	1.0000	0	0.0000
1965	11,618	52.5	350	0.00%	0	1.0000	0	0.0000
1964	9,191	53.5	357	0.00%	0	1.0000	0	0.0000
1963	11,256	54.5	363	0.00%	0	1.0000	0	0.0000
1962	10,079	55.5	370	0.00%	0	1.0000	0	0.0000
1961	10,394	56.5	377	0.00%	0	1.0000	0	0.0000
1960	91,676	57.5	383	0.00%	0	1.0000	0	0.0000
1959	4,223	58.5	390	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**370.00**
Plant Account	**METERS**
Survivor Curve	S2
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	2,804	59.5	397	0.00%	0	1.0000	0	0.0000
1957	7,064	60.5	403	0.00%	0	1.0000	0	0.0000
1956	6,802	61.5	410	0.00%	0	1.0000	0	0.0000
1955	6,325	62.5	417	0.00%	0	1.0000	0	0.0000
1954	6,557	63.5	423	0.00%	0	1.0000	0	0.0000
1953	10,107	64.5	430	0.00%	0	1.0000	0	0.0000
1952	6,511	65.5	437	0.00%	0	1.0000	0	0.0000
1951	23,393	66.5	443	0.00%	0	1.0000	0	0.0000
1950	17,421	67.5	450	0.00%	0	1.0000	0	0.0000
1949	2,670	68.5	457	0.00%	0	1.0000	0	0.0000
1948	3,834	69.5	463	0.00%	0	1.0000	0	0.0000
1947	1,681	70.5	470	0.00%	0	1.0000	0	0.0000
1946	458	71.5	477	0.00%	0	1.0000	0	0.0000
1945	35	72.5	483	0.00%	0	1.0000	0	0.0000
1944	356	73.5	490	0.00%	0	1.0000	0	0.0000
1943	978	74.5	497	0.00%	0	1.0000	0	0.0000
1942	667	75.5	503	0.00%	0	1.0000	0	0.0000
1941	680	76.5	510	0.00%	0	1.0000	0	0.0000
1940	591	77.5	517	0.00%	0	1.0000	0	0.0000
1939	1,005	78.5	523	0.00%	0	1.0000	0	0.0000
1938	664	79.5	530	0.00%	0	1.0000	0	0.0000
1937	588	80.5	537	0.00%	0	1.0000	0	0.0000
1936	717	81.5	543	0.00%	0	1.0000	0	0.0000
1935	498	82.5	550	0.00%	0	1.0000	0	0.0000
1934	483	83.5	557	0.00%	0	1.0000	0	0.0000
1933	6,039	84.5	563	0.00%	0	1.0000	0	0.0000
Total					$6,418,530		$2,599,937	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$2,599,937	
Average Remaining Life								8.92

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**372.00**
Plant Account	**LEASED PROPERTY**
Survivor Curve	S2
Average Service Life	10
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	5	100.00%	$0	0.0500	$0	9.5000
2016	0	1.5	15	99.97%	0	0.1497	0	8.5030
2015	0	2.5	25	99.67%	0	0.2474	0	7.5260
2014	0	3.5	35	98.66%	0	0.3403	0	6.5970
2013	0	4.5	45	96.36%	0	0.4258	0	5.7420
2012	0	5.5	55	92.23%	0	0.5026	0	4.9740
2011	0	6.5	65	85.98%	0	0.5703	0	4.2970
2010	0	7.5	75	77.60%	0	0.6294	0	3.7060
2009	0	8.5	85	67.38%	0	0.6810	0	3.1900
2008	9,331	9.5	95	55.94%	5,219	0.7261	3,790	2.7390
2007	9,378	10.5	105	44.06%	4,132	0.7658	3,165	2.3420
2006	0	11.5	115	32.62%	0	0.8009	0	1.9910
Total					$9,352		$6,955	
Net Salvage Value					$0		0%	
Theoretical Reserve Including Net Salvage							$6,955	
Average Remaining Life								2.56

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**373.00**
Plant Account	**STREET LIGHTING AND SIGNAL SYSTEMS**
Survivor Curve	SQ
Average Service Life	20
Net Salvage	-7.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$3,790,993	0.5	3	100.00%	$3,790,993	0.0250	$94,775	19.5000
2016	37,033	1.5	8	100.00%	37,033	0.0750	2,777	18.5000
2015	85,101	2.5	13	100.00%	85,101	0.1250	10,638	17.5000
2014	27,428	3.5	18	100.00%	27,428	0.1750	4,800	16.5000
2013	166,499	4.5	23	100.00%	166,499	0.2250	37,462	15.5000
2012	58,430	5.5	28	100.00%	58,430	0.2750	16,068	14.5000
2011	30,393	6.5	33	100.00%	30,393	0.3250	9,878	13.5000
2010	(43,384)	7.5	38	100.00%	(43,384)	0.3750	(16,269)	12.5000
2009	40,377	8.5	43	100.00%	40,377	0.4250	17,160	11.5000
2008	89,559	9.5	48	100.00%	89,559	0.4750	42,541	10.5000
2007	153,786	10.5	53	100.00%	153,786	0.5250	80,737	9.5000
2006	332,082	11.5	58	100.00%	332,082	0.5750	190,947	8.5000
2005	123,497	12.5	63	100.00%	123,497	0.6250	77,186	7.5000
2004	54,220	13.5	68	100.00%	54,220	0.6750	36,598	6.5000
2003	128,267	14.5	73	100.00%	128,267	0.7250	92,994	5.5000
2002	76,675	15.5	78	100.00%	76,675	0.7750	59,423	4.5000
2001	149,969	16.5	83	100.00%	149,969	0.8250	123,725	3.5000
2000	64,273	17.5	88	100.00%	64,273	0.8750	56,239	2.5000
1999	36,526	18.5	93	100.00%	36,526	0.9250	33,786	1.5000
1998	90,445	19.5	98	100.00%	90,445	0.9750	88,184	0.5000
1997	86,458	20.5	103	0.00%	0	1.0000	0	0.0000
1996	144,918	21.5	108	0.00%	0	1.0000	0	0.0000
1995	174,005	22.5	113	0.00%	0	1.0000	0	0.0000
1994	150,062	23.5	118	0.00%	0	1.0000	0	0.0000
1993	217,046	24.5	123	0.00%	0	1.0000	0	0.0000
1992	145,953	25.5	128	0.00%	0	1.0000	0	0.0000
1991	185,079	26.5	133	0.00%	0	1.0000	0	0.0000
1990	165,754	27.5	138	0.00%	0	1.0000	0	0.0000
1989	92,077	28.5	143	0.00%	0	1.0000	0	0.0000
1988	123,297	29.5	148	0.00%	0	1.0000	0	0.0000
1987	124,626	30.5	153	0.00%	0	1.0000	0	0.0000
1986	114,604	31.5	158	0.00%	0	1.0000	0	0.0000
1985	120,747	32.5	163	0.00%	0	1.0000	0	0.0000
1984	175,529	33.5	168	0.00%	0	1.0000	0	0.0000
1983	448,251	34.5	173	0.00%	0	1.0000	0	0.0000
1982	119,398	35.5	178	0.00%	0	1.0000	0	0.0000
1981	97,949	36.5	183	0.00%	0	1.0000	0	0.0000
1980	26,572	37.5	188	0.00%	0	1.0000	0	0.0000
1979	11,617	38.5	193	0.00%	0	1.0000	0	0.0000
1978	38,406	39.5	198	0.00%	0	1.0000	0	0.0000
1977	88,411	40.5	203	0.00%	0	1.0000	0	0.0000
1976	95,684	41.5	208	0.00%	0	1.0000	0	0.0000
1975	107,950	42.5	213	0.00%	0	1.0000	0	0.0000
1974	46,500	43.5	218	0.00%	0	1.0000	0	0.0000
1973	74,068	44.5	223	0.00%	0	1.0000	0	0.0000
1972	109,891	45.5	228	0.00%	0	1.0000	0	0.0000
1971	44,407	46.5	233	0.00%	0	1.0000	0	0.0000
1970	78,311	47.5	238	0.00%	0	1.0000	0	0.0000
1969	47,962	48.5	243	0.00%	0	1.0000	0	0.0000
1968	32,226	49.5	248	0.00%	0	1.0000	0	0.0000
1967	46,046	50.5	253	0.00%	0	1.0000	0	0.0000
1966	11,242	51.5	258	0.00%	0	1.0000	0	0.0000
1965	7,425	52.5	263	0.00%	0	1.0000	0	0.0000
1964	13,037	53.5	268	0.00%	0	1.0000	0	0.0000
1963	14,689	54.5	273	0.00%	0	1.0000	0	0.0000
1962	17,391	55.5	278	0.00%	0	1.0000	0	0.0000
1961	18,033	56.5	283	0.00%	0	1.0000	0	0.0000
1960	68,386	57.5	288	0.00%	0	1.0000	0	0.0000
1959	16,414	58.5	293	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**373.00**
Plant Account	**STREET LIGHTING AND SIGNAL SYSTEMS**
Survivor Curve	SQ
Average Service Life	20
Net Salvage	-7.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	3,026	59.5	298	0.00%	0	1.0000	0	0.0000
1957	3,857	60.5	303	0.00%	0	1.0000	0	0.0000
1956	1,527	61.5	308	0.00%	0	1.0000	0	0.0000
1955	1,892	62.5	313	0.00%	0	1.0000	0	0.0000
1954	3,004	63.5	318	0.00%	0	1.0000	0	0.0000
1953	1,904	64.5	323	0.00%	0	1.0000	0	0.0000
1952	3,057	65.5	328	0.00%	0	1.0000	0	0.0000
1951	14,137	66.5	333	0.00%	0	1.0000	0	0.0000
1950	12,727	67.5	338	0.00%	0	1.0000	0	0.0000
1949	2,871	68.5	343	0.00%	0	1.0000	0	0.0000
1948	1,631	69.5	348	0.00%	0	1.0000	0	0.0000
1947	1,498	70.5	353	0.00%	0	1.0000	0	0.0000
1946	0	71.5	358	0.00%	0	1.0000	0	0.0000
1945	16	72.5	363	0.00%	0	1.0000	0	0.0000
1944	0	73.5	368	0.00%	0	1.0000	0	0.0000
1943	0	74.5	373	0.00%	0	1.0000	0	0.0000
1942	79	75.5	378	0.00%	0	1.0000	0	0.0000
1941	434	76.5	383	0.00%	0	1.0000	0	0.0000
1940	1,373	77.5	388	0.00%	0	1.0000	0	0.0000
1939	2,286	78.5	393	0.00%	0	1.0000	0	0.0000
1938	1,121	79.5	398	0.00%	0	1.0000	0	0.0000
1937	829	80.5	403	0.00%	0	1.0000	0	0.0000
1936	1,190	81.5	408	0.00%	0	1.0000	0	0.0000
1935	512	82.5	413	0.00%	0	1.0000	0	0.0000
1934	68	83.5	418	0.00%	0	1.0000	0	0.0000
1933	1,107	84.5	423	0.00%	0	1.0000	0	0.0000
Total					$5,492,169		$1,059,649	
Net Salvage Value							-7%	
Theoretical Reserve Including Net Salvage							$1,133,824	
Average Remaining Life								16.14

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**390.00**
Plant Account	**STRUCTURES AND IMPROVEMENTS**
Survivor Curve	R2
Average Service Life	46
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$128,372	0.5	1	99.91%	$128,251	0.0091	$1,167	45.5814
2016	201,101	1.5	3	99.71%	200,509	0.0271	5,434	44.7534
2015	356,878	2.5	5	99.49%	355,066	0.0450	15,978	43.9300
2014	30,166	3.5	8	99.14%	29,908	0.0717	2,144	42.7018
2013	288,307	4.5	10	98.89%	285,117	0.0894	25,489	41.8876
2012	673,309	5.5	12	98.63%	664,057	0.1070	71,054	41.0780
2011	128,117	6.5	14	98.34%	125,991	0.1244	15,673	40.2776
2010	406,354	7.5	16	98.04%	398,381	0.1417	56,451	39.4818
2009	46,710	8.5	18	97.72%	45,643	0.1589	7,253	38.6906
2008	486,356	9.5	21	97.19%	472,713	0.1845	87,216	37.5130
2007	308,294	10.5	23	96.82%	298,493	0.2014	60,116	36.7356
2006	524,337	11.5	25	96.42%	505,591	0.2182	110,320	35.9628
2005	313,256	12.5	27	96.01%	300,742	0.2348	70,614	35.1992
2004	41,719	13.5	29	95.56%	39,868	0.2513	10,019	34.4402
2003	142,395	14.5	32	94.85%	135,056	0.2757	37,235	33.3178
2002	9,146	15.5	34	94.34%	8,628	0.2919	2,519	32.5726
2001	33,605	16.5	36	93.80%	31,521	0.3079	9,705	31.8366
2000	35,665	17.5	38	93.23%	33,250	0.3237	10,763	31.1098
1999	40,781	18.5	40	92.63%	37,776	0.3394	12,821	30.3876
1998	7,394	19.5	42	92.00%	6,803	0.3549	2,414	29.6746
1997	256,279	20.5	45	90.99%	233,187	0.3780	88,145	28.6120
1996	713,681	21.5	47	90.27%	644,255	0.3931	253,257	27.9174
1995	1,853,008	22.5	49	89.52%	1,658,777	0.4081	676,947	27.2274
1994	1,936,880	23.5	51	88.73%	1,718,507	0.4229	726,757	26.5466
1993	530,117	24.5	53	87.89%	465,938	0.4375	203,848	25.8750
1992	1,002,822	25.5	55	87.02%	872,657	0.4520	394,441	25.2080
1991	98,376	26.5	58	85.63%	84,239	0.4733	39,870	24.2282
1990	0	27.5	60	84.65%	0	0.4873	0	23.5842
1989	9,803	28.5	62	83.62%	8,197	0.5011	4,108	22.9494
1988	30,447	29.5	64	82.54%	25,131	0.5147	12,935	22.3238
1987	104,585	30.5	66	81.42%	85,149	0.5282	44,975	21.7028
1986	61,838	31.5	68	80.24%	49,618	0.5414	26,863	21.0956
1985	94,984	32.5	71	78.38%	74,446	0.5609	41,757	20.1986
1984	598,007	33.5	73	77.07%	460,882	0.5736	264,362	19.6144
1983	418,316	34.5	75	75.71%	316,695	0.5861	185,615	19.0394
1982	422,010	35.5	77	74.29%	313,508	0.5984	187,603	18.4736
1981	2,780	36.5	79	72.82%	2,024	0.6105	1,236	17.9170
1980	596,582	37.5	82	70.50%	420,582	0.6282	264,209	17.1028
1979	111,852	38.5	84	68.88%	77,047	0.6397	49,287	16.5738
1978	12,619	39.5	86	67.21%	8,481	0.6510	5,521	16.0540
1977	1,121	40.5	88	65.48%	734	0.6620	486	15.5480
1976	6,619	41.5	90	63.70%	4,216	0.6728	2,837	15.0512
1975	16,530	42.5	92	61.86%	10,226	0.6834	6,988	14.5636
1974	24,987	43.5	95	59.01%	14,745	0.6988	10,304	13.8552
1973	4,071	44.5	97	57.05%	2,323	0.7088	1,646	13.3952
1972	1,670	45.5	99	55.04%	919	0.7186	661	12.9444
1971	2,000	46.5	101	53.00%	1,060	0.7281	772	12.5074
1970	0	47.5	103	50.91%	0	0.7374	0	12.0796
1969	12,971	48.5	105	48.79%	6,329	0.7464	4,724	11.6656
1968	0	49.5	108	45.57%	0	0.7595	0	11.0630
1967	0	50.5	110	43.40%	0	0.7680	0	10.6720
1966	0	51.5	112	41.21%	0	0.7762	0	10.2948
1965	4,321	52.5	114	39.02%	1,686	0.7842	1,322	9.9268
1964	0	53.5	116	36.84%	0	0.7920	0	9.5680
1963	3,511	54.5	118	34.67%	1,217	0.7996	973	9.2184
1962	0	55.5	121	31.44%	0	0.8106	0	8.7124
1961	0	56.5	123	29.34%	0	0.8177	0	8.3858
1960	0	57.5	125	27.27%	0	0.8247	0	8.0638
1959	0	58.5	127	25.24%	0	0.8314	0	7.7556

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**390.00**
Plant Account	**STRUCTURES AND IMPROVEMENTS**
Survivor Curve	R2
Average Service Life	46
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	4,901	59.5	129	23.28%	1,141	0.8380	956	7.4520
1957	0	60.5	132	20.45%	0	0.8477	0	7.0058
1956	336	61.5	134	18.65%	63	0.8539	54	6.7206
1955	955	62.5	136	16.93%	162	0.8601	139	6.4354
1954	0	63.5	138	15.29%	0	0.8662	0	6.1548
1953	343	64.5	140	13.74%	47	0.8722	41	5.8788
1952	1,186	65.5	142	12.28%	146	0.8782	128	5.6028
Total					$11,667,698		$4,118,152	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$4,118,152	
Average Remaining Life								29.76

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**391.00**
Plant Account	**OFFICE FURNITURE AND EQUIPMENT**
Survivor Curve	SQ
Average Service Life	20
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$122,558	0.5	3	100.00%	$122,558	0.0250	$3,064	19.5000
2016	75,907	1.5	8	100.00%	75,907	0.0750	5,693	18.5000
2015	139,836	2.5	13	100.00%	139,836	0.1250	17,479	17.5000
2014	108,812	3.5	18	100.00%	108,812	0.1750	19,042	16.5000
2013	108,463	4.5	23	100.00%	108,463	0.2250	24,404	15.5000
2012	22,759	5.5	28	100.00%	22,759	0.2750	6,259	14.5000
2011	29,502	6.5	33	100.00%	29,502	0.3250	9,588	13.5000
2010	18,116	7.5	38	100.00%	18,116	0.3750	6,793	12.5000
2009	13,606	8.5	43	100.00%	13,606	0.4250	5,782	11.5000
2008	86,114	9.5	48	100.00%	86,114	0.4750	40,904	10.5000
2007	156,296	10.5	53	100.00%	156,296	0.5250	82,055	9.5000
2006	133,202	11.5	58	100.00%	133,202	0.5750	76,591	8.5000
2005	94,050	12.5	63	100.00%	94,050	0.6250	58,781	7.5000
2004	58,904	13.5	68	100.00%	58,904	0.6750	39,760	6.5000
2003	(103,474)	14.5	73	100.00%	(103,474)	0.7250	(75,018)	5.5000
2002	49,757	15.5	78	100.00%	49,757	0.7750	38,562	4.5000
2001	202,481	16.5	83	100.00%	202,481	0.8250	167,047	3.5000
2000	36,237	17.5	88	100.00%	36,237	0.8750	31,707	2.5000
1999	55,417	18.5	93	100.00%	55,417	0.9250	51,261	1.5000
1998	59,271	19.5	98	100.00%	59,271	0.9750	57,789	0.5000
1997	13,999	20.5	103	0.00%	0	1.0000	0	0.0000
1996	(249,588)	21.5	108	0.00%	0	1.0000	0	0.0000
1995	874,471	22.5	113	0.00%	0	1.0000	0	0.0000
1994	174,396	23.5	118	0.00%	0	1.0000	0	0.0000
1993	61,663	24.5	123	0.00%	0	1.0000	0	0.0000
1992	30,610	25.5	128	0.00%	0	1.0000	0	0.0000
1991	(49,804)	26.5	133	0.00%	0	1.0000	0	0.0000
1990	(3,956)	27.5	138	0.00%	0	1.0000	0	0.0000
1989	(1,483)	28.5	143	0.00%	0	1.0000	0	0.0000
1988	(1,816)	29.5	148	0.00%	0	1.0000	0	0.0000
1987	(1,290)	30.5	153	0.00%	0	1.0000	0	0.0000
1986	(3,164)	31.5	158	0.00%	0	1.0000	0	0.0000
1985	(1,874)	32.5	163	0.00%	0	1.0000	0	0.0000
1984	494,800	33.5	168	0.00%	0	1.0000	0	0.0000
1983	100,641	34.5	173	0.00%	0	1.0000	0	0.0000
1982	47,318	35.5	178	0.00%	0	1.0000	0	0.0000
1981	16,694	36.5	183	0.00%	0	1.0000	0	0.0000
1980	70,174	37.5	188	0.00%	0	1.0000	0	0.0000
1979	29,788	38.5	193	0.00%	0	1.0000	0	0.0000
1978	30,801	39.5	198	0.00%	0	1.0000	0	0.0000
1977	14,223	40.5	203	0.00%	0	1.0000	0	0.0000
1976	10,526	41.5	208	0.00%	0	1.0000	0	0.0000
1975	42,165	42.5	213	0.00%	0	1.0000	0	0.0000
1974	74,410	43.5	218	0.00%	0	1.0000	0	0.0000
1973	4,132	44.5	223	0.00%	0	1.0000	0	0.0000
1972	3,964	45.5	228	0.00%	0	1.0000	0	0.0000
1971	14,570	46.5	233	0.00%	0	1.0000	0	0.0000
1970	18,451	47.5	238	0.00%	0	1.0000	0	0.0000
1969	5,517	48.5	243	0.00%	0	1.0000	0	0.0000
1968	1,898	49.5	248	0.00%	0	1.0000	0	0.0000
1967	1,871	50.5	253	0.00%	0	1.0000	0	0.0000
1966	912	51.5	258	0.00%	0	1.0000	0	0.0000
1965	2,650	52.5	263	0.00%	0	1.0000	0	0.0000
1964	4,588	53.5	268	0.00%	0	1.0000	0	0.0000
1963	3,627	54.5	273	0.00%	0	1.0000	0	0.0000
1962	2,778	55.5	278	0.00%	0	1.0000	0	0.0000
1961	5,316	56.5	283	0.00%	0	1.0000	0	0.0000
1960	17,175	57.5	288	0.00%	0	1.0000	0	0.0000
1959	3,466	58.5	293	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**391.00**
Plant Account	**OFFICE FURNITURE AND EQUIPMENT**
Survivor Curve	SQ
Average Service Life	20
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	10,498	59.5	298	0.00%	0	1.0000	0	0.0000
1957	803	60.5	303	0.00%	0	1.0000	0	0.0000
1956	14,777	61.5	308	0.00%	0	1.0000	0	0.0000
1955	1,987	62.5	313	0.00%	0	1.0000	0	0.0000
1954	513	63.5	318	0.00%	0	1.0000	0	0.0000
1953	882	64.5	323	0.00%	0	1.0000	0	0.0000
1952	556	65.5	328	0.00%	0	1.0000	0	0.0000
1951	4,638	66.5	333	0.00%	0	1.0000	0	0.0000
1950	10,354	67.5	338	0.00%	0	1.0000	0	0.0000
1949	3,865	68.5	343	0.00%	0	1.0000	0	0.0000
1948	415	69.5	348	0.00%	0	1.0000	0	0.0000
1947	440	70.5	353	0.00%	0	1.0000	0	0.0000
1946	129	71.5	358	0.00%	0	1.0000	0	0.0000
1945	534	72.5	363	0.00%	0	1.0000	0	0.0000
1944	18	73.5	368	0.00%	0	1.0000	0	0.0000
1943	0	74.5	373	0.00%	0	1.0000	0	0.0000
1942	10	75.5	378	0.00%	0	1.0000	0	0.0000
1941	362	76.5	383	0.00%	0	1.0000	0	0.0000
1940	184	77.5	388	0.00%	0	1.0000	0	0.0000
1939	1,273	78.5	393	0.00%	0	1.0000	0	0.0000
1938	468	79.5	398	0.00%	0	1.0000	0	0.0000
1937	350	80.5	403	0.00%	0	1.0000	0	0.0000
1936	190	81.5	408	0.00%	0	1.0000	0	0.0000
1935	866	82.5	413	0.00%	0	1.0000	0	0.0000
1934	0	83.5	418	0.00%	0	1.0000	0	0.0000
1933	1,086	84.5	423	0.00%	0	1.0000	0	0.0000
Total					$1,467,814		$667,543	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$667,543	
Average Remaining Life								10.90

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**391.10**
Plant Account	**COMPUTER EQUIPMENT**
Survivor Curve	SQ
Average Service Life	4.5
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$2,422,564	0.5	11	100.00%	$2,422,564	0.1050	$254,369	4.0275
2016	1,276,095	1.5	33	100.00%	1,276,095	0.3250	414,731	3.0375
2015	536,801	2.5	56	100.00%	536,801	0.5550	297,925	2.0025
2014	3,347,143	3.5	78	100.00%	3,347,143	0.7750	2,594,036	1.0125
2013	220,759	4.5	100	100.00%	220,759	0.9950	219,655	0.0225
2012	328,056	5.5	122	0.00%	0	1.0000	0	0.0000
2011	214,877	6.5	144	0.00%	0	1.0000	0	0.0000
2010	572,202	7.5	167	0.00%	0	1.0000	0	0.0000
2009	549,862	8.5	189	0.00%	0	1.0000	0	0.0000
2008	449,720	9.5	211	0.00%	0	1.0000	0	0.0000
2007	546,545	10.5	233	0.00%	0	1.0000	0	0.0000
2006	363,468	11.5	256	0.00%	0	1.0000	0	0.0000
2005	906,639	12.5	278	0.00%	0	1.0000	0	0.0000
2004	631,109	13.5	300	0.00%	0	1.0000	0	0.0000
2003	770,432	14.5	322	0.00%	0	1.0000	0	0.0000
2002	272,511	15.5	344	0.00%	0	1.0000	0	0.0000
2001	670,913	16.5	367	0.00%	0	1.0000	0	0.0000
2000	463,604	17.5	389	0.00%	0	1.0000	0	0.0000
1999	45,113	18.5	411	0.00%	0	1.0000	0	0.0000
1998	211,651	19.5	433	0.00%	0	1.0000	0	0.0000
1997	435,990	20.5	456	0.00%	0	1.0000	0	0.0000
1996	544,867	21.5	478	0.00%	0	1.0000	0	0.0000
1995	388,832	22.5	500	0.00%	0	1.0000	0	0.0000
1994	100,069	23.5	522	0.00%	0	1.0000	0	0.0000
1993	814,480	24.5	544	0.00%	0	1.0000	0	0.0000
1992	571,892	25.5	567	0.00%	0	1.0000	0	0.0000
1991	349,927	26.5	589	0.00%	0	1.0000	0	0.0000
1990	211,548	27.5	611	0.00%	0	1.0000	0	0.0000
1989	79,303	28.5	633	0.00%	0	1.0000	0	0.0000
1988	97,122	29.5	656	0.00%	0	1.0000	0	0.0000
1987	68,977	30.5	678	0.00%	0	1.0000	0	0.0000
1986	169,217	31.5	700	0.00%	0	1.0000	0	0.0000
1985	100,246	32.5	722	0.00%	0	1.0000	0	0.0000
Total					$7,803,361		$3,780,716	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$3,780,716	
Average Remaining Life								2.32

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**393.00**
Plant Account	**STORES EQUIPMENT**
Survivor Curve	SQ
Average Service Life	25
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	2	100.00%	$0	0.0150	$0	24.6250
2016	0	1.5	6	100.00%	0	0.0550	0	23.6250
2015	12,291	2.5	10	100.00%	12,291	0.0950	1,168	22.6250
2014	0	3.5	14	100.00%	0	0.1350	0	21.6250
2013	2,860	4.5	18	100.00%	2,860	0.1750	500	20.6250
2012	2,860	5.5	22	100.00%	2,860	0.2150	615	19.6250
2011	0	6.5	26	100.00%	0	0.2550	0	18.6250
2010	0	7.5	30	100.00%	0	0.2950	0	17.6250
2009	0	8.5	34	100.00%	0	0.3350	0	16.6250
2008	0	9.5	38	100.00%	0	0.3750	0	15.6250
2007	0	10.5	42	100.00%	0	0.4150	0	14.6250
2006	0	11.5	46	100.00%	0	0.4550	0	13.6250
2005	3,513	12.5	50	100.00%	3,513	0.4950	1,739	12.6250
2004	0	13.5	54	100.00%	0	0.5350	0	11.6250
2003	(22,234)	14.5	58	100.00%	(22,234)	0.5750	(12,784)	10.6250
2002	0	15.5	62	100.00%	0	0.6150	0	9.6250
2001	2,409	16.5	66	100.00%	2,409	0.6550	1,578	8.6250
2000	0	17.5	70	100.00%	0	0.6950	0	7.6250
1999	625	18.5	74	100.00%	625	0.7350	459	6.6250
1998	942	19.5	78	100.00%	942	0.7750	730	5.6250
1997	6,654	20.5	82	100.00%	6,654	0.8150	5,423	4.6250
1996	97	21.5	86	100.00%	97	0.8550	83	3.6250
1995	0	22.5	90	100.00%	0	0.8950	0	2.6250
1994	43,133	23.5	94	100.00%	43,133	0.9350	40,329	1.6250
1993	4,108	24.5	98	100.00%	4,108	0.9750	4,005	0.6250
1992	5,441	25.5	102	0.00%	0	1.0000	0	0.0000
1991	0	26.5	106	0.00%	0	1.0000	0	0.0000
1990	23,646	27.5	110	0.00%	0	1.0000	0	0.0000
1989	2,486	28.5	114	0.00%	0	1.0000	0	0.0000
1988	8,818	29.5	118	0.00%	0	1.0000	0	0.0000
1987	39	30.5	122	0.00%	0	1.0000	0	0.0000
1986	4,806	31.5	126	0.00%	0	1.0000	0	0.0000
1985	23,128	32.5	130	0.00%	0	1.0000	0	0.0000
1984	5,312	33.5	134	0.00%	0	1.0000	0	0.0000
1983	48,481	34.5	138	0.00%	0	1.0000	0	0.0000
1982	160	35.5	142	0.00%	0	1.0000	0	0.0000
1981	30,051	36.5	146	0.00%	0	1.0000	0	0.0000
1980	11	37.5	150	0.00%	0	1.0000	0	0.0000
1979	550	38.5	154	0.00%	0	1.0000	0	0.0000
1978	7,878	39.5	158	0.00%	0	1.0000	0	0.0000
1977	411	40.5	162	0.00%	0	1.0000	0	0.0000
1976	1,200	41.5	166	0.00%	0	1.0000	0	0.0000
1975	0	42.5	170	0.00%	0	1.0000	0	0.0000
1974	2,699	43.5	174	0.00%	0	1.0000	0	0.0000
1973	0	44.5	178	0.00%	0	1.0000	0	0.0000
1972	7,882	45.5	182	0.00%	0	1.0000	0	0.0000
1971	0	46.5	186	0.00%	0	1.0000	0	0.0000
1970	4,200	47.5	190	0.00%	0	1.0000	0	0.0000
1969	0	48.5	194	0.00%	0	1.0000	0	0.0000
1968	0	49.5	198	0.00%	0	1.0000	0	0.0000
1967	0	50.5	202	0.00%	0	1.0000	0	0.0000
1966	0	51.5	206	0.00%	0	1.0000	0	0.0000
1965	0	52.5	210	0.00%	0	1.0000	0	0.0000
1964	0	53.5	214	0.00%	0	1.0000	0	0.0000
1963	0	54.5	218	0.00%	0	1.0000	0	0.0000
1962	0	55.5	222	0.00%	0	1.0000	0	0.0000
1961	0	56.5	226	0.00%	0	1.0000	0	0.0000
1960	0	57.5	230	0.00%	0	1.0000	0	0.0000
1959	0	58.5	234	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**393.00**
Plant Account	**STORES EQUIPMENT**
Survivor Curve	SQ
Average Service Life	25
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	453	59.5	238	0.00%	0	1.0000	0	0.0000
1957	0	60.5	242	0.00%	0	1.0000	0	0.0000
1956	1,644	61.5	246	0.00%	0	1.0000	0	0.0000
Total					$57,258		$43,845	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$43,845	
Average Remaining Life								5.86

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**394.00**
Plant Account	**TOOLS, SHOP AND GARAGE EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$154,527	0.5	3	100.00%	$154,527	0.0250	$3,863	14.6250
2016	77,486	1.5	10	100.00%	77,486	0.0950	7,361	13.5750
2015	69,610	2.5	17	100.00%	69,610	0.1650	11,486	12.5250
2014	115,084	3.5	23	100.00%	115,084	0.2250	25,894	11.6250
2013	49,080	4.5	30	100.00%	49,080	0.2950	14,479	10.5750
2012	163,381	5.5	37	100.00%	163,381	0.3650	59,634	9.5250
2011	59,105	6.5	43	100.00%	59,105	0.4250	25,120	8.6250
2010	98,501	7.5	50	100.00%	98,501	0.4950	48,758	7.5750
2009	105,496	8.5	57	100.00%	105,496	0.5650	59,605	6.5250
2008	150,824	9.5	63	100.00%	150,824	0.6250	94,265	5.6250
2007	67,770	10.5	70	100.00%	67,770	0.6950	47,100	4.5750
2006	64,872	11.5	77	100.00%	64,872	0.7650	49,627	3.5250
2005	44,925	12.5	83	100.00%	44,925	0.8250	37,063	2.6250
2004	156,782	13.5	90	100.00%	156,782	0.8950	140,320	1.5750
2003	11,442	14.5	97	100.00%	11,442	0.9650	11,042	0.5250
2002	154,345	15.5	103	0.00%	0	1.0000	0	0.0000
2001	63,808	16.5	110	0.00%	0	1.0000	0	0.0000
2000	85,034	17.5	117	0.00%	0	1.0000	0	0.0000
1999	43,704	18.5	123	0.00%	0	1.0000	0	0.0000
1998	22,940	19.5	130	0.00%	0	1.0000	0	0.0000
1997	48,674	20.5	137	0.00%	0	1.0000	0	0.0000
1996	40,250	21.5	143	0.00%	0	1.0000	0	0.0000
1995	32,635	22.5	150	0.00%	0	1.0000	0	0.0000
1994	99,424	23.5	157	0.00%	0	1.0000	0	0.0000
1993	195,169	24.5	163	0.00%	0	1.0000	0	0.0000
1992	25,973	25.5	170	0.00%	0	1.0000	0	0.0000
1991	59,039	26.5	177	0.00%	0	1.0000	0	0.0000
1990	62,747	27.5	183	0.00%	0	1.0000	0	0.0000
1989	21,562	28.5	190	0.00%	0	1.0000	0	0.0000
1988	37,020	29.5	197	0.00%	0	1.0000	0	0.0000
1987	38,605	30.5	203	0.00%	0	1.0000	0	0.0000
1986	25,455	31.5	210	0.00%	0	1.0000	0	0.0000
1985	21,211	32.5	217	0.00%	0	1.0000	0	0.0000
1984	16,907	33.5	223	0.00%	0	1.0000	0	0.0000
1983	45,050	34.5	230	0.00%	0	1.0000	0	0.0000
1982	31,388	35.5	237	0.00%	0	1.0000	0	0.0000
1981	21,288	36.5	243	0.00%	0	1.0000	0	0.0000
1980	11,597	37.5	250	0.00%	0	1.0000	0	0.0000
1979	8,509	38.5	257	0.00%	0	1.0000	0	0.0000
1978	10,531	39.5	263	0.00%	0	1.0000	0	0.0000
1977	16,842	40.5	270	0.00%	0	1.0000	0	0.0000
1976	30,871	41.5	277	0.00%	0	1.0000	0	0.0000
1975	12,583	42.5	283	0.00%	0	1.0000	0	0.0000
1974	26,050	43.5	290	0.00%	0	1.0000	0	0.0000
1973	26,479	44.5	297	0.00%	0	1.0000	0	0.0000
1972	18,862	45.5	303	0.00%	0	1.0000	0	0.0000
1971	39,219	46.5	310	0.00%	0	1.0000	0	0.0000
1970	31,342	47.5	317	0.00%	0	1.0000	0	0.0000
1969	14,136	48.5	323	0.00%	0	1.0000	0	0.0000
1968	25,657	49.5	330	0.00%	0	1.0000	0	0.0000
1967	3,701	50.5	337	0.00%	0	1.0000	0	0.0000
1966	4,683	51.5	343	0.00%	0	1.0000	0	0.0000
1965	3,366	52.5	350	0.00%	0	1.0000	0	0.0000
1964	2,465	53.5	357	0.00%	0	1.0000	0	0.0000
1963	5,196	54.5	363	0.00%	0	1.0000	0	0.0000
1962	3,984	55.5	370	0.00%	0	1.0000	0	0.0000
1961	4,724	56.5	377	0.00%	0	1.0000	0	0.0000
1960	31,873	57.5	383	0.00%	0	1.0000	0	0.0000
1959	2,033	58.5	390	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**394.00**
Plant Account	**TOOLS, SHOP AND GARAGE EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	3,730	59.5	397	0.00%	0	1.0000	0	0.0000
1957	163	60.5	403	0.00%	0	1.0000	0	0.0000
1956	380	61.5	410	0.00%	0	1.0000	0	0.0000
1955	1,177	62.5	417	0.00%	0	1.0000	0	0.0000
1954	1,659	63.5	423	0.00%	0	1.0000	0	0.0000
1953	155	64.5	430	0.00%	0	1.0000	0	0.0000
1952	1,573	65.5	437	0.00%	0	1.0000	0	0.0000
1951	2,447	66.5	443	0.00%	0	1.0000	0	0.0000
1950	8,607	67.5	450	0.00%	0	1.0000	0	0.0000
1949	2,060	68.5	457	0.00%	0	1.0000	0	0.0000
1948	803	69.5	463	0.00%	0	1.0000	0	0.0000
1947	300	70.5	470	0.00%	0	1.0000	0	0.0000
1946	1,454	71.5	477	0.00%	0	1.0000	0	0.0000
1945	85	72.5	483	0.00%	0	1.0000	0	0.0000
1944	464	73.5	490	0.00%	0	1.0000	0	0.0000
1943	71	74.5	497	0.00%	0	1.0000	0	0.0000
1942	324	75.5	503	0.00%	0	1.0000	0	0.0000
1941	196	76.5	510	0.00%	0	1.0000	0	0.0000
1940	92	77.5	517	0.00%	0	1.0000	0	0.0000
1939	552	78.5	523	0.00%	0	1.0000	0	0.0000
1938	150	79.5	530	0.00%	0	1.0000	0	0.0000
1937	81	80.5	537	0.00%	0	1.0000	0	0.0000
1936	649	81.5	543	0.00%	0	1.0000	0	0.0000
1935	359	82.5	550	0.00%	0	1.0000	0	0.0000
1934	0	83.5	557	0.00%	0	1.0000	0	0.0000
1933	349	84.5	563	0.00%	0	1.0000	0	0.0000
Total					$1,388,884		$635,617	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$635,617	
Average Remaining Life								8.14

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**395.00**
Plant Account	**LABORATORY EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	3	100.00%	$0	0.0250	$0	14.6250
2016	0	1.5	10	100.00%	0	0.0950	0	13.5750
2015	0	2.5	17	100.00%	0	0.1650	0	12.5250
2014	12,978	3.5	23	100.00%	12,978	0.2250	2,920	11.6250
2013	11,919	4.5	30	100.00%	11,919	0.2950	3,516	10.5750
2012	6,073	5.5	37	100.00%	6,073	0.3650	2,217	9.5250
2011	0	6.5	43	100.00%	0	0.4250	0	8.6250
2010	23,325	7.5	50	100.00%	23,325	0.4950	11,546	7.5750
2009	14,793	8.5	57	100.00%	14,793	0.5650	8,358	6.5250
2008	17,359	9.5	63	100.00%	17,359	0.6250	10,849	5.6250
2007	37,286	10.5	70	100.00%	37,286	0.6950	25,913	4.5750
2006	0	11.5	77	100.00%	0	0.7650	0	3.5250
2005	62,058	12.5	83	100.00%	62,058	0.8250	51,197	2.6250
2004	17,860	13.5	90	100.00%	17,860	0.8950	15,985	1.5750
2003	54,611	14.5	97	100.00%	54,611	0.9650	52,700	0.5250
2002	46,540	15.5	103	0.00%	0	1.0000	0	0.0000
2001	9,943	16.5	110	0.00%	0	1.0000	0	0.0000
2000	78,051	17.5	117	0.00%	0	1.0000	0	0.0000
1999	27,998	18.5	123	0.00%	0	1.0000	0	0.0000
1998	26,684	19.5	130	0.00%	0	1.0000	0	0.0000
1997	9,581	20.5	137	0.00%	0	1.0000	0	0.0000
1996	29,743	21.5	143	0.00%	0	1.0000	0	0.0000
1995	89,513	22.5	150	0.00%	0	1.0000	0	0.0000
1994	14,773	23.5	157	0.00%	0	1.0000	0	0.0000
1993	66,249	24.5	163	0.00%	0	1.0000	0	0.0000
1992	30,407	25.5	170	0.00%	0	1.0000	0	0.0000
1991	32,703	26.5	177	0.00%	0	1.0000	0	0.0000
1990	17,908	27.5	183	0.00%	0	1.0000	0	0.0000
1989	15,976	28.5	190	0.00%	0	1.0000	0	0.0000
1988	5,766	29.5	197	0.00%	0	1.0000	0	0.0000
1987	5,239	30.5	203	0.00%	0	1.0000	0	0.0000
1986	69,992	31.5	210	0.00%	0	1.0000	0	0.0000
1985	2,439	32.5	217	0.00%	0	1.0000	0	0.0000
1984	45,961	33.5	223	0.00%	0	1.0000	0	0.0000
1983	7,725	34.5	230	0.00%	0	1.0000	0	0.0000
1982	1,487	35.5	237	0.00%	0	1.0000	0	0.0000
1981	5,345	36.5	243	0.00%	0	1.0000	0	0.0000
1980	19,147	37.5	250	0.00%	0	1.0000	0	0.0000
1979	2,981	38.5	257	0.00%	0	1.0000	0	0.0000
1978	5,768	39.5	263	0.00%	0	1.0000	0	0.0000
1977	7,295	40.5	270	0.00%	0	1.0000	0	0.0000
1976	8,192	41.5	277	0.00%	0	1.0000	0	0.0000
1975	1,746	42.5	283	0.00%	0	1.0000	0	0.0000
1974	0	43.5	290	0.00%	0	1.0000	0	0.0000
1973	0	44.5	297	0.00%	0	1.0000	0	0.0000
1972	6,441	45.5	303	0.00%	0	1.0000	0	0.0000
1971	11,074	46.5	310	0.00%	0	1.0000	0	0.0000
1970	840	47.5	317	0.00%	0	1.0000	0	0.0000
1969	1,738	48.5	323	0.00%	0	1.0000	0	0.0000
1968	321	49.5	330	0.00%	0	1.0000	0	0.0000
1967	0	50.5	337	0.00%	0	1.0000	0	0.0000
1966	0	51.5	343	0.00%	0	1.0000	0	0.0000
1965	0	52.5	350	0.00%	0	1.0000	0	0.0000
1964	2,843	53.5	357	0.00%	0	1.0000	0	0.0000
1963	0	54.5	363	0.00%	0	1.0000	0	0.0000
1962	55	55.5	370	0.00%	0	1.0000	0	0.0000
1961	664	56.5	377	0.00%	0	1.0000	0	0.0000
1960	0	57.5	383	0.00%	0	1.0000	0	0.0000
1959	0	58.5	390	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**395.00**
Plant Account	**LABORATORY EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	0	59.5	397	0.00%	0	1.0000	0	0.0000
1957	2,484	60.5	403	0.00%	0	1.0000	0	0.0000
1956	0	61.5	410	0.00%	0	1.0000	0	0.0000
1955	0	62.5	417	0.00%	0	1.0000	0	0.0000
1954	0	63.5	423	0.00%	0	1.0000	0	0.0000
1953	2,966	64.5	430	0.00%	0	1.0000	0	0.0000
Total					$258,261		$185,201	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$185,201	
Average Remaining Life								4.24

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**396.00**
Plant Account	**POWER OPERATED QUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$0	0.5	3	100.00%	$0	0.0250	$0	14.6250
2016	0	1.5	10	100.00%	0	0.0950	0	13.5750
2015	0	2.5	17	100.00%	0	0.1650	0	12.5250
2014	0	3.5	23	100.00%	0	0.2250	0	11.6250
2013	0	4.5	30	100.00%	0	0.2950	0	10.5750
2012	6,620	5.5	37	100.00%	6,620	0.3650	2,416	9.5250
2011	4,070	6.5	43	100.00%	4,070	0.4250	1,730	8.6250
2010	5,847	7.5	50	100.00%	5,847	0.4950	2,894	7.5750
2009	8,923	8.5	57	100.00%	8,923	0.5650	5,041	6.5250
2008	2,616	9.5	63	100.00%	2,616	0.6250	1,635	5.6250
2007	0	10.5	70	100.00%	0	0.6950	0	4.5750
2006	0	11.5	77	100.00%	0	0.7650	0	3.5250
2005	22,598	12.5	83	100.00%	22,598	0.8250	18,643	2.6250
2004	2,210	13.5	90	100.00%	2,210	0.8950	1,978	1.5750
2003	15,899	14.5	97	100.00%	15,899	0.9650	15,343	0.5250
2002	1,056	15.5	103	0.00%	0	1.0000	0	0.0000
2001	81,046	16.5	110	0.00%	0	1.0000	0	0.0000
2000	1,879	17.5	117	0.00%	0	1.0000	0	0.0000
1999	0	18.5	123	0.00%	0	1.0000	0	0.0000
1998	1,290	19.5	130	0.00%	0	1.0000	0	0.0000
1997	35,846	20.5	137	0.00%	0	1.0000	0	0.0000
1996	749	21.5	143	0.00%	0	1.0000	0	0.0000
1995	(231)	22.5	150	0.00%	0	1.0000	0	0.0000
1994	506	23.5	157	0.00%	0	1.0000	0	0.0000
1993	6,171	24.5	163	0.00%	0	1.0000	0	0.0000
1992	316	25.5	170	0.00%	0	1.0000	0	0.0000
1991	22,617	26.5	177	0.00%	0	1.0000	0	0.0000
1990	3,319	27.5	183	0.00%	0	1.0000	0	0.0000
1989	0	28.5	190	0.00%	0	1.0000	0	0.0000
1988	0	29.5	197	0.00%	0	1.0000	0	0.0000
1987	0	30.5	203	0.00%	0	1.0000	0	0.0000
1986	5,849	31.5	210	0.00%	0	1.0000	0	0.0000
1985	23,458	32.5	217	0.00%	0	1.0000	0	0.0000
1984	0	33.5	223	0.00%	0	1.0000	0	0.0000
1983	14,626	34.5	230	0.00%	0	1.0000	0	0.0000
1982	239	35.5	237	0.00%	0	1.0000	0	0.0000
1981	747	36.5	243	0.00%	0	1.0000	0	0.0000
Total					$68,784		$49,680	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$49,680	
Average Remaining Life								4.17

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**397.00**
Plant Account	**COMMUNICATION EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$20,265	0.5	3	100.00%	$20,265	0.0250	$507	14.6250
2016	28,645	1.5	10	100.00%	28,645	0.0950	2,721	13.5750
2015	95,220	2.5	17	100.00%	95,220	0.1650	15,711	12.5250
2014	60,664	3.5	23	100.00%	60,664	0.2250	13,649	11.6250
2013	1,572,610	4.5	30	100.00%	1,572,610	0.2950	463,920	10.5750
2012	239,945	5.5	37	100.00%	239,945	0.3650	87,580	9.5250
2011	268,038	6.5	43	100.00%	268,038	0.4250	113,916	8.6250
2010	36,386	7.5	50	100.00%	36,386	0.4950	18,011	7.5750
2009	739,740	8.5	57	100.00%	739,740	0.5650	417,953	6.5250
2008	490,120	9.5	63	100.00%	490,120	0.6250	306,325	5.6250
2007	170,648	10.5	70	100.00%	170,648	0.6950	118,600	4.5750
2006	75,418	11.5	77	100.00%	75,418	0.7650	57,694	3.5250
2005	89,996	12.5	83	100.00%	89,996	0.8250	74,247	2.6250
2004	162,899	13.5	90	100.00%	162,899	0.8950	145,794	1.5750
2003	107,396	14.5	97	100.00%	107,396	0.9650	103,637	0.5250
2002	20,764	15.5	103	0.00%	0	1.0000	0	0.0000
2001	7,768	16.5	110	0.00%	0	1.0000	0	0.0000
2000	20,426	17.5	117	0.00%	0	1.0000	0	0.0000
1999	2,708	18.5	123	0.00%	0	1.0000	0	0.0000
1998	9,606	19.5	130	0.00%	0	1.0000	0	0.0000
1997	4,662	20.5	137	0.00%	0	1.0000	0	0.0000
1996	150,961	21.5	143	0.00%	0	1.0000	0	0.0000
1995	13,113	22.5	150	0.00%	0	1.0000	0	0.0000
1994	177,331	23.5	157	0.00%	0	1.0000	0	0.0000
1993	48,908	24.5	163	0.00%	0	1.0000	0	0.0000
1992	8,459	25.5	170	0.00%	0	1.0000	0	0.0000
1991	14,727	26.5	177	0.00%	0	1.0000	0	0.0000
1990	23,480	27.5	183	0.00%	0	1.0000	0	0.0000
1989	12,991	28.5	190	0.00%	0	1.0000	0	0.0000
1988	8,596	29.5	197	0.00%	0	1.0000	0	0.0000
1987	76,979	30.5	203	0.00%	0	1.0000	0	0.0000
1986	116,974	31.5	210	0.00%	0	1.0000	0	0.0000
1985	3,591	32.5	217	0.00%	0	1.0000	0	0.0000
1984	4,078	33.5	223	0.00%	0	1.0000	0	0.0000
1983	11,975	34.5	230	0.00%	0	1.0000	0	0.0000
1982	2,971	35.5	237	0.00%	0	1.0000	0	0.0000
1981	17,997	36.5	243	0.00%	0	1.0000	0	0.0000
1980	4,261	37.5	250	0.00%	0	1.0000	0	0.0000
1979	6,558	38.5	257	0.00%	0	1.0000	0	0.0000
1978	5,105	39.5	263	0.00%	0	1.0000	0	0.0000
1977	32,486	40.5	270	0.00%	0	1.0000	0	0.0000
1976	42	41.5	277	0.00%	0	1.0000	0	0.0000
1975	8,908	42.5	283	0.00%	0	1.0000	0	0.0000
1974	87,623	43.5	290	0.00%	0	1.0000	0	0.0000
1973	3,870	44.5	297	0.00%	0	1.0000	0	0.0000
1972	0	45.5	303	0.00%	0	1.0000	0	0.0000
1971	947	46.5	310	0.00%	0	1.0000	0	0.0000
1970	2,095	47.5	317	0.00%	0	1.0000	0	0.0000
1969	3,660	48.5	323	0.00%	0	1.0000	0	0.0000
1968	962	49.5	330	0.00%	0	1.0000	0	0.0000
1967	5,201	50.5	337	0.00%	0	1.0000	0	0.0000
1966	988	51.5	343	0.00%	0	1.0000	0	0.0000
1965	112	52.5	350	0.00%	0	1.0000	0	0.0000
1964	3,311	53.5	357	0.00%	0	1.0000	0	0.0000
1963	233	54.5	363	0.00%	0	1.0000	0	0.0000
1962	2,074	55.5	370	0.00%	0	1.0000	0	0.0000
1961	12,966	56.5	377	0.00%	0	1.0000	0	0.0000
1960	0	57.5	383	0.00%	0	1.0000	0	0.0000
1959	1,503	58.5	390	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**397.00**
Plant Account	**COMMUNICATION EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1958	0	59.5	397	0.00%	0	1.0000	0	0.0000
1957	328	60.5	403	0.00%	0	1.0000	0	0.0000
1956	586	61.5	410	0.00%	0	1.0000	0	0.0000
1955	0	62.5	417	0.00%	0	1.0000	0	0.0000
1954	2,780	63.5	423	0.00%	0	1.0000	0	0.0000
1953	10,993	64.5	430	0.00%	0	1.0000	0	0.0000
								15.00
Total					$4,157,988		$1,940,265	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$1,940,265	
Average Remaining Life								8.00

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**398.00**
Plant Account	**MISCELLANEOUS EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
2017	$49,227	0.5	3	100.00%	$49,227	0.0250	$1,231	14.6250
2016	148,516	1.5	10	100.00%	148,516	0.0950	14,109	13.5750
2015	208,237	2.5	17	100.00%	208,237	0.1650	34,359	12.5250
2014	573,406	3.5	23	100.00%	573,406	0.2250	129,016	11.6250
2013	28,447	4.5	30	100.00%	28,447	0.2950	8,392	10.5750
2012	3,283	5.5	37	100.00%	3,283	0.3650	1,198	9.5250
2011	21,843	6.5	43	100.00%	21,843	0.4250	9,283	8.6250
2010	86,587	7.5	50	100.00%	86,587	0.4950	42,861	7.5750
2009	21,514	8.5	57	100.00%	21,514	0.5650	12,155	6.5250
2008	82,095	9.5	63	100.00%	82,095	0.6250	51,309	5.6250
2007	12,482	10.5	70	100.00%	12,482	0.6950	8,675	4.5750
2006	66,121	11.5	77	100.00%	66,121	0.7650	50,582	3.5250
2005	45,213	12.5	83	100.00%	45,213	0.8250	37,301	2.6250
2004	0	13.5	90	100.00%	0	0.8950	0	1.5750
2003	6,676	14.5	97	100.00%	6,676	0.9650	6,442	0.5250
2002	1,286	15.5	103	0.00%	0	1.0000	0	0.0000
2001	9,712	16.5	110	0.00%	0	1.0000	0	0.0000
2000	985	17.5	117	0.00%	0	1.0000	0	0.0000
1999	18,476	18.5	123	0.00%	0	1.0000	0	0.0000
1998	7,736	19.5	130	0.00%	0	1.0000	0	0.0000
1997	3,483	20.5	137	0.00%	0	1.0000	0	0.0000
1996	385	21.5	143	0.00%	0	1.0000	0	0.0000
1995	(276,104)	22.5	150	0.00%	0	1.0000	0	0.0000
1994	282,266	23.5	157	0.00%	0	1.0000	0	0.0000
1993	21,534	24.5	163	0.00%	0	1.0000	0	0.0000
1992	3,460	25.5	170	0.00%	0	1.0000	0	0.0000
1991	3,204	26.5	177	0.00%	0	1.0000	0	0.0000
1990	474	27.5	183	0.00%	0	1.0000	0	0.0000
1989	273	28.5	190	0.00%	0	1.0000	0	0.0000
1988	1,209	29.5	197	0.00%	0	1.0000	0	0.0000
1987	0	30.5	203	0.00%	0	1.0000	0	0.0000
1986	1,181	31.5	210	0.00%	0	1.0000	0	0.0000
1985	132	32.5	217	0.00%	0	1.0000	0	0.0000
1984	76,311	33.5	223	0.00%	0	1.0000	0	0.0000
1983	682	34.5	230	0.00%	0	1.0000	0	0.0000
1982	8,714	35.5	237	0.00%	0	1.0000	0	0.0000
1981	0	36.5	243	0.00%	0	1.0000	0	0.0000
1980	321	37.5	250	0.00%	0	1.0000	0	0.0000
1979	3,458	38.5	257	0.00%	0	1.0000	0	0.0000
1978	296	39.5	263	0.00%	0	1.0000	0	0.0000
1977	0	40.5	270	0.00%	0	1.0000	0	0.0000
1976	0	41.5	277	0.00%	0	1.0000	0	0.0000
1975	0	42.5	283	0.00%	0	1.0000	0	0.0000
1974	0	43.5	290	0.00%	0	1.0000	0	0.0000
1973	0	44.5	297	0.00%	0	1.0000	0	0.0000
1972	0	45.5	303	0.00%	0	1.0000	0	0.0000
1971	1,569	46.5	310	0.00%	0	1.0000	0	0.0000
1970	0	47.5	317	0.00%	0	1.0000	0	0.0000
1969	96	48.5	323	0.00%	0	1.0000	0	0.0000

Kaua'i Island Utility Cooperative
Depreciation Study
Based on Plant in Service at December 31, 2017

Account Number	**398.00**
Plant Account	**MISCELLANEOUS EQUIPMENT**
Survivor Curve	SQ
Average Service Life	15
Net Salvage	0.0%
Study Year	2017

Year	Additions ($)	Age (years)	Age as % of ASL	Percent Surviving per Curve	Plant Surviving at 12/31/17 ($)	Reserve Ratio per Curve	Theoretical Reserve ($)	Remaining Life (yrs)
A	B	C	D	E	F	G	H	I
1968	0	49.5	330	0.00%	0	1.0000	0	0.0000
1967	379	50.5	337	0.00%	0	1.0000	0	0.0000
1966	353	51.5	343	0.00%	0	1.0000	0	0.0000
1965	0	52.5	350	0.00%	0	1.0000	0	0.0000
1964	149	53.5	357	0.00%	0	1.0000	0	0.0000
1963	360	54.5	363	0.00%	0	1.0000	0	0.0000
1962	0	55.5	370	0.00%	0	1.0000	0	0.0000
1961	1,387	56.5	377	0.00%	0	1.0000	0	0.0000
Total					$1,353,647		$406,913	
Net Salvage Value							0%	
Theoretical Reserve Including Net Salvage							$406,913	
Average Remaining Life								10.49

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT NHH-1103

(1 PAGE)

United States Department of Agriculture
Rural Development

May 7, 2020

Ms. Karissa Jonas
Financial VP & CFO
Kauai Island Utility Cooperative

Dear Ms. Jonas:

Kauai Island Utility Cooperative submitted a letter to the Rural Utilities Service (RUS) dated December 3, 2018 and its 2017 Depreciation Study performed by NewGen Strategies and Solutions. The results of this study recommended several adjustments be made to KIUC's existing depreciation rates.

Based on a review of the 2017 Depreciation Study and discussions with NewGen, RUS approves the recommendations set forth in the 2017 study.

Please let us know if we can be of further assistance.

Sincerely,

JAMES ELLIOTT

Digitally signed by JAMES ELLIOTT
Date: 2020.05.07 15:09:58 -04'00'

JAMES F. ELLIOTT
Director of Operations
Rural Utilities Service-Electric Program

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT NHH-1104

(1 PAGE)

Kaua'i Island Utility Cooperative
Summary Schedule 2
Comparison of Depreciation Rates and Annual Accruals
Based on Plant in Service at December 31, 2017 (1)

		Original	Existing (2012 Study)		Proposed (2017 Study)		
		Cost	Depreciation	Annual	Depreciation	Annual	Change
Account	Description	at 12/31/2017	Rate	Accrual	Rate	Accrual	In Accrual
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
	STEAM PRODUCTION PLANT						
311.00	STRUCTURES AND IMPROVEMENTS	$5,627,209	2.59%	$145,745	1.15%	$64,687	($81,057)
312.00	BOILER PLANT EQUIPMENT	16,189,980	2.60%	420,939	3.11%	503,581	82,641
313.00	ENGINE DRIVEN GENERATORS (2)	5,556	n/a		n/a		0
314.00	TURBOGENERATOR UNITS	2,802,766	3.49%	97,817	3.07%	86,166	(11,650)
315.00	ACCESSORY ELECTRICAL EQUIPMENT	776,822	2.52%	19,576	2.84%	22,056	2,480
316.00	MISCELLANEOUS POWER EQUIPMENT	668,853	6.78%	45,348	4.34%	29,017	(16,331)
	TOTAL STEAM PRODUCTION PLANT	**$26,071,186**	**2.80%**	**$729,425**	**2.71%**	**$705,507**	**($23,917)**
	HYDRO PRODUCTION PLANT						
331.00	STRUCTURES AND IMPROVEMENTS	$1,006,789	3.76%	$37,855	2.85%	$28,694	($9,161)
332.00	RESERVOIRS, DAMS AND WATERWAYS	2,030,551	3.48%	70,663	2.57%	52,110	(18,554)
333.00	WATERWHEELS, TURBINES AND GOVERNORS	1,956,745	4.24%	82,966	4.03%	78,868	(4,098)
334.00	ACCESSORY EQUIPMENT	718,901	n/a		2.64%	19,007	19,007
	TOTAL HYDRO PRODUCTION PLANT	**$5,712,986**	**3.35%**	**$191,484**	**3.13%**	**$178,679**	**($12,806)**
	OTHER PRODUCTION						
341.00	STRUCTURES AND IMPROVEMENTS	$18,689,459	3.34%	$624,228	3.39%	$634,247	$10,019
342.00	FUEL HOLDERS	4,932,794	3.42%	168,702	3.13%	154,257	(14,445)
343.00	PRIME MOVERS	67,029,806	3.15%	2,111,439	3.71%	2,483,613	372,174
344.00	GENERATORS	11,321,990	2.98%	337,395	2.82%	319,613	(17,783)
345.00	ACCESSORY ELECTRICAL EQUIPMENT	9,587,188	1.58%	151,478	1.66%	159,484	8,007
346.00	MISCELLANEOUS EQUIPMENT	2,332,311	2.44%	56,908	7.99%	186,463	129,554
	TOTAL OTHER PRODUCTION PLANT	**$113,893,548**	**3.03%**	**$3,450,150**	**3.46%**	**$3,937,676**	**$487,526**
	TOTAL PRODUCTION PLANT	**$145,677,720**	**3.00%**	**$4,371,059**	**3.31%**	**$4,821,862**	**$450,803**
	TRANSMISSION PLANT						
352.00	STRUCTURES AND IMPROVEMENTS	$263,001	1.33%	$3,498	1.19%	$3,138	($360)
353.00	STATION EQUIPMENT	26,923,468	2.50%	673,087	2.24%	602,808	(70,279)
354.00	TOWERS AND FIXTURES	58,189	1.86%	1,082	1.79%	1,044	(39)
355.00	POLES AND FIXTURES	30,496,894	1.22%	372,062	1.11%	337,166	(34,896)
356.00	OVERHEAD CONDUCTORS AND DEVICES	20,750,050	2.01%	417,076	1.95%	403,894	(13,182)
357.00	UNDERGROUND CONDUIT	8,865	1.48%	131	1.34%	119	(12)
358.00	UNDERGROUND CONDUCTORS	492,187	2.18%	10,730	2.13%	10,468	(261)
	TOTAL TRANSMISSION PLANT	**$78,992,654**	**1.87%**	**$1,477,666**	**1.72%**	**$1,358,635**	**($119,030)**
	DISTRIBUTION PLANT						
361.00	STRUCTURES AND IMPROVEMENTS	$3,650,626	2.09%	$76,298	1.84%	$66,994	($9,304)
362.00	STATION EQUIPMENT	20,273,750	3.13%	634,568	3.75%	759,726	125,158
363.00	STORAGE BATTERY EQUIPMENT	7,627,943	4.98%	379,872	10.00%	762,794	382,923
364.00	POLES, TOWERS AND FIXTURES	36,919,344	1.59%	587,018	2.39%	883,374	296,357
365.00	OVERHEAD CONDUCTORS AND DEVICES	39,514,451	3.18%	1,256,560	2.14%	847,155	(409,405)
366.00	UNDERGROUND CONDUIT	8,935,883	1.34%	119,741	1.65%	147,727	27,987
367.00	UNDERGROUND CONDUCTORS AND DEVICES	26,318,489	1.98%	521,106	2.22%	583,673	62,567
368.00	LINE TRANSFORMERS	26,179,832	4.50%	1,178,092	3.64%	951,862	(226,230)
369.00	SERVICES	6,828,967	1.35%	92,191	1.44%	98,537	6,346
370.00	METERS	7,398,700	13.59%	1,005,483	8.80%	651,424	(354,060)
371.00	INSTALLATIONS ON CUSTOMER'S PREMISES	29,138	n/a		10.00%	2,914	2,914
372.00	LEASED PROPERTY	18,709	12.26%	2,294	5.51%	1,030	(1,264)
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	5,484,090	2.45%	134,360	5.72%	313,663	179,302
	TOTAL DISTRIBUTION PLANT	**$189,179,922**	**3.17%**	**$5,987,583**	**3.21%**	**$6,070,874**	**$83,291**
	GENERAL PLANT						
390.00	STRUCTURES AND IMPROVEMENTS	$11,732,559	1.91%	$224,092	1.54%	$180,858	($43,234)
391.00	OFFICE FURNITURE AND EQUIPMENT	2,147,831	3.94%	84,625	3.61%	77,589	(7,035)
391.10	COMPUTER EQUIPMENT	10,109,329	2.96%	299,236	17.76%	1,795,877	1,496,641
393.00	STORES EQUIPMENT	172,010	3.81%	6,554	1.53%	2,626	(3,928)
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	1,957,649	6.40%	125,290	3.60%	70,454	(54,836)
395.00	LABORATORY EQUIPMENT	822,994	4.75%	39,092	2.06%	16,921	(22,171)
396.00	POWER OPERATED EQUIPMENT	257,151	2.02%	5,194	1.26%	3,243	(1,952)
397.00	COMMUNICATION EQUIPMENT	4,338,795	5.23%	226,919	7.91%	343,262	116,343
398.00	MISCELLANEOUS EQUIPMENT	1,351,526	6.45%	87,173	8.05%	108,737	21,563
	TOTAL GENERAL PLANT	**$32,889,843**	**3.34%**	**$1,098,175**	**7.90%**	**$2,599,566**	**$1,501,391**
TOTAL DEPRECIABLE PLANT		**$446,740,139**	**2.90%**	**$12,934,482**	**3.32%**	**$14,850,938**	**$1,916,455**

Note:
(1) Numbers may not add due to rounding.
(2) Account is fully depreciated.

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT NHH-1105

(1 PAGE)

Kaua'i Island Utility Cooperative
Summary Schedule 3
Comparison of Existing (2012 Study) and Proposed (2017 Study)
Depreciation Factors and Annual Accrual Rates

		Survivor Curve		ASL		Net Salvage		Depreciation Accrual	
Account	Description	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
	STEAM PRODUCTION PLANT								
311.00	STRUCTURES AND IMPROVEMENTS	Forecast	Forecast	51	58	0%	0%	2.59%	1.15%
312.00	BOILER PLANT EQUIPMENT	Forecast	Forecast	31	50	0%	-5%	2.60%	3.11%
313.00	ENGINE DRIVEN GENERATORS	n/a	n/a	N/A	n/a	0%	n/a	0.00%	n/a
314.00	TURBOGENERATOR UNITS	Forecast	Forecast	52	57	0%	0%	3.49%	3.07%
315.00	ACCESSORY ELECTRICAL EQUIPMENT	Forecast	Forecast	54	60	0%	0%	2.52%	2.84%
316.00	MISCELLANEOUS POWER EQUIPMENT	Forecast	Forecast	35	59	0%	0%	6.78%	4.34%
	TOTAL STEAM PRODUCTION PLANT							**2.80%**	**2.71%**
	HYDRO PRODUCTION PLANT								
331.00	STRUCTURES AND IMPROVEMENTS	Forecast	Forecast	35	50	0%	0%	3.76%	2.85%
332.00	RESERVOIRS, DAMS AND WATERWAYS	Forecast	Forecast	35	50	0%	0%	3.48%	2.57%
333.00	WATERWHEELS, TURBINES AND GOVERNORS	Forecast	Forecast	26	50	0%	0%	4.24%	4.03%
334.00	ACCESSORY EQUIPMENT	n/a	Forecast	n/a	50	n/a	0%	n/a	2.64%
	TOTAL HYDRO PRODUCTION PLANT							**3.35%**	**3.13%**
	OTHER PRODUCTION								
341.00	STRUCTURES AND IMPROVEMENTS	Forecast	Forecast	40	47	0%	-3%	3.34%	3.39%
342.00	FUEL HOLDERS	Forecast	Forecast	39	45	0%	0%	3.42%	3.13%
343.00	PRIME MOVERS	Forecast	Forecast	34	48	0%	-3%	3.15%	3.71%
344.00	GENERATORS	Forecast	Forecast	37	45	0%	0%	2.98%	2.82%
345.00	ACCESSORY ELECTRICAL EQUIPMENT	Forecast	Forecast	37	44	0%	0%	1.58%	1.66%
346.00	MISCELLANEOUS EQUIPMENT	Forecast	Forecast	34	44	0%	-3%	2.44%	7.99%
	TOTAL OTHER PRODUCTION PLANT							**3.03%**	**3.46%**
	TOTAL PRODUCTION PLANT							**3.00%**	**3.31%**
	TRANSMISSION PLANT								
352.00	STRUCTURES AND IMPROVEMENTS	R0.5	R4	51	57	0%	0%	1.33%	1.19%
353.00	STATION EQUIPMENT	R0.5	R0.5	38	40	-5%	-10%	2.50%	2.24%
354.00	TOWERS AND FIXTURES	R2	R2	50	50	-15%	-15%	1.86%	1.79%
355.00	POLES AND FIXTURES	R2	R2	56	56	-20%	-20%	1.22%	1.11%
356.00	OVERHEAD CONDUCTORS AND DEVICES	R2	R2	42	44	-20%	-20%	2.01%	1.95%
357.00	UNDERGROUND CONDUIT	R3	R3	60	60	0%	0%	1.48%	1.34%
358.00	UNDERGROUND CONDUCTORS	R3	R3	50	50	-10%	-10%	2.18%	2.13%
	TOTAL TRANSMISSION PLANT							**1.87%**	**1.72%**
	DISTRIBUTION PLANT								
361.00	STRUCTURES AND IMPROVEMENTS	R3	R2	50	55	-5%	-5%	2.09%	1.84%
362.00	STATION EQUIPMENT	R0.5	R0.5	33	30	-20%	-15%	3.13%	3.75%
363.00	STORAGE BATTERY EQUIPMENT	SQ	n/a	20	10	0%	0%	4.98%	10.00%
364.00	POLES, TOWERS AND FIXTURES	R1	R2	55	44	-25%	-25%	1.59%	2.39%
365.00	OVERHEAD CONDUCTORS AND DEVICES	R2	R1	36	44	-20%	-20%	3.18%	2.14%
366.00	UNDERGROUND CONDUIT	R1	R1.5	63	58	-20%	-20%	1.34%	1.65%
367.00	UNDERGROUND CONDUCTORS AND DEVICES	R1.5	R1.5	41	43	-20%	-25%	1.98%	2.22%
368.00	LINE TRANSFORMERS	L1.5	L1	29	32	-18%	-18%	4.50%	3.64%
369.00	SERVICES	R2	R2	53	50	-25%	-25%	1.35%	1.44%
370.00	METERS	S2	S2	15	15	-1%	0%	13.59%	8.80%
371.00	INSTALLATION ON CUSTOMER PREMISES	n/a	n/a	n/a	10	n/a	0%	n/a	10.00%
372.00	LEASED PROPERTY	S2	S2	10	10	0%	0%	12.26%	5.51%
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	SC	SQ	25	20	-10%	-7%	2.45%	5.72%
	TOTAL DISTRIBUTION PLANT							**3.17%**	**3.21%**
	GENERAL PLANT								
390.00	STRUCTURES AND IMPROVEMENTS	L2	R2	42	46	**-3%**	0%	1.91%	1.54%
391.00	OFFICE FURNITURE AND EQUIPMENT	SQ	SQ	20	20	**0%**	0%	3.94%	3.61%
391.10	COMPUTER EQUIPMENT	SQ	SQ	6.5	4.5	0%	0%	2.96%	17.76%
393.00	STORES EQUIPMENT	SQ	SQ	21	25	0%	0%	3.81%	1.53%
394.00	TOOLS, SHOP AND GARAGE EQUIPMENT	SQ	SQ	15	15	0%	0%	6.40%	3.60%
395.00	LABORATORY EQUIPMENT	SQ	SQ	15	15	0%	0%	4.75%	2.06%
396.00	POWER OPERATED QUIPMENT	SQ	SQ	15	15	0%	0%	2.02%	1.26%
397.00	COMMUNICATION EQUIPMENT	SQ	SQ	16	15	0%	0%	5.23%	7.91%
398.00	MISCELLANEOUS EQUIPMENT	SQ	SQ	15	15	0%	0%	6.45%	8.05%
	TOTAL GENERAL PLANT							**3.34%**	**7.90%**
TOTAL DEPRECIABLE PLANT								**2.90%**	**3.32%**

Note: numbers may not add due to rounding.

KAUAI ISLAND UTILITY COOPERATIVE

DOCKET NO. 2022-0208

ATTACHMENT NHH-1106

(1 PAGE)

Kaua'i Island Utility Cooperative

Comparison of Existing (2012 Study) and Proposed (2017 Study)
Generating Unit Estimated Retirement Year and Life Span

Unit	Type	Manufacturer	Model	Size (kW)	In-Service Year	Estimated Retirement Year		Estimated Life Span (Years)	
						Existing	Proposed	Existing	Proposed
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
Kapaia Power Station									
CT1	IC - Gas Turbine	General Electric (GE)	LM2500PH	27,500	2002	2037	2042	35	40
			Subtotal:	**27,500**					
Port Allen Power Station									
D1	IC-Diesel	Electro-Motive Division (EMD)	567-D4, 16 cylinder	2,000	1964	2023	2028	59	64
D2	IC-Diesel	Electro-Motive Division (EMD)	567-D4, 16 cylinder	2,000	1964	2023	2028	59	64
D3	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	1968	2023	2028	55	60
D4	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	1968	2023	2028	55	60
D5	IC-Diesel	Electro-Motive Division (EMD)	645-E4, 20 cylinder	2,750	1968	2023	2028	55	60
S1	Steam	General Electric (GE)	Straight-Condensing, Single Flow	10,000	1968	2023	2028	55	60
GT1	IC-Gas Turbine	Hitachi/General Electric (GE)	MS5001R N/T	17,500	1973	2023	2028	50	55
GT2	IC-Gas Turbine	John Brown / General Electric (GE)	MS5001P N/T	22,600	1977	2023	2028	46	51
D6	IC-Diesel	Stork-Wartsila	TM620	7,850	1989	2023	2028	34	39
D7	IC-Diesel	Stork-Wartsila	TM620	7,850	1989	2023	2028	34	39
D8	IC-Diesel	Stork-Wartsila	TM620	7,850	1991	2023	2028	32	37
D9	IC-Diesel	Stork-Wartsila	TM620	7,850	1991	2023	2028	32	37
			Subtotal:	**93,750**					
Waiahi Power Station									
Lower	Hydro	Francis/Allis-Chalmers	Francis Turbine	800	1914	2036	2051	122	137
Upper	Hydro	Canyon Hydro	Francis Turbine	745	1931	2036	2051	105	120
			Subtotal:	**1,545**					
			Grand Total:	**122,795**					

VERIFICATION

STATE OF HAWAII)
) SS.
CITY AND COUNTY OF HONOLULU)

LIANNA L. FIGUEROA, being first duly sworn, deposes and says: That such person is an attorney for KIUC in the above proceeding; that the officers of KIUC are not present within the City and County of Honolulu; that such person has read the foregoing Application, and knows the contents thereof; and that the same are true of such person's own knowledge except as to those matters stated on information and belief, and that as to those matters such person believes them to be true.

LIANNA L. FIGUEROA

This 1-page Verification to the Application dated December 28, 2022 was subscribed and sworn to before me on December 28, 2022 in the First Circuit, State of Hawaii by LIANNA L. FIGUEROA.

Print Name: Grace A. Hirayama
Notary Public, State of Hawaii
My commission expires: 02/10/2025

GRACE A. HIRAYAMA NOTARY PUBLIC No. 07-216 STATE OF HAWAII

CERTIFICATE OF SERVICE

I hereby certify that on this date a copy of the foregoing document was duly served upon the following party electronically to the email addresses shown below pursuant to HAR § 16-601-21(d), as modified by Order No. 38270 Setting Forth Public Utilities Commission Electronic Filing and Service Procedures, issued on March 14, 2022, and which sets forth e-filing procedures as authorized by Act 72, Session Laws of Hawaii 2021.

DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
DIVISION OF CONSUMER ADVOCACY
335 Merchant Street
Room 326
Honolulu, Hawaii 96813

dnishina@dcca.hawaii.gov
consumeradvocate@dcca.hawaii.gov

HONORABLE DEREK S.K. KAWAKAMI
Office of the Mayor
4444 Rice Street, Suite 235
Lihue, Hawaii 96766

mayor@kauai.gov

DATED: Honolulu, Hawai'i, December 28, 2022.

/s/ Kent D. Morihara
KENT D. MORIHARA
LIANNA L. FIGUEROA
JAMIE C. YOSHIKANE
RIO H. KWON

Schneider Tanaka Radovich Andrew & Tanaka, LLLC
Attorneys for Kauai Island Utility Cooperative