BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of)
)
HAWAIIAN ELECTRIC COMPANY, INC.) DOCKET NO. 03-0166
)
For Approval of a Residential)
Direct Load Control Program, and)
Recovery of Program Costs.)
)

DECISION AND ORDER NO. 21415

Filed Oct. 14, 2004
At 2:45 o'clock P .M.

Karen Higashi
Chief Clerk of the Commission

ATTEST: A True Copy
KAREN HIGASHI
Chief Clerk, Public Utilities
Commission, State of Hawaii.
K. Higashi

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of)) HAWAIIAN ELECTRIC COMPANY, INC.)) For Approval of a Residential) Direct Load Control Program, and) Recovery of Program Costs.))	Docket No. 03-0166 Decision and Order No. 21415

DECISION AND ORDER

I.

Introduction

HAWAIIAN ELECTRIC COMPANY, INC. ("HECO") filed an application ("Application") requesting that the commission: (1) approve its proposed Residential Direct Load Control ("RDLC") Program; (2) approve recovery of its program costs for the first five years of the program, which are estimated to be approximately $12,205,955 (and associated revenue taxes, if applicable), using HECO's Integrated Resource Plan ("IRP") Cost Recovery Provision and incorporated into rates as a result of the next rate case if Demand Side Management ("DSM") costs are not recovered through the IRP Cost Recovery Provision after the next rate case; (3) approve its request for program flexibility as described within the Application; and (4) grant such other and further relief as may be just and equitable.[1] HECO submits its Application pursuant to paragraphs II.B.7., III.F., and V. of the commission's Framework

[1]HECO's Application, filed June 6, 2003.

for IRP (revised May 22, 1992), which was issued pursuant to Decision and Order No. 11523, filed on March 12, 1992, and Decision and Order No. 11630, filed on May 22, 1992, in Docket No. 6617.

HECO served copies of its Application on the DIVISION OF CONSUMER ADVOCACY, DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS ("Consumer Advocate") and the UNITED STATES DEPARTMENT OF THE NAVY (HECO and the Consumer Advocate are collectively referred to as the "Parties"). By preliminary statement of position filed on June 20, 2003, the Consumer Advocate informed the commission that it conducted a preliminary review of the Application and has questions regarding the reasonableness of HECO's requests.[2] On July 14, 2003, the Consumer Advocate issued information requests upon HECO, to which HECO responded on October 1, 2003.

On April 15, 2004, the commission issued Order No. 20906 requiring the Parties to meet informally to determine the procedures and schedule with respect to this proceeding, to be set forth in a stipulated prehearing order filed by May 17, 2004. On May 17, 2004, HECO submitted a letter on behalf of the Parties requesting additional time until June 17, 2004 to allow the Parties to reach a stipulated prehearing order. On June 17, 2004, the Parties filed a stipulated procedural order requesting an additional extension of time until June 30, 2004 to submit a settlement agreement in place of a stipulated prehearing order for

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[2]Division of Consumer Advocacy's Preliminary Statement of Position.

this docket.[3] On June 30, 2004, the Parties filed their settlement agreement ("Settlement Agreement") with the commission, jointly requesting commission approvals of their agreement and approval of HECO's proposed RDLC Program as modified by the Settlement Agreement.

II.

Background

A.

RDLC Program Description

The RDLC Program will offer eligible residential customers the opportunity to participate in an "interruptible program for electric water heaters. HECO will provide participating customers with a monthly electric bill credit of $3.00 and will install a radio-controlled switch next to their water heating unit, which in turn will turn off the water heater when signaled by HECO. The radio-controlled switch will include an under-frequency relay that will instantly disconnect the water heater from HECO's system, if the system frequency reaches a certain level (e.g., in response to the loss of a major generating unit or other major system disturbance). HECO states that it does not plan to establish restrictions on the number of times the

[3]The commission enlarged the deadline by which the Parties were to submit either their stipulated prehearing order or settlement agreement to the commission from June 17, 2004 to July 30, 2004 by Order No. 21111, filed on July 12, 2004.

customers' water heaters may be turned off or the duration of such occurrences.

The objective of this five-year program is to provide HECO with approximately seventeen (17) megawatts ("MW") of interruptible load from residential water heaters during the system peak. HECO will enroll participants through the fifth year of the program and will then work to maintain the approximately seventeen (17) MW of peak load reduction by replacing those customers who leave the program each year. HECO states that this will benefit it by providing additional planning reserve capacity, and will help defer the need for future capacity additions.

This program will be offered to residential customers with electric water heaters that meet certain requirements. Participating customers must have a water heater with a capacity of at least forty (40) gallons and live in single-family homes or multi-family homes that are individually metered. HECO states that customers with solar water heaters or heat pump water heaters will not qualify for the program since the coincident load of these water heaters is not sufficient to make their inclusion in the program economical. In addition, customers whose water heater location cannot be reached with a sufficiently strong radio signal will not qualify for the program.[4]

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[4]HECO notes that while the radio signal utilized by its load control system should be coincident with the coverage for typical pagers, it does not anticipate any communications problems. Application at 6.

HECO asserts that its System Operation Department will rely on the RDLC system in three (3) ways:

> 1. If the HECO system experiences a sudden loss of a major generating unit, the under-frequency relay contained in the load switch will remove the water heaters from the system at a frequency level set above the frequency setting of [HECO's] distribution relays. Following the interruption, the switches will be used to restore service to the water heaters in a staged manner to avoid creating a new system spike.
> 2. If HECO system resources appear unable to meet requirements, the System Operation Department will initiate a staged shedding of water heating load. This is accomplished by radio signals transmitted to groups of distributed switches. Each switch will be pre-programmed with an individual time delay to provide a ramping down of load. Water heaters will reconnect in a staged manner to prevent sudden spikes or paybacks. These spikes or payback loads can occur if all the water heaters which had been turned off are turned back on at the same time.
> 3. If a HECO system outage or regional outage occurs, the switches are designed to detect when power is restored and continue to keep the water heating loads off the system for some predetermined time period ("Cold Load Pickup" logic). This "Cold Load Pickup" feature can minimize the feeder in rush current and can reduce the duration of the outage. In addition, the time delay period is randomized throughout the participants. This allows for a staged reconnection and reduces the possibility of spikes or payback loads occurring during the reconnection. The feature is also remotely programmable. Therefore, if necessary, the System Operation Department can signal the water heaters to override or extend the predetermined time delay period.[5]

[5]Application at 10 - 11 (footnote omitted).

HECO states that it may develop variations of these strategies as it gains experience with the RDLC system grows and, if implemented, will be reported in the Annual Program Modification and Evaluation Report.

HECO asserts that the under-frequency relays will ensure that if an insufficient amount of generation is available to meet the load, the relays will remove the water heaters from HECO's system until such time as its system operators return the water heaters to service. As a result, HECO believes that it will not need to build generation to meet the approximately seventeen (17) MW of reserve capacity that would otherwise be needed without the RDLC Program in the fifth year.

HECO will track and monitor the program implementation to ensure prudent expenditures and to quantify program benefits. HECO will evaluate the RDLC Program within twelve (12) months after implementation to examine its organization of the program, program implementation procedures, communications, and service delivery with the objective of identifying changes that can positively affect the performance of the program. HECO proposes to provide the commission with information relating to this program through two (2) filings annually: the Annual Program Modification and Evaluation Report and the Accomplishments and Surcharge Report.

B.

HECO's Generating System Status

HECO explains that it necessary to expeditiously approve the RDLC Program to enable it to realize the anticipated peak reduction benefits of the RDLC Program, and to help mitigate the effect of HECO's higher peak forecast on its generating system reliability. HECO also asserts that it must implement the RDLC Program in 2004 to continue the deferral of the need for its next central-station generating capacity until 2009. HECO estimates that based on its new, higher forecast for peak demand, HECO expects generation system reliability to fall below its 4.5 years per day reliability guideline beginning in 2006.[6]

C.

RDLC Program Costs and Capacity Savings

RDLC Program costs include customer incentives, labor and administration, equipment purchases, outside services, program promotion, and evaluation expenses. HECO estimates the program costs in nominal dollars for the first five years will be:

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[6]HECO states that the 4.5 years per day benchmark is part of a reliability guideline that is included in HECO's capacity planning criteria.

Year	Costs
2004	$1,905,795
2005	$2,880,959
2006	$3,222,834
2007	$2,400,445
2008	$1,795,922
First 5 years	**$12,205,955**

HECO estimates the capacity savings for the first five (5) years of the RDLC Program to be:

Year	Total Capacity Savings $
2004	$0
2005	$0
2006	$6,341,000
2007	$7,431,000
2008	$6,668,000
First 5 years	**$20,440,000**

It further estimates the capacity savings over the twenty-year life of the program at $36 million on a net present value basis using an 8.420 per cent value factor and a base year of 2004. HECO anticipates that the program may provide production cost savings by reducing labor and other operation and maintenance expenses associated with additional generation, and may reduce the spinning reserve requirements that could result in a deferral of the start-up timing of its generating units.

D.

Cost Recovery

HECO requests the continuation of the use of the currently implemented and commission approved DSM Adjustment component of the IRP Cost Recovery Provision to recover program costs. It also requests that it be allowed to continue contemporaneous expense recovery. HECO is neither asking for the implementation of a lost margin mechanism, nor shareholder incentives for this program, since it will not experience lost sales as a result of the program.

HECO estimates the annual impact of the recovery of costs for this program on its rates as:

Year	**$/kWh**
2004	0.0010
2005	0.0015
2006	0.0017
2007	0.0012
2008	0.0009

E.

RDLC Program Flexibility

HECO requests that the commission grant the following program flexibility during the initial five-year program:

> 1. The ability to carry unspent program funds forward into future program years. This will allow [HECO] to pursue the program's goals through the five-year implementation period if customers are slow to accept the concept of interruptible loads and participation in a load management DSM program.
>
> 2. The ability to exceed a yearly program budget by not more than twenty-five [(25)] per[ ]cent. This ability would allow [HECO] to take advantage of opportunities that might otherwise be lost due to rapid changes in the number of customers wanting to participate in the program. If the rate of participation and [HECO's] related ability to install equipment results in a faster rate of program implementation than initially forecasted, [HECO] requests this flexibility in order to not have to stop program implementation during the program year and then resume implementation of the program at the beginning of the following year. Application at 27.

III.

Settlement Agreement

In the interest of expediting this proceeding, HECO and the Consumer Advocate reached agreement on certain modifications to the RDLC Program as described in the Settlement Agreement. The Settlement Agreement also explained HECO's current situation, the Consumer Advocate's concerns, and HECO's responses to those concerns.

The Consumer Advocate noted that it continues to have the same concerns with the RDLC Program as it did with a similar program proposed in 1997, Docket No. 97-0338.[7] The Consumer Advocate stated that it is willing to support the implementation of the instant program as a pilot program, to allow the Parties with an opportunity to gather information that would be useful in assessing the impacts of such a program and determining whether such programs are cost-effective and should be continued in the long-term. The Consumer Advocate also stated concerns with the program budget if HECO is allowed to recover the proposed program costs through the IRP Cost Recovery Provision. In addition, the Consumer Advocate questioned the extent to which certain administrative and other direct costs included by HECO in the program budget would be incremental costs that should be recovered through the IRP Cost Recovery Provision.

In addressing the Consumer Advocate's concerns and in the interest of expediting this proceeding, HECO agreed to exclude certain costs that it expects to incur from the program budgeted costs to be recovered through the IRP Cost Recovery Provision. Thus, HECO now estimates the five-year program costs to be recovered through the IRP Cost Recovery Provision to be $10.8 million instead of $12.2 million.

[7]Settlement Agreement at 3.

Specifically, the Parties agreed to the following changes to the RDLC Program:

1. HECO will modify the program budget for the five-year program. HECO will not seek to recover the following RDLC Program operation and maintenance costs through the IRP Cost Recovery Provision: (1) Direct Labor (which is comprised of Administration, Tracking and Evaluation, and Database and Technical Support); (2) Advertising/Marketing (fixed and variable); (3) Training; and (4) Materials and Miscellaneous.[8] Instead, the Parties agreed to allow HECO to seek the recovery of these operation and maintenance costs in base rates in HECO's next rate case. HECO shall be permitted to recover the following RDLC Program costs through the IRP Cost Recovery Provision: (1) Customer Incentives; (2) Equipment Purchases (which are comprised of Central equipment, Distributed equipment, and Communications Expenses/Upgrades); and (3) Outside Services (which are comprised of Equipment installation and Equipment maintenance/removals). The RDLC Program costs incurred and recovered through the IRP Cost Recovery Provision will be subject to review in conjunction with the review of the Annual Program Modification and Evaluation ("M&E") Report and the Annual Accomplishments and Surcharge ("A&S") Report. Subsequent to the completion of the commission's and the Consumer Advocate's reviews, any costs determined to be inappropriate by the commission for cost

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[8]See Exhibit A to this decision and order.

recovery under the Settlement Agreement will be refunded with interest. The Parties agreed that recovery of these costs through the IRP Cost Recovery Provision will be allowed until such time that a different mechanism to recover the costs is established. The Parties further agree that HECO may recover the program costs for the RDLC Program, as modified, accrued through the date that estimated program costs are incorporated into rates as a result of the next rate case through the IRP Cost Recovery Provision.

2. The Parties will work to discuss the specific information to be contained in the tracking, monitoring, and impact evaluation discussed in Section VIII. of HECO's Application.

3. The Parties agreed to allow HECO the program flexibility it requested, provided that HECO, prior to making such amendments, requests commission approval of either an application or letter agreement describing the modifications to be implemented.

IV.

Finding and Conclusion

The commission finds that the proposed RDLC Program, as amended by the Settlement Agreement, is reasonable and in the public interest, and concludes that the proposed RDLC Program, as amended by the Settlement Agreement, should be approved as a pilot program, effective upon the date of this decision and order, and subject to the terms and conditions stated in the Settlement Agreement.

V.

Orders

THE COMMISSION ORDERS:

1. The Parties' Settlement Agreement, filed on June 30, 2004, is approved in its entirety.

2. HECO's proposed RDLC Program, as amended by the Settlement Agreement, is approved as a pilot program, effective from the date of this decision and order, and subject to the terms and conditions stated below and in the Settlement Agreement.

3. HECO's request to recover program costs, as modified by the Settlement Agreement, that are accrued through the date that estimated program costs are incorporated into rates as a result of the next rate case through the IRP Cost Recovery Provision, is approved.

4. HECO's request to allow the program flexibility described in its Application is approved, provided that it receives commission approval of either an application or a letter agreement describing the modifications to be implemented prior to effectuating any amendments to the pilot program.

DONE at Honolulu, Hawaii OCT 14 2004.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By [signature]
Carlito P. Caliboso, Chairman

By (EXCUSED)
Wayne H. Kimura, Commissioner

By [signature]
Janet E. Kawelo, Commissioner

APPROVED AS TO FORM:

[signature]
Catherine P. Awakuni
Commission Counsel
03-0166.eh

RESIDENTIAL WATER HEATING DIRECT LOAD CONTROL PROGRAM BUDGET

	Notes	Year 1	Year 2	Year 3	Year 4	Year 5	Total Cost
New Participants Added		5,000	7,500	7,500	4,000	1,600	
Participating Customers	(a)	5,000	12,450	19,826	23,627	24,991	
MW Committed	(b)	3.40	8.47	13.48	16.07	16.99	
Customer Incentives	(c)	$ 180,000	$ 448,200	$ 713,718	$ 850,581	$ 899,675	$ 3,092,174
Equipment Purchases:	(d)						
Central equipment		$ 47,145	$ -	$ -	$ -	$ -	$ 47,145
Distributed equipment		$ 750,000	$ 1,125,000	$ 1,125,000	$ 600,000	$ 240,000	$ 3,840,000
Communications Expenses/Upgrades		$ 25,000	$ 62,250	$ 99,128	$ 118,136	$ 124,955	$ 429,469
Total Equipment		$ 822,145	$ 1,187,250	$ 1,224,128	$ 718,136	$ 364,955	$ 4,316,614
Outside Services:							
Equipment Installation	(e)	$ 625,000	$ 937,500	$ 937,500	$ 500,000	$ 200,000	$ 3,200,000
Equipment maintenance/Removals	(f)	$ 11,250	$ 28,013	$ 44,607	$ 53,161	$ 56,230	$ 193,261
Total Outside Services		$ 636,250	$ 965,513	$ 982,107	$ 553,161	$ 256,230	$ 3,393,261
Customer Incentives		**$ 180,000**	**$ 448,200**	**$ 713,718**	**$ 850,581**	**$ 899,675**	**$ 3,092,174**
Equipment		**$ 822,145**	**$ 1,187,250**	**$ 1,224,128**	**$ 718,136**	**$ 364,955**	**$ 4,316,614**
Outside Services		**$ 636,250**	**$ 965,513**	**$ 982,107**	**$ 553,161**	**$ 256,230**	**$ 3,393,261**
PROGRAM TOTAL		**$ 1,638,395**	**$ 2,600,963**	**$ 2,919,953**	**$ 2,121,878**	**$ 1,520,860**	**$ 10,802,048**
Estimated Residential Sales (gwh)		2,073.8	2,098.8	2,130.6	2,163.3	2,195.7	
IRP Cost Recovery Surcharge($/kwh)	(g)	**0.000867**	**0.001360**	**0.001504**	**0.001076**	**0.000760**	

NOTES:

(a) Assumes a 1 percent annual dropout rate.

(b) Assumes an average interruptible water heating load during the system peak of 0.68 kW per participating customer. This average was taken from data collected in the first two evaluations of the REWH and RNC programs (filed in HECO's M&E Reports on November 30,1999 and November 30, 2001) and from the "Water Heater Load Control Experiment" conducted in 1986 (Filed in Docket No. 2793 on December 11, 1986).

(c) Assumes twelve monthly incentive payments of $3.00 to participating customer.

(d) Includes cost of the load control switch, shipping, warehousing, and testing. Communications Expense assume commercial pager contract at $5 per control point per year or up-grades to HECO's radio system.

(e) Contracted labor for field installations and removals estimated at $125 per visit. Includes scheduling, inspections, and field testing.

(f) Equipment maintenance at 3% of equipment costs per year escalated at 3.8% per year. Includes customer turn over and equipment testing and repairs.

(g) Program costs x revenue tax factor of 9.75% divided by estimated residential sales

ATTACHMENT A

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing Decision and Order No. 21415 upon the following parties, by causing a copy hereof to be mailed, postage prepaid, and properly addressed to each such party.

DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS
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DATED: OCT 14 2004