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U.S. Hydropower Resource Assessment for Hawaii

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DISCLAIMER

ABSTRACT

The U.S. Department of Energy is developing an estimate of the undeveloped hydropower potential in the United States. The Hydropower Evaluation Software (HES) is a computer model that was developed by the Idaho National Engineering Laboratory for this purpose. HES measures the undeveloped hydropower resources available in the United States, using uniform criteria for measurement. The software was developed and tested using hydropower information and data provided by the Southwestern Power Administration. It is a menu-driven program that allows the personal computer user to assign environmental attributes to potential hydropower sites, calculate development suitability factors for each site based on the environmental attributes present, and generate reports based on these suitability factors. This report describes the resource assessment results for the State of Hawaii.

CONTENTS

FIGURES

TABLES

ACKNOWLEDGMENTS

The authors thank Peggy A. M. Brookshier and John V. Flynn of the U.S. Department of Energy, and David Rezachek of the State of Hawaii for their active participation and timely comments.

U.S. Hydropower Resource Assessment for Hawaii

INTRODUCTION

In June 1989, the U.S. Department of Energy initiated the development of a National Energy Strategy to identify the energy resources available to support the expanding demand for energy in the United States. Public hearings conducted as part of the strategy development process indicated that undeveloped hydropower resources were not well defined. As a result, the Department of Energy established an interagency Hydropower Resource Assessment Team to ascertain the undeveloped hydropower potential. In connection with these efforts by the Department of Energy, the Idaho National Engineering Laboratory designed the Hydropower Evaluation Software (HES), which has been used to perform a resource assessment of the undeveloped conventional hydropower potential in over 30 states. This report presents the results of the hydropower resource assessment for the State of Hawaii. Undeveloped pumped storage hydropower potential is not included.

The HES was developed as a tool to measure undeveloped hydropower potential regionally or by state. The software is not intended to provide precise development factors for individual sites, but to provide regional or state totals. Because the software was developed as a generic measurement tool encompassing national issues, regional and state totals must be considered judiciously; various local issues may skew undeveloped hydropower potential totals. The information for the resource assessment was compiled from the Federal Energy Regulatory Commission's Hydroelectric Power Resources Assessment database and several other sources. Refer to DOE/ID-10338, the *User's Manual* (Francfort, Matthews, Rinehart 1991) for the specifics of the software and to DOE/ID-10430.1, the *Status Report* (Conner, Francfort, Rinehart 1996) for an overview of all resource assessment activities to date.

Model Development

Hydropower Evaluation Software, both a probability-factor computer model and a database, is a menu-driven program that is intended to be user-friendly. Computer screens and report-generation capabilities were developed to meet the needs of users nationwide. The software uses environmental attribute data for each potential site to generate an overall project environmental suitability factor (PESF) between 0.1 and 0.9. The PESF reflects the considerations that (a) environmental concerns can make a potential site unacceptable, prohibiting its development (for a suitability factor of 0.1), or (b) if there are no environmental concerns, there is a higher likelihood of site development (0.9 indicating the highest likelihood of development). A combination of attributes can result in a lower suitability factor because multiple environmental considerations would reduce the likelihood that a site may be developed to its physical potential.

Model Goal

The goal of the HES is to assemble an accurate resource database of all sites with undeveloped hydropower potential in the United States for use as a planning tool to determine the viable national hydropower potential. Undeveloped hydropower potential is not limited to the development of new sites; it also includes the development of additional hydropower generating capacity at sites that currently have hydropower, but are not developed to their full potential. This undeveloped hydropower potential is a source of nonpolluting, renewable energy available to meet the growing power needs of the United States. The HES should help make this goal obtainable and ensure a set of uniform criteria for national assessment.

Dam Status

The effects of environmental attributes vary by dam status. The dam status classifications used are as follows

W = Developed hydropower site with current power generation, but the total hydropower potential has not been fully developed. Only the undeveloped hydropower potential is discussed in this report.

W/O = Developed site without current power generation. The site has some type of developed impoundment or diversion structure, but no developed hydropower generating capability.

U = Undeveloped site. The site does not have power generation capability nor a developed impoundment or diversion structure.

ASSESSMENT RESULTS

Summary Results

A total of 25 sites (Table 1) have been identified and assessed for their undeveloped hydropower potential. The HES results for individual site capacities range from 73 kilowatts (kW) to 16 megawatts (MW). Most of the HES-modeled potential sites in Hawaii are small hydropower sites; only two individual sites are larger than 10 MW (Figure 1).

The nonmodeled undeveloped hydropower potential total for Hawaii was identified as 428 MW. The HES results lowers this estimate about 84% to 67 MW. The greatest reduction in undeveloped hydropower potential, by MW, occurs at sites with no structures in place (undeveloped category). These sites have an HES-modeled undeveloped hydropower potential of 52 MW, a 354 MW reduction in the estimated undeveloped hydropower potential (Figure 2). The developed sites, with power, have the lowest percentage decrease in modeled undeveloped potential capacity. The unadjusted potential is 2.9 MW, and the modeled capacity is 2.6 MW, a 10% decrease in capacity (Figure 2). As can be deducted from Figure 3, the developed sites without power have the smallest HES-modeled average capacity per site (1.8 MW), and the undeveloped sites have the highest HES-modeled average capacity per site (3.0 MW). Figure 4 illustrates a developed site on the island of Kauai.

The potential sites are usually discussed and summed by river basins for most state reports. However, there are no large (by contiguous state standards) river basins in Hawaii, so the sites are identified for each of the individual Islands. The 25 identified sites are located on 4 of the Islands. The number of sites per Island range from 3 on Honolulu, to 9 on Kauai (Figure 5). Honolulu has the most undeveloped hydropower potential (35 MW) of the 4 Hawaii Islands (Figure 6).

Table 1. Undeveloped hydropower potential summaries for Hawaii. The table contains the nonmodeled undeveloped nameplate potential and the HES-modeled undeveloped hydropower potential totals.

	Number of projects	Nameplate potential (MW)	HES-modeled potential (MW)
With Power	1	2.9	2.6
W/O Power	7	19.6	12.8
Undeveloped	17	405.6	51.6
State Total	25	428.1	67.0

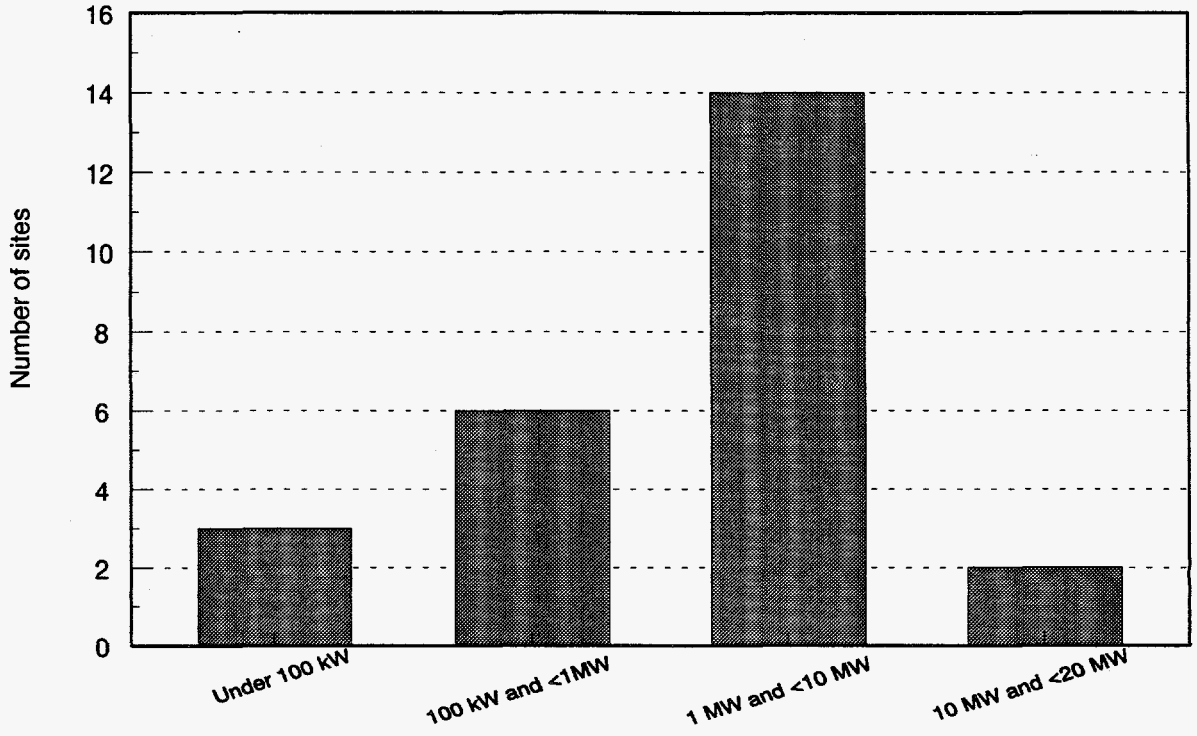

Figure 1. Number of sites, by capacity groups, with HES-modeled undeveloped hydropower potential.

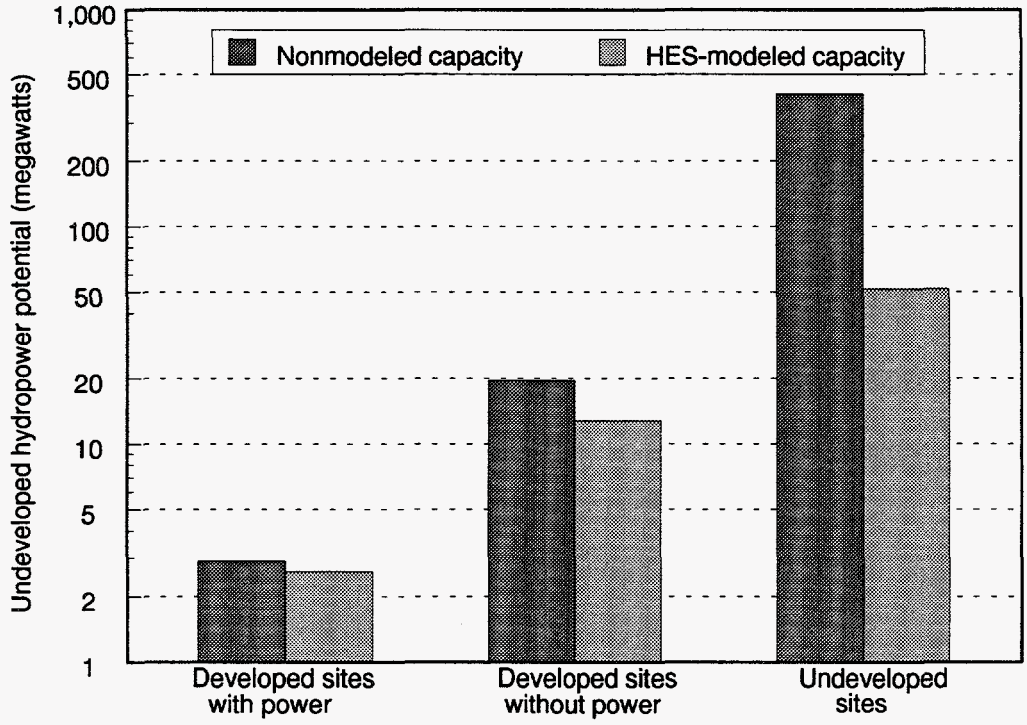

Figure 2. The nonmodeled and HES-modeled undeveloped hydropower potential.

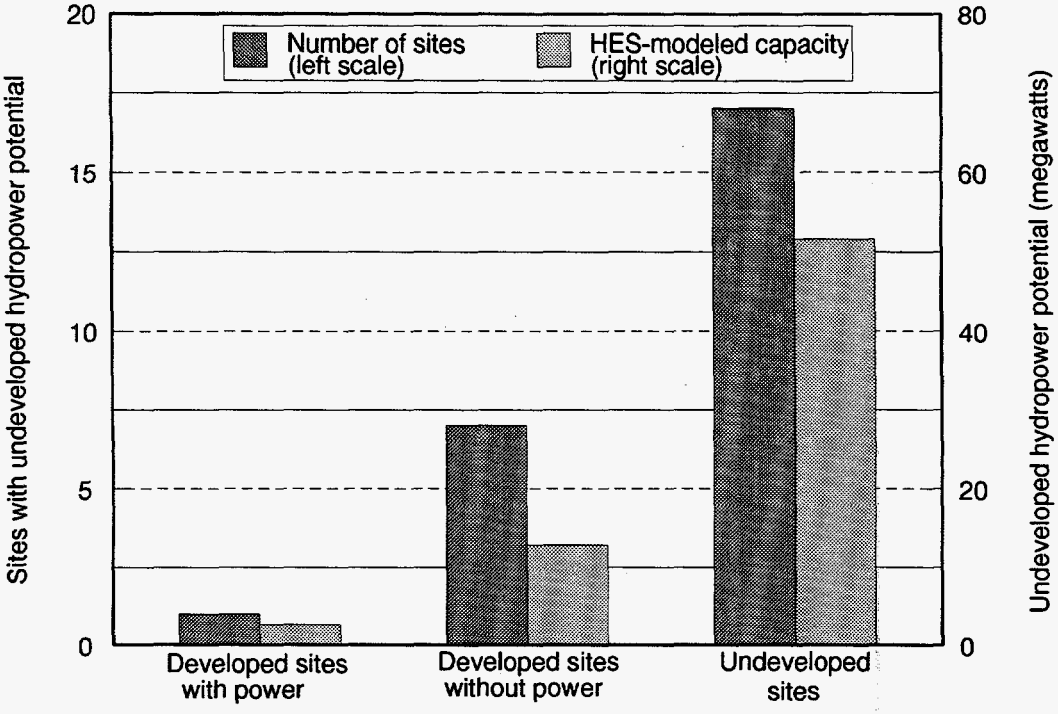

Figure 3. The number of sites with undeveloped hydropower potential and the total megawatts of HES-modeled undeveloped hydropower potential.

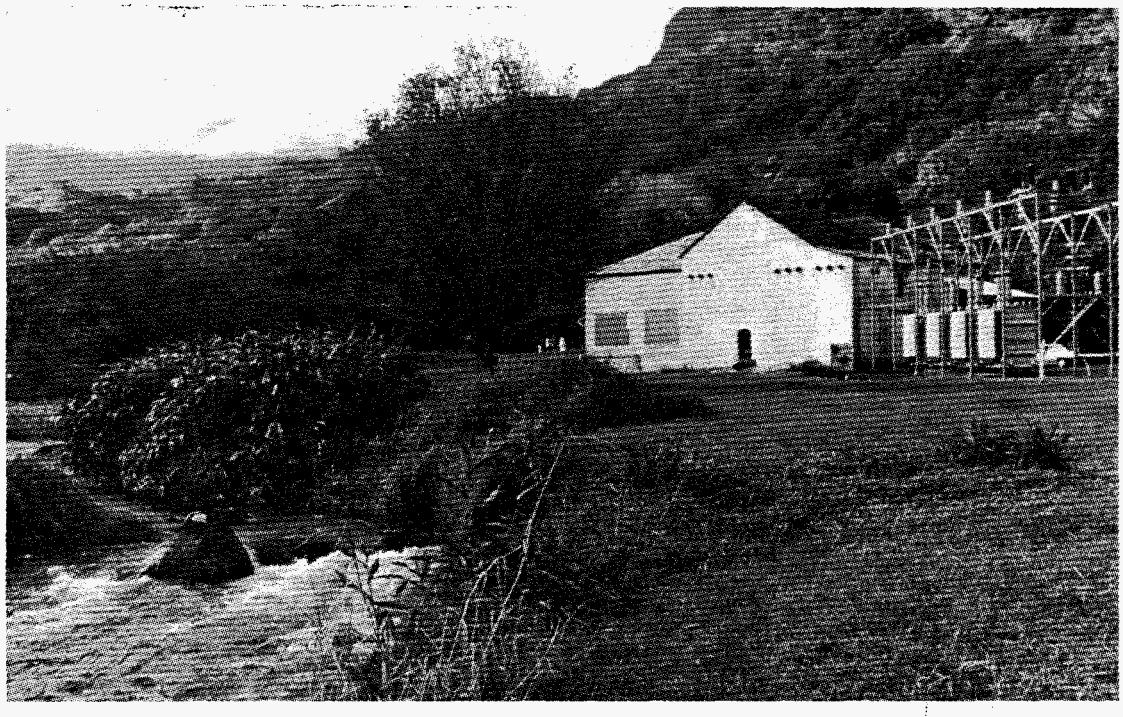

Figure 4. The Wainiha Hydroelectric Plant, on the Island of Kauai, is an example of a developed site in Hawaii. The Wainiha plant, located on the Wainiha River, has a nameplate capacity of 3,600 kW and it produces an average of 24 million kWh of electricity annually. The plant has a gross hudraulic head of 560 feet and it has an average inflow of about 80 cubic feet per second of water.

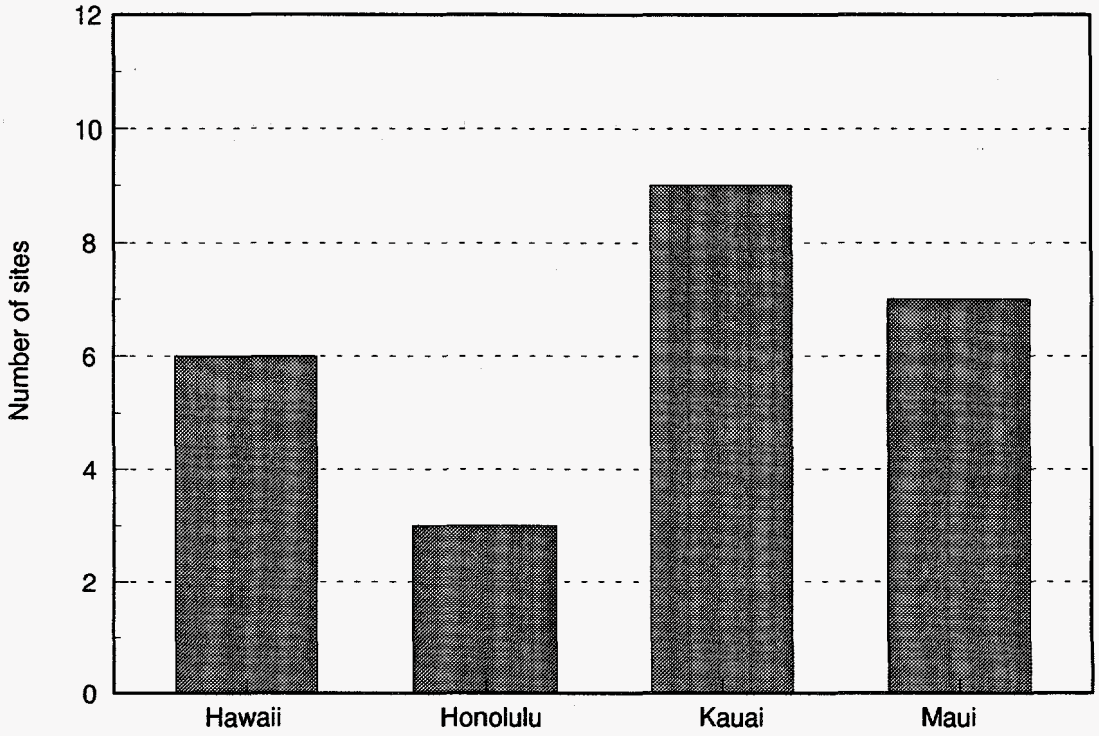

Figure 5. Number of sites with undeveloped hydropower potential in the Hawaii Islands.

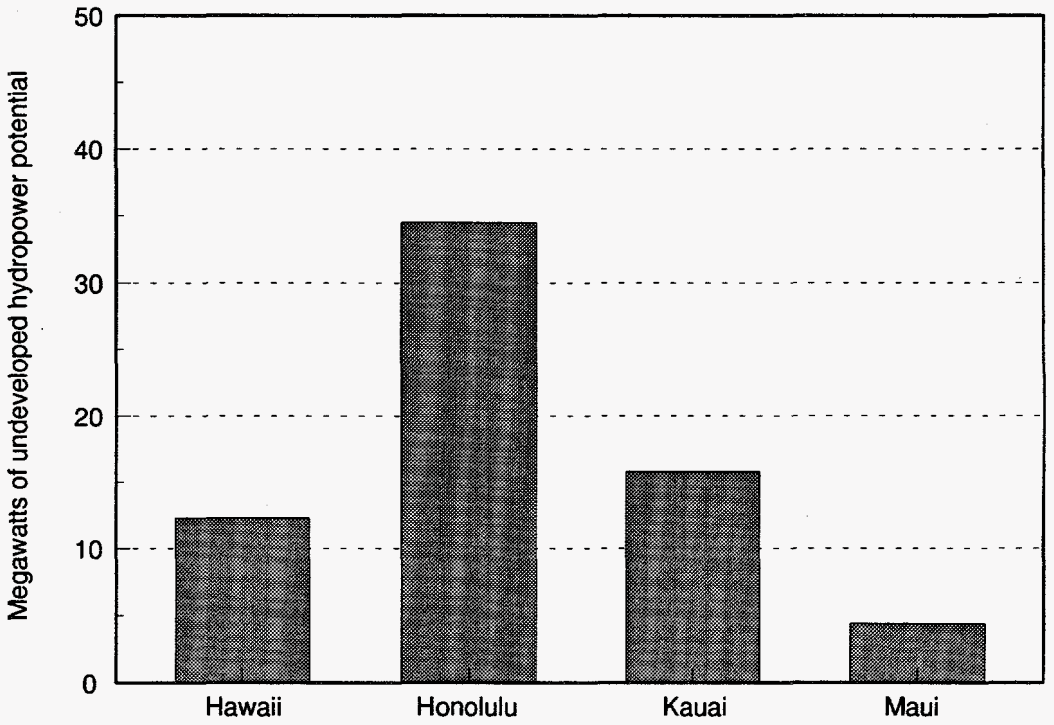

Figure 6. Megawatts of HES-modeled undeveloped hydropower potential in the Hawaii Islands.

The State of Hawaii also provided information on an additional 19 hydropower sites, having about 10 MW of undeveloped capacity. There is not sufficient data available to model these sites. The 19 sites are included in Appendix D, so the reader is aware that these sites have been identified as potentially having some hydropower capacity.

Detailed Results

The appendices contain, in the form of HES-generated reports, detailed information about the undeveloped hydropower potential in Hawaii.

Appendix A summarizes the undeveloped hydropower potential by dam status groups. It provides the number of sites, nonmodeled undeveloped hydropower potential, and HES-modeled undeveloped hydropower potential based on the dam status.

Appendix B lists the project numbers, plant name, stream name, if a site is Federally owned, nonmodeled undeveloped hydropower potential, and HES-modeled undeveloped hydropower potential. The sites are grouped by dam status.

Appendix C contains a resource database list for each of the 25 sites in Hawaii. Information includes plant name, stream, state, county, river basin and owner names, project number, name plate and HES-modeled undeveloped hydropower potential, the unit and plant types, dam status, latitude, longitude, and the environmental factors that the HES uses to determine the project environmental suitability factor.

Appendix D lists an additional 19 hydropower sites reported by the State of Hawaii. These sites are not included in the HES results.

OBTAINING INDIVIDUAL STATE INFORMATION

Additional copies of the hydropower resource assessment results for individual states are available and can be obtained by writing or calling the authors or the National Technical Information Service (NTIS).

Telephone Orders—(703) 487-4650. NTIS sales desk and customer services are available between 8:30 a.m. and 5:00 p.m., Eastern Standard Time.

Fax—(703) 321-8547. Customers may fax their orders to NTIS. These orders may be charged to a NTIS deposit account, American Express, VISA, or MasterCard.

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For Help in Tracing an Order—Call (703) 487-4650 and request the customer service option.

ADDITIONAL HYDROPOWER EVALUATION SOFTWARE INFORMATION

Additional information concerning the HES can be obtained by contacting Ben Rinehart or Jim Francfort at the addresses provided below. Copies of the software and the User's Manual may also be obtained from these individuals.

Ben Rinehart, Project Manager
Idaho National Engineering Laboratory
P.O. Box 1625, MS 3830
Idaho Falls, ID 83415-3830
(208) 526-1002

Jim Francfort
Idaho National Engineering Laboratory
P.O. Box 1625, MS 3875
Idaho Falls, ID 83415-3875
(208) 526-6787

Information concerning the State of Hawaii's involvement with the resource assessment or about the identified sites may be obtained by contacting:

David Rezachek
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804-2359
(808) 587-3814

REFERENCES

Francfort, J. E., S. D. Matthews, and B. N. Rinehart, 1991, *Hydropower Evaluation Software User's Manual*, DOE/ID-10338, Idaho National Engineering Laboratory, Idaho Falls, Idaho.

Conner, A. M., J. E. Francfort, and B. N. Rinehart, 1996, *Uniform Criteria for U.S. Hydropower Resource Assessment, Hydropower Evaluation Software Status Report-II*, DOE/ID 10430.1, Idaho National Engineering Laboratory, Idaho Falls, Idaho.

Appendix A

Summary Report

DATE: 07/02/96

H Y D R O P O W E R C A P A C I T Y S U M M A R Y

State	Category	Number of Projects	Name Plate Capacity (KW)	HES Adjusted Capacity (KW)
HI	With Power	1	2900	2610
	W/O Power	7	19600	12840
	Undeveloped	17	405600	51571
	STATE TOTAL	25	428100	67021
TOTALS	With Power	1	2900	2610
	W/O Power	7	19600	12840
	Undeveloped	17	405600	51571
GRAND TOTAL		25	428100	67021

Appendix B

Hawaii Sites List

HYDROPOWER RESOURCE ASSESSMENT BY FERC NUMBER

Plant Name/ Stream	ST	Dam Stat	Name Plate Rating (KW)	PESF	PESF * KW
** FERC Number 10715					
UPPER WAILUA MAHAE ST,N FK WAILUA R	HI	U	1260.00	0.90	1134.00
** Subtotal **			1260.00		1134.00
** FERC Number HI002					
HONOLII HONOLII STREAM	HI	U	14600.00	0.10	1460.00
** Subtotal **			14600.00		1460.00
** FERC Number HI005					
HOOPOI CHUTE WAIHEE DITCH(WAIHEE R)	HI	U	2000.00	0.90	1800.00
** Subtotal **			2000.00		1800.00
** FERC Number HI007					
KAPAIA HANAMAULU STR	HI	U	120.00	0.90	108.00
** Subtotal **			120.00		108.00
** FERC Number HI008					
KAUAI WAINIHA R	HI	U	25000.00	0.10	2500.00
** Subtotal **			25000.00		2500.00
** FERC Number HI009					
KUALAPUU KALUA PEEL	HI	U	90.00	0.90	81.00
** Subtotal **			90.00		81.00
** FERC Number HI010					
KITANO HYDRO HAELEELE STR/KOKEE DITCH	HI	U	1500.00	0.90	1350.00

HYDROPOWER RESOURCE ASSESSMENT BY FERC NUMBER

Plant Name/ Stream	ST	Dam Stat	Name Plate Rating (KW)	PESF	PESF * KW
** Subtotal **			1500.00		1350.00
** FERC Number HI011					
KOKEE WATER PROJECT KAWAIKOI STR/KOKEE DITCH	HI	U	10000.00	0.10	1000.00
** Subtotal **			10000.00		1000.00
** FERC Number HI013					
WAHIAWA RESERVOIR KAUKONAHUA STR	HI	U	2800.00	0.90	2520.00
** Subtotal **			2800.00		2520.00
** FERC Number HI014					
WAIHEE WAIHEE RIVER	HI	U	730.00	0.10	73.00
** Subtotal **			730.00		73.00
** FERC Number HI016					
WAILOA WAILOA STR	HI	U	2900.00	0.90	2610.00
** Subtotal **			2900.00		2610.00
** FERC Number HI018					
WAILUA IKI EAST & WEST WAILUA IKI	HI	U	2700.00	0.25	675.00
** Subtotal **			2700.00		675.00
** FERC Number HI020					
UMAUMA UMAUMA STREAM	HI	U	13800.00	0.25	3450.00
** Subtotal **			13800.00		3450.00

HYDROPOWER RESOURCE ASSESSMENT BY FERC NUMBER

Plant Name/ Stream	ST	Dam Stat	Name Plate Rating (KW)	PESF	PESF * KW
** FERC Number HI021					
HALAWA HALAWA STREAM	HI	U	2100.00	0.10	210.00
** Subtotal **			2100.00		210.00
** FERC Number HI024					
KOKO CRATER PUMPED HYDRO PACIFIC OCEAN (AFTERBAY)	HI	U	160000.00	0.10	16000.00
** Subtotal **			160000.00		16000.00
** FERC Number HI025					
KAAU CRATER/MAUNAWILI PH SEVERAL	HI	U	160000.00	0.10	16000.00
** Subtotal **			160000.00		16000.00
** FERC Number HI026					
NORTH LUMAHAI RIVER	HI	U	6000.00	0.10	600.00
** Subtotal **			6000.00		600.00
** FERC Number HI019					
WAIMEA WAIMEA R	HI	W	2900.00	0.90	2610.00
** Subtotal **			2900.00		2610.00
** FERC Number 10479					
SOUTH FORK WAILUA RIVER S FK WAILUA R	HI	WO	6600.00	0.90	5940.00
** Subtotal **			6600.00		5940.00
** FERC Number 11161					
HANALEI HANALEI R	HI	WO	6000.00	0.10	600.00

HYDROPOWER RESOURCE ASSESSMENT BY FERC NUMBER

Plant Name/ Stream	ST	Dam Stat	Name Plate Rating (KW)	PESF	PESF * KW
** Subtotal **			6000.00		600.00
** FERC Number HI003					
HONOLII(GARRATT) HONOLII STREAM	HI	WO	2400.00	0.90	2160.00
** Subtotal **			2400.00		2160.00
** FERC Number HI004					
HONOLII(GARRATT) HONOLII STREAM	HI	WO	2400.00	0.90	2160.00
** Subtotal **			2400.00		2160.00
** FERC Number HI012					
UNION MILL KOHALA DITCH	HI	WO	500.00	0.90	450.00
** Subtotal **			500.00		450.00
** FERC Number HI022					
KUALAPUU RESERVOIR PUMP HY MOLOKAI IRRIGATION SYSTEM	HI	WO	1600.00	0.90	1440.00
** Subtotal **			1600.00		1440.00
** FERC Number HI023					
MOLOKAI INLINE HYDRO COUNTY WATER LINE	HI	WO	100.00	0.90	90.00
** Subtotal **			100.00		90.00
*** Total ***			428100.00		67021.00

Appendix C

Individual Resource Database List

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 1

FERC Number	Plant Name	Stream	State Name
10479	SOUTH FORK WAILUA RIVER	S FK WAILUA R	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
R	ISLAND PWR CO INC

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
6600.00	0.90	5940.00	17500.00	15750

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2202.00
				Longitude	15923.00
C	ROR	XX	WO		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value		0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value		0.90	Federal Land Code 108		0.90
Recreation Value		0.90	Federal Land Code 198		0.90
Scenic Value		0.90			

R E S O U R C E D A T A B A S E L I S T I N G

FERC Number	Plant Name	Stream	State Name
10715	UPPER WAILUA	MAHAE ST,N FK WAILUA R	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
P	ISLAND PWR CO INC

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
1260.00	0.90	1134.00	7200.00	6480

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2205.00
				Longitude	15928.00
C	ROR	PA	U		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 3

FERC Number	Plant Name	Stream	State Name
11161	HANALEI	HANALEI R	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
R	HANALEI HYDROPOWER INC

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
6000.00	0.10	600.00	29000.00	2900

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2208.00
				Longitude	15928.00
C	ROR	XX	WO		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.75
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value	Y	0.75	Federal Land Code 104		0.90
Fish Presence Value	Y	0.75	Federal Land Code 105	Y	0.10
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.75	Federal Land Code 108		0.90
Recreation Value		0.90	Federal Land Code 198		0.90
Scenic Value	Y	0.90			

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 4

FERC Number	Plant Name	Stream	State Name
HI002	HONOLII	HONOLII STREAM	HI

County Name	River Basin
HAWAII	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
R	MAUNA KEA POWER,INC

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
14600.00	0.10	1460.00	35000.00	3500

Unit Type	Plant Type	Project Status	Dam Status	Latitude	1946.00
				Longitude	15509.00
C	ROR	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value	Y	0.25	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 5

FERC Number	Plant Name	Stream	State Name
HI003	HONOLII(GARRATT)	HONOLII STREAM	HI

County Name	River Basin
HAWAII	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
R	GARRATT-CALLAHAN CO

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2400.00	0.90	2160.00	10200.00	9180

Unit Type	Plant Type	Project Status	Dam Status	Latitude	1946.00
				Longitude	15511.00
C	ROR		WO		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 6

FERC Number	Plant Name	Stream	State Name
HI004	HONOLII(GARRATT)	HONOLII STREAM	HI

County Name	River Basin
HAWAII	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
R	GARRATT-CALAHAN CO

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2400.00	0.90	2160.00	10200.00	9180

Unit Type	Plant Type	Project Status	Dam Status	Latitude	1945.00
				Longitude	15510.00
C	ROR		WO		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 7

FERC Number	Plant Name	Stream	State Name
HI005	HOOPOI CHUTE	WAIHEE DITCH(WAIHEE R)	HI

County Name	River Basin
MAUI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
I	HAWAIIAN COM & SUG CO

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2000.00	0.90	1800.00	3000.00	2700

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2053.00
				Longitude	15631.00
C	DIV	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value		0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value		0.90	Federal Land Code 108		0.90
Recreation Value		0.90	Federal Land Code 198		0.90
Scenic Value		0.90			

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 8

FERC Number	Plant Name	Stream	State Name
HI007	KAPAIA	HANAMAULU STR	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
I	LIHUE PLANTATION CO

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
120.00	0.90	108.00	200.00	180

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2159.00
				Longitude	15923.00
C	STG	XX	U		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 9

FERC Number	Plant Name	Stream	State Name
HI008	KAUAI	WAINIHA R	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
M	HAWAII,STATE OF

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
25000.00	0.10	2500.00	200000.00	20000

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2209.00
C	STG	XX	U	Longitude	15933.00

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 10

FERC Number	Plant Name	Stream	State Name
HI009	KUALAPUU	KALUA PEEL	HI

County Name	River Basin
MAUI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
M	HAWAII,STATE OF

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
90.00	0.90	81.00	550.00	495

Unit Type	Plant Type	Project Status	Dam Status		
C	STG	XX	U	Latitude	2110.00
				Longitude	15703.00

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

FERC Number	Plant Name	Stream	State Name
HI010	KITANO HYDRO	HAELEELE STR/KOKEE DITCH	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
I	KEKAHA SUGAR CO LTD

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
1500.00	0.90	1350.00	7600.00	6840

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2206.00
				Longitude	15941.00
C	DIV	XX	U		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

RESOURCE DATABASE LISTING

FERC Number	Plant Name	Stream	State Name
HI011	KOKEE WATER PROJECT	KAWAIKOI STR/KOKEE DITCH	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
M	TO BE DETERMINED

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
10000.00	0.10	1000.00	29200.00	2920

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2208.00
				Longitude	15937.00
C	STG	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream			Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
Wild/Scenic Location		0.90	Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value	Y	0.25	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

FERC Number	Plant Name	Stream	State Name
HI012	UNION MILL	KOHALA DITCH	HI

County Name	River Basin
HAWAII	HAWAII ISLANDS RIVER BASIN

Class

Owner Name

TO BE DETERMINED

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
500.00	0.90	450.00	4100.00	3690

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2012.00
				Longitude	15548.00
C	DIV	XX	WO		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

FERC Number	Plant Name	Stream	State Name
HI013	WAHIAWA RESERVOIR	KAUKONAHUA STR	HI

County Name	River Basin
HONOLULU	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
I	WAIALUA SUGAR CO

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2800.00	0.90	2520.00	7500.00	6750

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2130.00
				Longitude	15803.00
C	STG	XX	U		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 15

FERC Number	Plant Name	Stream	State Name
HI014	WAIHEE	WAIHEE RIVER	HI

County Name	River Basin
MAUI	HAWAII ISLANDS RIVER BASIN

Class Owner Name

TO BE DETERMINED

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
730.00	0.10	73.00	2000.00	200

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2054.00
C	DIV	XX	U	Longitude	15630.00

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream			Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
Wild/Scenic Location		0.90	Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value	Y	0.25	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 16

FERC Number	Plant Name	Stream	State Name
HI016	WAILOA	WAILOA STR	HI

County Name	River Basin
HAWAII	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
	TO BE DETERMINED

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2900.00	0.90	2610.00	12300.00	11070

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2005.00
				Longitude	15537.00
C	DIV	XX	U		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

R E S O U R C E D A T A B A S E L I S T I N G

FERC Number	Plant Name	Stream	State Name
HI018	WAILUA IKI	EAST & WEST WAILUA IKI	HI

County Name	River Basin
MAUI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
R	GARRATT-CALLAHAN CO

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2700.00	0.25	675.00	7900.00	1975

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2048.00
				Longitude	15609.00
C	ROR	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value		0.90	Federal Land Code 198		0.90
Scenic Value		0.90			

RESOURCE DATABASE LISTING

FERC Number	Plant Name	Stream	State Name
HI019	WAIMEA	WAIMEA R	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
I	KEKAHA SUGAR CO LTD

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2900.00	0.90	2610.00	3300.00	2970

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2203.00
				Longitude	15939.00
C	DIV		W		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value		0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value		0.90	Federal Land Code 108		0.90
Recreation Value		0.90	Federal Land Code 198		0.90
Scenic Value		0.90			

R E S O U R C E D A T A B A S E L I S T I N G

FERC Number	Plant Name	Stream	State Name
HI020	UMAUMA	UMAUMA STREAM	HI

County Name	River Basin
HAWAII	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
	TO BE DETERMINED

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
13800.00	0.25	3450.00	40200.00	10050

Unit Type	Plant Type	Project Status	Dam Status	Latitude	1953.00
				Longitude	15513.00
C	ROR	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value		0.90	Federal Land Code 198		0.90
Scenic Value		0.90			

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 20

FERC Number	Plant Name	Stream	State Name
HI021	HALAWA	HALAWA STREAM	HI

County Name	River Basin
MAUI	HAWAII ISLANDS RIVER BASIN

Class Owner Name

TO BE DETERMINED

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
2100.00	0.10	210.00	9900.00	990

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2109.00
				Longitude	15646.00
C	ROR	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 21

FERC Number	Plant Name	Stream	State Name
HI022	KUALAPUU RESERVOIR PUMP HY	MOLOKAI IRRIGATION SYSTEM	HI

County Name	River Basin
MAUI	HAWAII ISLANDS RIVER BASIN

Class Owner Name

TO BE DETERMINED

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
1600.00	0.90	1440.00	4672.00	4204.80

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2110.00
				Longitude	15703.00
R	PMP	XX	WO		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 22

FERC Number	Plant Name	Stream	State Name
HI023	MOLOKAI INLINE HYDRO	COUNTY WATER LINE	HI

County Name	River Basin
MAUI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
P	UTILITY/COUNTY

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
100.00	0.90	90.00	200.00	180

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2109.00
				Longitude	15702.00
C	ROR	XX	WO		

Factor	Exist Prob	Factor	Exist Prob
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location	0.90	Threatened/Endangered Fish	0.90
		Threatened/Endangered Wildlife	0.90
		Federal Land Code 103	0.90
Cultural Value	0.90	Federal Land Code 104	0.90
Fish Presence Value	0.90	Federal Land Code 105	0.90
Geologic Value	0.90	Federal Land Code 106	0.90
Historic Value	0.90	Federal Land Code 107	0.90
Other Value	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 23

FERC Number	Plant Name	Stream	State Name
HI024	KOKO CRATER PUMPED HYDRO	PACIFIC OCEAN (AFTERBAY)	HI

County Name	River Basin
HONOLULU	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
P	HAWAIIAN ELECTRIC COMPANY, INC

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
160000.00	0.10	16000.00	346020.00	34602

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2117.00
				Longitude	15741.00
R	PMP	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value	Y	0.50	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value	Y	0.50	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

RESOURCE DATABASE LISTING

DATE: 07/02/96 PAGE NO: 24

FERC Number	Plant Name	Stream	State Name
HI025	KAAU CRATER/MAUNAWILI PH	SEVERAL	HI

County Name	River Basin
HONOLULU	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
P	HAWAIIAN ELECTRIC COMPANY, INC

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
160000.00	0.10	16000.00	350400.00	35040

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2120.00
				Longitude	15747.00
R	PMP	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream			Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
Wild/Scenic Location		0.90	Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value		0.90	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

R E S O U R C E D A T A B A S E L I S T I N G

DATE: 07/02/96 PAGE NO: 25

FERC Number	Plant Name	Stream	State Name
HI026	NORTH	LUMAHAI RIVER	HI

County Name	River Basin
KAUAI	HAWAII ISLANDS RIVER BASIN

Class	Owner Name
R	GARRATT-CALLAHAN

Name Plate Rating (KW)	PESF	PESF*KW	Annual Energy Rating (MWh)	PESF Annual Energy Rating (MWh)
6000.00	0.10	600.00	23700.00	2370

Unit Type	Plant Type	Project Status	Dam Status	Latitude	2209.00
				Longitude	15932.00
C	ROR	XX	U		

Factor	Exist	Prob	Factor	Exist	Prob
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or Upstream/Downstream Wild/Scenic Location		0.90	Threatened/Endangered Fish		0.90
			Threatened/Endangered Wildlife		0.90
			Federal Land Code 103		0.90
Cultural Value		0.90	Federal Land Code 104		0.90
Fish Presence Value	Y	0.25	Federal Land Code 105		0.90
Geologic Value		0.90	Federal Land Code 106		0.90
Historic Value		0.90	Federal Land Code 107		0.90
Other Value	Y	0.50	Federal Land Code 108		0.90
Recreation Value	Y	0.25	Federal Land Code 198		0.90
Scenic Value	Y	0.50			

Appendix D

List of 19 Additional Hydropower Sites

Additional prospective hydroelectric sites in Hawaii with minimal information available

Location/Name of Project	Stream	Estimated Capacity (kW)	Estimated Generation (million kWh/yr)	Owner	County
	Alia Stream	330	1.5		Hawaii
	Awini Falls	1,500	7.7		Hawaii
Hakalau Mill	Hakalau/Kolekole	75	n/a	Hilo Coast Processing Company	Hawaii
	Honokane Nui Stream	1,100	6.2		Hawaii
Papaikou Mill	Honolii Stream	130	1.0	Hilo Coast Processing Company	Hawaii
	Keaiwa–Meyer Reservoirs	280	1.7		Hawaii
Hawi	Kohala Ditch	350	n/a	Kohala Sugar Company	Hawaii
Paauhau	Lower Hamakua Ditch	150	n/a	Paauhau Sugar Company	Hawaii
Wainaku Mill	Maili Stream	60	n/a	Hilo Coast Processing Company	Hawaii
	Pohakupuka Stream	600	2.3		Hawaii
	Hanawi Stream	1,000	5.0		Maui
	Honokohau (Honolua) Ditch	130	0.8		Maui
	Kahakuloa Stream	230	1.6		Maui
	Kolea	1,100	4.5		Maui
	Nailiilihaele Stream	470	3.0		Maui
	Pelekenu Stream	860	3.8		Molokai
Upper Lihue	North Wailua & Liililhua Ditch	800	5.7	Lihue Plantation Co.	Kauai
Lower Lihue	North Wailua & Liililhua Ditch	1,000	7.1	Lihue Plantation Co.	Kauai
Malumalu	Waihuhanu Stream	128	n/a	McBryde Sugar Company	Kauai
		10,293	51.9		