U.S. Hydropower Resource Assessment for Hawaii

Prepared by: James E. Francfort

Project Manager: Ben N. Rinehart

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Idaho National Engineering Laboratory
Renewable Energy Products Department
Lockheed Martin Idaho Technologies Company
Idaho Falls, Idaho 83415



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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.

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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 userfriendly. 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

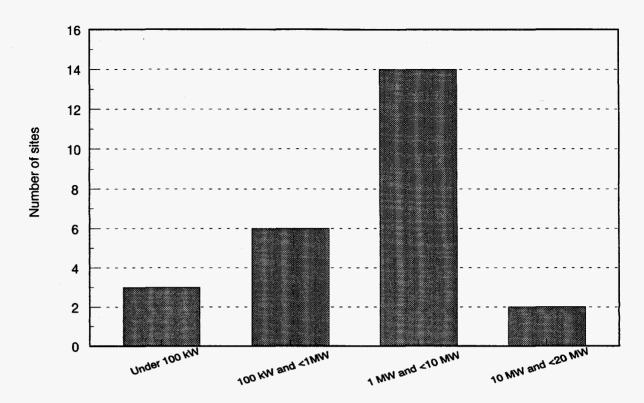


Figure 1. Number of sites, by capacity groups, with HES-modeled undeveloped hydropower potential.

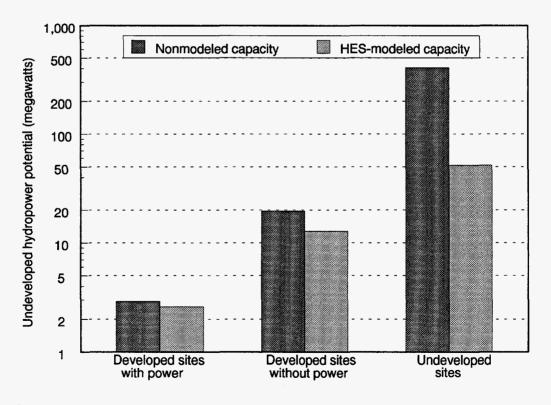


Figure 2. The nonmodeled and HES-modeled undeveloped hydropower potential.

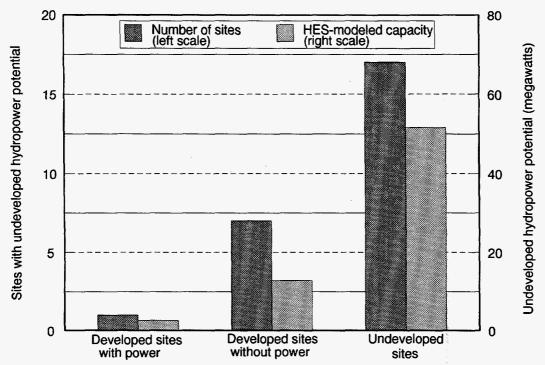


Figure 3. The number of sites with undeveloped hydropower potential and the total megawatts of HES-modeled undeveloped hydropower potential.

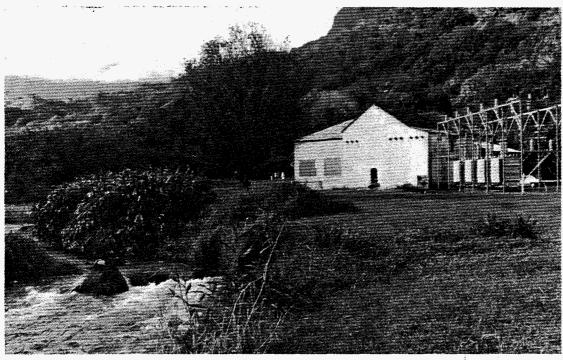


Figure 4. The Wainiha Hydroelectric Plant, on the Island of Kauai, is an example of a developed site in Hawaii. The Wainiha plant, located on the Wainiha River, has a nameplate capacity of 3,600 kW and it produces an average of 24 million kWh of electricity annually. The plant has a gross hudraulic head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

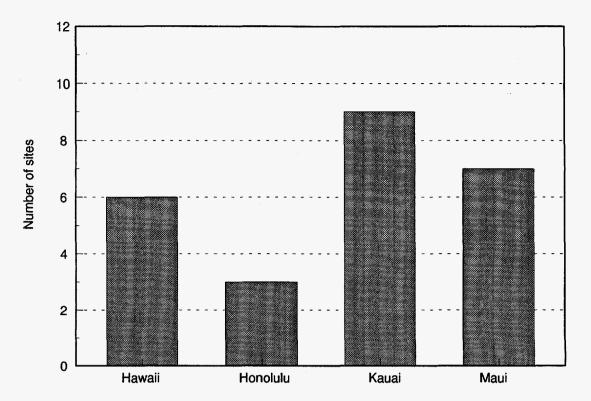


Figure 5. Number of sites with undeveloped hydropower potential in the Hawaii Islands.

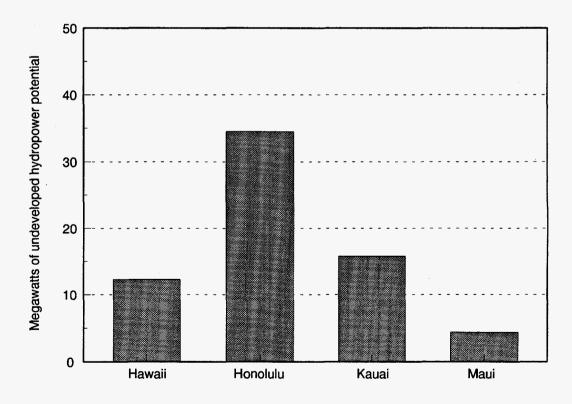


Figure 6. Megawatts of HES-modeled undeveloped hydropower potential in the Hawaii Islands.

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 HESgenerated 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.

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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

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 TO	DTAL	25	428100	67021

Appendix B Hawaii Sites List

Plant Name/ Stream	ST	Dam Stat	Name Plate Rating (KW)	PESF	PESF * KW
** FERC Number 10715 UPPER WAILUA MAHAE ST,N FK WAILUA R	ні	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)	НI	U	2000.00	0.90	1800.00
** Subtotal **			2000.00		1800.00
** FERC Number HI007 KAPAIA HANAMAULU STR	ні	U	120.00	0.90	108.00
** Subtotal **			120.00		108.00
** FERC Number HI008 KAUAI WAINIHA R	ні	U	25000.00	0.10	2500.00
** Subtotal **			25000.00		2500.00
** FERC Number HI009 KUALAPUU KALUA PEEL	ні	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

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	Ū	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

Plant Name/ Stream	ST	Dam Stat	Name Plate Rating (KW)	PESF	PESF * KW
** FERC Number HI021 HALAWA HALAWA STREAM	HI	υ	2100.00	0.10	210.00
** Subtotal **			2100.00		210.00
** FERC Number HI024 KOKO CRATER PUMPED HYDRO PACIFIC OCEAN (AFTERBAY)	HI	ŭ	160000.00	0.10	16000.00
** Subtotal **			160000.00		16000.00
** FERC Number HI025 KAAU CRATER/MAUNAWILI PH SEVERAL	ні	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	ні	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	ні	WO	6000.00	0.10	600.00

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	ні	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		00.00
*** Total ***			100.00		90.00
			428100.00		67021.00

Appendix C Individual Resource Database List

DATE: 07/02/96

Wild/Scenic Location

Cultural Value

Geologic Value

Historic Value

Recreation Value

Other Value

Scenic Value

Fish Presence Value

DATE: 07/02/96					PAGE NO: 1			
FERC Number	I	Plant Name	€		•	Stream		State Name
10479	SOUTH FO	ORK WAILU	A RIVER	s fk w	AILUA R		³ .	HI
	Cou	nty Name		Ri	ver Bas:	in		
	KAUAI			IIAWAH	ISLAND	S RIVER BA	SIN	
		Class	5	Owner N	ame			
		R	ISLANI	PWR CO	INC			
	Name Plat Rating (F		SF PI	ESF*KW		Energy (MWh)		Annual Rating (MWh)
	6600	0.00 0.9	90 5940.0	00	175	00.00	1575	50
	Unit Type	Plant Type	Project Status		m atus		2202.0 e 15923.0	
	С	ROR	XX	W	0			
_	Factor		Exist Pro	ob —	Fact	tor		Exist Prob
Wild/Sce	nic Prote nic Tribu eam/Downs	tary or	0.	Thr		alue /Endangere /Endangere		0.90 0.90 fe 0.90

0.90

0.90

0.90

0.90

0.90

0.90

0.90

Federal Land Code 103

Federal Land Code 104

Federal Land Code 105

Federal Land Code 106

Federal Land Code 107

Federal Land Code 108

0.90 Federal Land Code 198

0.90

0.90

0.90

0.90

0.90

0.90

0.90

DATE: 07/02/96 PAGE NO: 2

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
Rating (MWh)
PESF Annual
Energy Rating (MWh)

1260.00
0.90
1134.00
7200.00
6480

Unit Plant Project Dam Latitude 2205.00 Type Type Status Status Longitude 15928.00

C ROR PA U

Exist Prob Factor Factor Exist Prob Wild/Scenic Protection 0.90 Wildlife Value 0.90 Threatened/Endangered Fish Wild/Scenic Tributary or 0.90 Upstream/Downstream 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 0.90 Federal Land Code 107 0.90 Federal Land Code 108 0.90 Federal Land Code 198 Historic Value 0.90 Other Value 0.90 Recreation Value 0.90 Scenic Value 0.90

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FERC Number	Plant Name	St	Stat ream Name	
11161	HANALEI	HANALEI R	HI	

County Name

River Basin

KAUAI

Scenic Value

HAWAII ISLANDS RIVER BASIN

Class Owner Name

R HANALEI HYDROPOWER INC

Name Plate Annual Energy PESF Annual Energy Rating (MWh) **PESF** PESF*KW Rating (MWh) Rating (KW) 6000.00 0.10 600.00 29000.00 2900 Unit Plant Project Dam Latitude 2208.00

Type Type Status Status Longitude 15928.00

C ROR XX WO

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

0.90

Y

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FERC State
Number Plant Name Stream Name

HI002 HONOLII HONOLII STREAM HI

County Name River Basin

HAWAII ISLANDS RIVER BASIN

Class Owner Name

R MAUNA KEA POWER, INC

Name Plate Annual Energy PESF Annual Rating (KW) PESF PESF*KW Rating (MWh) Energy Rating (MWh)

14600.00 0.10 1460.00 35000.00 3500

Unit Plant Project Dam Latitude 1946.00 Type Type Status Status Longitude 15509.00

C ROR XX U

Exist Prob Factor Factor Exist Prob 0.90 Wildlife Value Y Wild/Scenic Protection 0.25 Threatened/Endangered Fish Wild/Scenic Tributary or
Unstream/Downstream 0.90 Upstream/Downstream Threatened/Endangered Wild/Scenic Location 0.90 Federal Land Code 103 Threatened/Endangered Wildlife 0.90 Cultural Value

Cultural Value

Fish Presence Value

Geologic Value

Historic Value

Other Value

Recreation Value

V.90

Federal Land Code 103

O.90

Federal Land Code 105

O.90

Federal Land Code 106

O.90

Federal Land Code 107

Other Value

V.90

Federal Land Code 108

Federal Land Code 108

V.90

Federal Land Code 108 0.90 0.90 0.90 0.90 0.90 0.90 0.90

DATE: 07/02/96

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DATE: 0//02/96			PAGE NO: 5							
FERC Number		Plant	Name			s	Stream		State Name	
HI003	HONOLI	I(GARRA	TT)	HON	OLII	STREAM	1		HI	
County Name				River Basin						
	HAWAII			HAW	AII I	SLANDS	S RIVER BA	SIN		
Class R				Owne:	LLAHA	N CO				
	Name Plating		PESF	PESF*K			Energy (MWh)		Annual Rating (MWh)
	_		0.90	2160.00		1020	00.00	91	80	·
	Unit Type	Plan Type		Project Status	Dam Stat		Latitude Longitud			
	С	RO	R		WO					

Factor	Exist Prob	Factor	Exist Prob
			
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or		Threatened/Endangered	Fish 0.90
Upstream/Downstream		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	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

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HAWAII

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

Class Owner Name

R GARRATT-CALAHAN CO

Name Plate
Rating (KW)
PESF PESF*KW Rating (MWh)
PESF Annual
Energy Rating (MWh)

2400.00
0.90
2160.00
10200.00
9180

HAWAII ISLANDS RIVER BASIN

Unit Plant Project Dam Latitude 1945.00 Type Type Status Status 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		Threatened/Endangered	Fish 0.90
Upstream/Downstream		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	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

Wild/Scenic Location

Cultural Value

Geologic Value

Historic Value

Recreation Value

Other Value

Scenic Value

Fish Presence Value

0.90

0.90

0.90

0.90

0.90

0.90

0.90

DA	TE: 07/02	/96	PAGE NO: 7					
FERC Number		Plant Name			Stream	State Name		
HI005	HOOPOI	CHUTE	WA	THEE DITCH	(WAIHEE R)	ні		
	Co	unty Name		River Basin				
	MAUI		НА	WAII ISLANI	DS RIVER BA	ASIN		
		Class	Own	er Name				
		I	HAWAIIAN	COM & SUG	CO			
	Name Pla Rating (PESF*			PESF Annual Energy Rating (MWh)		
	200	0.00 0.90	1800.00	30	000.00	2700		
	Unit Type	Plant Type	Project Status	Dam Status		e 2053.00 de 15631.00		
	С	DIV	xx	U				
	Factor]	Exist Prob	Fac	ctor	Exist Prob		
Wild/Scoupst:	enic Protenic Trib	utary or stream			d/Endangere d/Endangere	ed Wildlife 0.90		

0.90 Federal Land Code 103

0.90 Federal Land Code 104

0.90 Federal Land Code 105

0.90 Federal Land Code 106

0.90 Federal Land Code 107

0.90 Federal Land Code 108

0.90 Federal Land Code 198

0.90

Fish Presence Value

Geologic Value

Historic Value

Recreation Value

Other Value

Scenic Value

0.90

0.90

0.90

0.90

0.90

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FERC Number		Plant	Name					st	ream		State Name	
HI007	KAPAIA				HA	AMANA	ULU ST	R		-	HI	
	C	ounty N	ame			Ri	ver Ba	sin	l.			
	KAUAI				HA	LIAWA	.ISLAN	DS	RIVER BAS	SIN		
			_									
		C	lass		Owr	ner N	ame					
			I	LIH	UE PLA	TATN	ION CO	•				
	Name Planting		PESF		PESF*	'KW			nergy MWh)			
	1	20.00	0.90	108	.00			200	.00		180	
	Unit Type	Plan Type			ect		m atus		Latitude Longitude			
	С	ST	'G	XX	ζ	U						
	Factor		E	xist	Prob		Fa.	.cto	or —		Exist	Prob
Wild/Sc Upst	enic Pro enic Tri ream/Dow	butary nstream	or			Thr Thr	eatene	d/E	Indangered Indangered	Wildl	ife	0.90 0.90 0.90
	l/Scenic : 1 Value	Locatio	n		0.90				l Code 103 l Code 104			0.90 0.90
									0-1-105			0.00

0.90 Federal Land Code 105

0.90 Federal Land Code 106

0.90 Federal Land Code 107

0.90 Federal Land Code 108 0.90 Federal Land Code 198

0.90

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FERC Number	Pla	nt 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)

25000.00

0.10

2500.00

200000.00

20000

Unit Plant Project Dam Latitude 2209.00 Type Type Status Status Longitude 15933.00

C STG XX U

Factor	Exist	Prob	Factor	Exist	Prob
#1-17-0-12-1			And the second s		
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or			Threatened/Endangered Fish		0.90
Upstream/Downstream			Threatened/Endangered Wild	life	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			

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

County Name

River Basin

MAUI

HAWAII ISLANDS RIVER BASIN

Class	Owner Name
М	HAWAII, STATE OF

Name Pl Rating		PESF	PESF*KV		Energy (MWh)	PESF Energy	Annual Rating	(MWh)
	90.00	0.90	81.00	5	50.00	4	95	
Unit Type	Plant Type	t	Project Status	Dam Status	Latitude Longitude	2110. 21703.		
С	STO	G	XX	U				

Factor	Exist Prob	Factor	Exist Prob
			<u> </u>
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or		Threatened/Endangered	Fish 0.90
Upstream/Downstream		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	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

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DA.	11. 07/02/5	O	FAGE NO. II				
FERC Number	Pl	ant Name		S	Stream		State Name
HI010	KITANO HY	DRO	HAE	LEELE STR/K	OKEE DITCH		HI
	Coun	ty Name		River Basi	n		
	KAUAI		HAW	AII ISLANDS	RIVER BAS	SIN	
		Class	Owne	r Name			
		I	KEKAHA SUG	AR CO LTD			
	Name Plate				Energy		Annual
	Rating (KW) PESF	PESF*K	W Rating	(MWh)	Energy R	ating (MWh)
	1500.	00 0.90	1350.00	760	00.00	684	0
		Plant	Project	Dam	Latitude		
	Type '	Туре	Status	Status	Longitude	15941.0	U
	С	DIV	XX	U			

ractor	Exist Prop	ractor	EXIST Prob
			the second secon
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or		Threatened/Endangered	Fish 0.90
Upstream/Downstream		Threatened/Endangered	Wildlife 0.90
Wild/Scenic Location	0.90	· · · · · · · · · · · · · · · · · · ·	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		,

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FERC State
Number Plant Name Stream 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
PESF Annual
Energy Rating (MWh)

10000.00 0.10 1000.00 29200.00 2920

Unit Plant Project Dam Latitude 2208.00 Type Type Status Status Longitude 15937.00

C STG XX U

Factor Exist Prob Exist Prob Factor 0.90 Wildlife Value Wild/Scenic Protection Y 0.25 Threatened/Endangered Fish Wild/Scenic Tributary or
Upstream/Downstream
Wild/Scenic Location

O.90
Federal Land Code 104 0.90 Threatened/Endangered Wildlife 0.90 0.90 Cultural Value 0.90 Federal Land Code 104 0.90 Cultural Value

Fish Presence Value

Geologic Value

Historic Value

O.90

Federal Land Code 105

O.90

Federal Land Code 106

O.90

Federal Land Code 106

O.90

Federal Land Code 107

Other Value

Y

O.50

Federal Land Code 107

Other Value

Y

O.50

Federal Land Code 108

Federal Land Code 108

O.90

O.90

Federal Land Code 108

O.90

O 0.90 0.90 0.90 0.90 0.90

DA	TE: 07/0	2/96					PAGE	NO: 13		
FERC Number		Plant	Name			S	Stream		State Name	Э
HI012 UNION MILL				K	OHALA	DITCH			HI	
	Co	ounty N	Name		Ri	ver Basi	in			
	IIAWAH			Н	AWAII	ISLANDS	S RIVER BA	SIN		
			Class	Ow	ner N	ame				
				TO BE DE	TERMI:	NED				
	Name Pla Rating		PESF	PESF	*KW	Annual Rating	Energy (MWh)		F Annual Rating	
	50	00.00	0.90	450.00		410	00.00	36	690	
	Unit Type	Plar Type		Project Status		m atus	Latitude Longitud			
	С	DI	v	xx	W	0				
	Factor		E	kist Prob		Fact	tor		Exist	Prob
	enic Protenic Tril			0.90		dlife Va	 alue /Endangere	d Fish		0.90

Factor	Exist Prob	Factor	Exist Prob
and the second s			
Wild/Scenic Protection	0.90	Wildlife Value	0.90
Wild/Scenic Tributary or		Threatened/Endangered Fish	0.90
Upstream/Downstream		Threatened/Endangered Wildl	life 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	0.90	Federal Land Code 108	0.90
Recreation Value	0.90	Federal Land Code 198	0.90
Scenic Value	0.90		

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FERC State Number Plant Name Stream 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 Rating (MWh)
PESF Annual
Energy Rating (MWh)

2800.00
0.90
2520.00
7500.00
6750

Unit Plant Project Dam Latitude 2130.00 Type Type Status Status Longitude 15803.00

C STG XX U

Factor Exist Prob Factor Exist Prob

Wild/Scenic Protection
Wild/Scenic Tributary or
Upstream/Downstream
Wild/Scenic Location
Cultural Value
Fish Presence Value
Geologic Value
Wistoric Value
O.90
Federal Land Code 103
O.90
Federal Land Code 104
O.90
Federal Land Code 105
O.90
Geologic Value
O.90
Federal Land Code 106
O.90
Federal Land Code 107
O.90
Other Value
O.90
Federal Land Code 107
O.90
Other Value
O.90
Federal Land Code 108
O.90
Federal Land Code 198
O.90
Federal Land C

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FERC State Number Plant Name Stream Name

HI014 WAIHEE WAIHEE RIVER HI

County Name River Basin

MAUI HAWAII ISLANDS RIVER BASIN

Class Owner Name

TO BE DETERMINED

Name Plate Annual Energy PESF Annual Rating (KW) PESF PESF*KW Rating (MWh) Energy Rating (MWh)

730.00 0.10 73.00 2000.00 200

Unit Plant Project Dam Latitude 2054.00 Type Type Status Status Longitude 15630.00

C DIV XX U

Factor	Exist Prob		Factor	Exist Prob		
•						
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25	
Wild/Scenic Tributary or			Threatened/Endangered Fish		0.90	
Upstream/Downstream			Threatened/Endangered Wildli	fe	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				

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FERC State Number Plant Name Stream Name

HI016 WAILOA WAILOA STR HI

County Name River Basin

HAWAII ISLANDS RIVER BASIN

Class Owner Name

TO BE DETERMINED

C DIV XX U

Name Plate
Rating (KW)
PESF
PESF*KW
Rating (MWh)
PESF Annual
PESF*KW
Rating (MWh)
PESF Annual
Energy Rating (MWh)
PESF Annual
Energy Rating (MWh)
PESF Annual
Energy Rating (MWh)

Latitude 2005.00
Type Type Status Status Longitude 15537.00

Factor Exist Prob Factor Exist Prob 0.90 Wildlife Value Wild/Scenic Protection 0.90 Wild/Scenic Tributary or Threatened/Endangered Fish 0.90 Upstream/Downstream
Wild/Scenic Location

0.90 Federal Land Code 103
0.90 Federal Land Code 104 Threatened/Endangered Wildlife 0.90 0.90 Cultural Value 0.90 0.90 Federal Land Code 104 0.90 Federal Land Code 105 0.90 Federal Land Code 106 0.90 Federal Land Code 107 0.90 Federal Land Code 108 0.90 Federal Land Code 198 0.90 Fish Presence Value 0.90 Geologic Value Historic Value 0.90 Other Value 0.90 Recreation Value 0.90 Scenic Value 0.90

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FERC Number	Plant Name	Stream	State Name
HI018	WAILUA IKI	EAST & WEST WAILUA IKI	HI
	County Name	River Basin HAWAII ISLANDS RIVER BASIN	

Class

	R	GARRATT-CALLAHAN CO		
Name Plate	222	Annual	Energy	PESF Annual

Owner Name

Name Plate
Rating (KW)

PESF
PESF*KW
Rating (MWh)

2700.00

0.25 675.00

Annual Energy
Rating (MWh)
Energy Rating (MWh)

7900.00

1975

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

Factor	Exist Pro	o Factor	Exist Prob
Wild/Scenic Protection	0.	90 Wildlife Value	Y 0.25
Wild/Scenic Tributary or		Threatened/Endangered	Fish 0.90
Upstream/Downstream		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	0.	90 Federal Land Code 198	0.90
Scenic Value	0.	90	

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FERC State Number Plant Name Stream 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 Annual Energy PESF Annual Rating (KW) PESF PESF*KW Rating (MWh) Energy Rating (MWh)

2900.00 0.90 2610.00 3300.00 2970

Unit Plant Project Dam Latitude 2203.00 Type Type Status Status Longitude 15939.00

C DIV W

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

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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 Pl Rating		PESF	PESF*K		Energy (MWh)	PESF Energy	Annual Rating	="
138	300.00	0.25	3450.00	4020	00.00	100	50	
Unit Type	Plan Type	_	Project Status	Dam Status	Latitude Longitude	1953. 2 15513.		
С	RO	R	XX	ប				

Factor	Exist	Prob	Factor	Exist	Prob
					
Wild/Scenic Protection		0.90	Wildlife Value	Y	0.25
Wild/Scenic Tributary or			Threatened/Endangered Fish		0.90
Upstream/Downstream			Threatened/Endangered Wildli	lfe	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		0.90	Federal Land Code 198		0.90
Scenic Value		0.90			

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FERC State Number Plant Name Stream 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 Rating (MWh)
PESF Annual
Energy Rating (MWh)
PESF Annual
Energy Rating (MWh)
PESF Annual
Energy Rating (MWh)

Unit Plant Project Dam Latitude 2109.00 Type Type Status Status 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			Threatened/Endangered Fish		0.90
Upstream/Downstream			Threatened/Endangered Wildli	fe	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			

DAME: 07/02/06

Cultural Value

Historic Value

Other Value

Scenic Value

Fish Presence Value

Geologic Value

Recreation Value

0.90

0.90

0.90

0.90

0.90

0.90

DAT	E: 07/02	/96			PAGE	NO: 21	
FERC Number	1	Plant Name			Stream		State Name
HI022	KUALAPU	U RESERVOIF	PUMP HY MC	LOKAI IRRIO	GATION SYST	EM	HI
	Coi	unty Name		River Bas	sin		
	MAUI		НА	WAII ISLANI	DS RIVER BA	SIN	
		Class	Own	er Name			
			TO BE DET	ERMINED			
	Name Plat Rating (1		PESF*		l Energy g (MWh)	PESF A	
	1600	0.00 0.90	1440.00	4 (572.00	4204	.80
	Unit Type	Plant Type	Project Status	Dam Status	Latitude Longitud	2110.00 e 15703.00	
	R	PMP	XX	WO			
_	Factor	E -	xist Prob	Fac	ctor	E:	xist Prob
Wild/Sce Upstr	enic Prote enic Tribu eam/Downs Scenic Lo	utary or stream	0.90	Threatened Threatened	Value d/Endangere d/Endangere and Code 10	d Wildlife	0.90 0.90 0.90 0.90

0.90 Federal Land Code 104

0.90 Federal Land Code 105

0.90 Federal Land Code 108

0.90 Federal Land Code 198

0.90

0.90

0.90

Federal Land Code 106 Federal Land Code 107

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FERC State Number Plant Name Stream Name

County Name

River Basin

MAUT

HAWAII ISLANDS RIVER BASIN

Class Owner Name

P UTILITY/COUNTY

Name Plate
Rating (KW)

PESF
PESF*KW

Annual Energy
Rating (MWh)

100.00

0.90

90.00

200.00

180

Unit Plant Project Dam Latitude 2109.00 Type Type Status Status Longitude 15702.00

C ROR XX WO

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

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Other Value

Scenic Value

Recreation Value

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0.90

0.90

FERC Number		Plan	t Name					st	tream		State Name
HI024	коко	CRATER	PUMPED	HYDI	RO PA	CIFIC	COCE	AN	(AFTERBAY)		HI
		County	Name			Riv	ver Ba	asiı	n		
	HONOI	LULU			HA	LIAWA	ISLA	NDS	RIVER BASI	N	
			Class		Owr	ner Na	me				
			CIUSS		OWI	ier ive	ime				
			P	HAV	MAIIAN	ELECT	RIC	COMI	PANY, INC		
	Name I Rating	Plate g (KW)	PESF		PESF*	:KW			Energy (MWh) E		nnual ting (MWh)
	160	000.00	0.10	160	00.00		346	6020	0.00	34602	
	Unit Type		ant pe	Pro: Stat	ject tus		n itus		Latitude Longitude		
	R]	PMP	XX	ĸ	U					
-	Factor	c -	E:	xist	Prob		Fa	acto	or —	F	Exist Prob
Wild/Sco Wild/Sco Upst:	enic Tı		y or		0.90	Thre		ed/I	lue Endangered Endangered		Y 0.25 0.90 0.90
		Locat			0.90				d Code 103		0.90
Cultura	l Value	€		Y	0.50	Fede	eral 1	Land	d Code 104		0.90
Fish Pro									d Code 105		0.90
Geologi									d Code 106		0.90
Histori		2		Y					d Code 107		0.90
Other V	alue			V	0.50	Fede	rail	Lanc	d Code 108		0.90

0.50 Federal Land Code 108

0.25 Federal Land Code 198

Y

0.50

Y

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

County Name

PMP

River Basin

HONOLULU

R

HAWAII ISLANDS RIVER BASIN

Class Owner Name

XX

P HAWAIIAN ELECTRIC COMPANY, INC

Name Plate Annual Energy PESF Annual PESF PESF*KW Rating (MWh) Energy Rating (MWh) Rating (KW) 350400.00 160000.00 0.10 16000.00 35040 Unit Project Latitude 2120.00 Plant Dam Status Status Longitude 15747.00 Type Type

U

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

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Wild/Scenic Location

Cultural Value

Geologic Value

Historic Value

Recreation Value

Other Value

Scenic Value

Fish Presence Value

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0.90

0.90

0.90

0.90

0.90

0.90

0.90

DA	DATE: 07/02/96				PAGE NO: 25					
FERC Number		Plant	Name			:	Stream		State Name	
HI026	NORTH			L	UMAHAI	RIVER		**	HI	
	KAUAI	County	Name	н		er Bas	in S RIVER B <i>I</i>	ASIN		
			Class	Ow	ner Na	ıme	·			
			R	GARRATT-	CALLAH	IAN				
	Name P Rating		PESF	PESF			Energy (MWh)		Annual Rating	
	6	000.00	0.10	600.00		2370	00.00	23	70	
	Unit Type	Pla: Typ:		Project Status	Dam Sta	ı tus		e 2209. de 15932.		
	С	R	OR	XX	U					
-	Factor		E:	xist Prob		Fact	tor		Exist	Prob
Wild/Sco Wild/Sco Upst	enic Tr		or	0.90	Thre		alue /Endangere /Endangere		Y fe	0.25 0.90 0.90

0.90

0.25

0.90

0.90

0.50

0.25

0.50

Y

Y

Y

Y

0.90 Federal Land Code 103

Federal Land Code 104

Federal Land Code 105

Federal Land Code 106

Federal Land Code 107

Federal Land Code 108

Federal Land Code 198

Appendix D List of 19 Additional Hydropower Sites

Location/Nam of Project	e 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 & Lliilihua Ditch	800	5.7	Lihue Plantation Co.	Kauai
Lower Lihue	North Wailua & Lliilihua Ditch	1,000	7.1	Lihue Plantation Co.	Kauai
Malumalu	Waihuhanu Stream	<u>128</u>	<u>_n/a</u>	McBryde Sugar Company	Kauai
		10,293	51.9		