BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of)
)
HAWAIIAN ELECTRIC COMPANY, INC.)
)
For Approval of Rate Increases and)
Revised Rate Schedules and Rules)
)

DOCKET NO. 6531

Received 10/24
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DECISION AND ORDER NO. 11317

Filed October 17, 1991

At 3:00 o'clock P .M.

Bertha F. Kurosawa
Chief Clerk of the Commission

ATTEST: A True Copy
BERTHA F. KUROSAWA
Chief Clerk, Public Utilities
Commission, State of Hawaii.
Bertha F. Kurosawa

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commission's opinion, satisfies the guidelines set forth in Bluefield and Hope.

VII.

COST OF SERVICE AND RATE DESIGN

The level of annual revenue requirement authorized in this rate case must be translated into service rates. All parties agree that rates should be based on costs. All classes of customers receiving service should pay a proportionate share of the costs associated with that service. The parties differ, however, on how to allocate the total cost of service among the various classes of customers. HECO advocates the embedded cost of service approach, which the DOD also prefers. The Consumer Advocate proposes that allocation be based on marginal cost principles. HECO and the Consumer Advocate also disagree on HECO's proposal to increase the customer charge for the residential class of customers (schedule R).

In addition to the change in the customer charge for the residential class of customers, HECO proposes to revise its customer charges for other classes of customers (schedules G, J, H, P, and F) and to revise the demand charges (where applicable) and energy charges for each class of customers. The Consumer Advocate does not object to these proposals.

A. Cost of Service Studies

1. HECO's approach

HECO performed an embedded cost of service study in allocating the company's total system costs among the various classes of customers and in determining each class' responsibility for the proposed increases in revenue requirement. It also performed a marginal cost study, the results of which were used as a check in designing its proposed rates.

In performing the cost of service study, HECO first categorized costs by functions: production, transmission, and distribution. It then separated the costs of each of these functions into three components--energy costs, demand costs, and customer costs. (The energy, demand, and customer costs are the bases for the customer, demand, and energy charges included in the class rate schedules.) HECO based the allocation of each function's costs to the three components on the Electric Utility Cost Allocation Manual, published by NARUC. Following the NARUC cost allocation manual, HECO allocated the production function costs to the demand and energy components, the transmission function costs to the demand component, and the distribution function costs to the demand and customer components. The final step in performing the cost of service study was the allocation of the cost components to the different rate (customer) classes.

HECO allocated the customer cost component on the basis of the number of customers, weighted to reflect differences in service phase and voltage level, metering requirements, and the complexity of the meter reading, billing, and accounting activities

required by the customer classes. HECO used different methods for the different functions in allocating demand costs. It allocated the distribution demand costs based upon class peak demands at various distribution voltage levels. It allocated the production and transmission demand costs using the average and excess demand (AED) method.

The AED method is distinguished from the two other commonly used methods to allocate demand costs--the peak responsibility method and the noncoincidental peak demand method. These other two methods consider only one demand parameter in allocating demand costs.[35] The AED method, however, considers other cost-related factors, such as the extent of the use of utility facilities by each customer class. It takes into account the system load factor, the class peak demand, and the diversity of demand. It allocates demand cost on the basis of each class' average demand (kWh divided by the number of hours) and excess demand (noncoincident demand minus the average demand). HECO asserts that the allocation approach it took is in accord with the approach previously approved by the commission.

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[35] The peak responsibility method allocates demand costs using the class demand at the time of the system peak. The system peak for HECO usually occurs in the evening, between November and December. The assumption is that the capacity requirement of the utility system is determined by the peak load(s) and, thus, demand-related costs should be allocated in accordance with each rate class' respective contributions to the system peak.

The noncoincident peak demand method allocates demand costs using the maximum demands of the rate classes during the year regardless of when they occur. The assumption is that each customer class, if served independently, would require facilities that would meet the class' maximum demand.

Of its proposed total additional revenue requirement of $85,212,000, HECO designated $1,057,000 as miscellaneous or other operating revenues and allocated the remaining $84,155,000 to the various rate classes[36]. HECO represents that it allocated this remainder to the various rate classes with the following as primary considerations: (1) the rate of return generated from each rate class (as determined by the embedded cost of service study) relative to the system average rate of return and (2) the relationship of the percentage increase in revenues for each class relative to the total system revenue increase. HECO's objective was to move toward equal rates of return for all of the rate classes by allocating the appropriate portion of any revenue increases to the various classes.

However, HECO also sought to avoid drastic and sudden rate increases for certain classes of customers (particularly the residential customers) and to hold the rate increases for these rate classes at a reasonable level. Thus, HECO allocated the total proposed revenue increases to the various rate classes in such a manner that the rate of return produced by each rate class as well as the class' per cent revenue increase fell within "reasonable ranges" relative to the respective system averages. The result is

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[36] The total additional revenue requirement proposed by HECO in this section reflects an amount which is greater, by $3,189,000, than the increase of $82,023,000 requested by the utility in its application. As we noted earlier, the public was not given notice of a proposed total revenue increase of $85,212,000. We discuss HECO's proposal here only to set forth the approach and methodology that the utility adopted for cost of service and rate design. HECO will be required to submit for our approval revised cost of service studies consistent with the revenue requirement and methodology approved in this decision and order. See supra note 1.

that HECO's allocation of its proposed revenue requirement does not reflect equal rates of return for all rate classes, but nevertheless, manifests a gradual movement toward equality.

The following table displays the results of HECO's allocation of the total system revenue requirement:

	Rate of Return	Proposed Increases		
Rate Class[37] (Rate Schedule)	Present Rates	Proposed Rates	Revenue Increase ($000)	(%)
R	0.40%	6.78%	27,900.0	15.28
G	7.87	14.63	4,351.0	12.16
J	6.76	15.47	11,899.0	11.67
H	2.28	10.09	4,954.0	14.98
P	1.81	12.49	34,505.0	13.13
F	0.65	8.72	546.0	14.51
Total Sales Revenue			84,155.0	13.58
Other Operating Revenue			1,057.0	48.87
Total Revenues	2.26	10.40	85,212.0	13.70

Customer classes R, H, P, and F are allocated more of the proposed increase in revenue requirement than other classes, because they currently provide a lower rate of return than the average system rate of return.

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[37] R = residential
G = general service-nondemand
J = general service-demand
H = commercial cooking, heating, air conditioning, refrigeration
P = large power service
F = public street lighting

2. The Consumer Advocate's approach

The Consumer Advocate recommends that the commission use the long-run marginal cost approach, rather than the embedded cost of service approach taken by HECO, in determining each customer class' responsibility for proposed increases in system revenue requirement. Under the marginal cost approach, the focus is on the cost of providing an additional unit of service. The Consumer Advocate contends that the long-run marginal cost approach recognizes that present consumption influences construction requirements and, as such, future system costs. It concludes that, by reflecting these costs, rates based on long-run marginal costs will ensure that the correct amount of new capital investment is devoted to expanding HECO's electric resources.

The major thrust of the Consumer Advocate's argument for the marginal cost approach is that this approach promotes efficient energy use and energy conservation. The Consumer Advocate argues that HECO's embedded cost approach sends a wrong signal to consumers--that increased energy consumption is appropriate. Such a signal will induce consumers to consume more, not less, energy. The Consumer Advocate asserts that HECO's approach will influence consumers to behave in this way, because the embedded cost of service approach addresses the cost of the company's installed capacity and, unlike the marginal cost approach, does not explore the incremental aspects of demand. The Consumer Advocate contends that the embedded cost of service approach understates the cost of energy. It warns that the use of the embedded cost of service approach could lead to inadequate levels of conservation and

undermine the commission's efforts in Docket No. 6617 on integrated resource planning. The Consumer Advocate would have the commission adopt an approach that will provide more, not less, incentive for residential and small commercial customers to make energy saving investments and for developers to build energy efficient buildings.

The Consumer Advocate readily admits that the use of the marginal cost approach is not without problems. It recognizes that in the electric utility industry competitive market forces that ordinarily push marginal and average embedded costs toward equilibrium are not present in sufficient degree to achieve that equilibrium. In times of rising utility costs, the marginal cost of the next unit of service is likely to be greater than the embedded cost associated with a unit of capacity; conversely, in times of declining utility costs, the marginal cost of the next unit of service would likely be less than the embedded cost. Thus, marginal cost may not equal revenue requirement, which is based on accounting (embedded) cost. To resolve this problem, the Consumer Advocate suggests that marginal cost be reconciled with revenue requirement by setting marginal cost equal to the embedded revenue requirement.

Pursuant to its preferred approach, the Consumer Advocate conducted a cost of service study based on marginal cost. In its determination of marginal cost, the Consumer Advocate focused primarily on the bulk power production function, which includes generation (production) and high voltage transmission, and with respect to generation, the capacity to meet peak demand. The Consumer Advocate reasoned that the most important marginal cost

variations occur at the bulk power production level and that marginal cost pricing attains the rate design objectives of efficiency, conservation, and equity only at that level.

It measured the marginal cost of meeting peak demand by the annual carrying cost of capacity that must be added only for the purpose of meeting additional demand. The Consumer Advocate assumed an efficient system in which the marginal cost would not exceed the carrying cost of a generating unit with the lowest fixed cost per kilowatt of capacity. Under that assumption, it concluded that the cost of a combustion turbine peaking unit was appropriate in measuring the marginal cost of meeting peak demand.

In determining the marginal cost associated with providing additional bulk power production, the Consumer Advocate estimated (1) the marginal cost of the generation capacity required to meet an additional kilowatt of demand, (2) the marginal cost of associated transmission, and (3) the marginal cost of providing additional energy. The Consumer Advocate based its estimate of the marginal cost of generation capacity on HECO's estimate (excluding general plant and administrative and general loadings, revenue taxes, and line losses). The Consumer Advocate concluded that the marginal cost of the capacity component of bulk power supply is $127.54 per kilowatt year.

The Consumer Advocate's marginal transmission cost is the cost associated with connecting the additional generating unit to HECO's transmission system to meet peak capacity needs. The Consumer Advocate estimated the marginal transmission cost at $3.32 per kilowatt. The Consumer Advocate based its long-run on-peak and

off-peak marginal energy cost estimates on HECO's short-run marginal running costs, escalated from 1991 to 2000 (10 years) by HECO's estimate of annual increases in low sulfur fuel oil, and on escalated variable O&M expenses. The Consumer Advocate discounted and levelized these values at a rate of 9.92 per cent. The Consumer Advocate concluded that HECO's marginal energy cost of bulk power supply ranges from 5.80 cents to 7.18 cents per kilowatthour.

For functional areas besides bulk power production--i.e., for lower level transmission, distribution, and customer service--the Consumer Advocate utilized HECO's embedded costs contained in the utility's cost of service study as approximations of long-run marginal costs. It used the embedded costs for these functional elements, because it concluded that these functional elements are not amenable to marginal cost analysis. However, the Consumer Advocate did not accept HECO's allocation of portions of distribution plant investments and related expenses to customer classes. HECO used the "minimum size" and "zero intercept" methods to determine the customer-related portion of the distribution plant accounts. To the Consumer Advocate, HECO's allocation methods inaccurately assigned cost responsibility to the various rate classes. The Consumer Advocate treated the total investment in distribution plant accounts as demand-related and allocated the investment in accordance with the peak demands of each customer class.

The substitution of marginal cost for embedded cost for bulk power supply (production and transmission) resulted in

collected revenues exceeding revenue requirement. To meet the required revenue level, the Consumer Advocate reduced all of the bulk power production cost components proportionately. This reduction involved the application of a factor of 0.648345 to the bulk power marginal costs to obtain the reconciled embedded revenue requirement for these bulk power production cost components.

The Consumer Advocate allocated the cost of each functional component to customer classes on the basis of allocation factors that reflect each class' responsibility for the cost of that functional component. For instance, for bulk power capacity total cost, the Consumer Advocate developed allocation factors based on each class' contribution to peak demand; for peak and off-peak energy total cost, the Consumer Advocate developed allocation factors based on each class' energy demand at generation level.

In this connection, the Consumer Advocate is critical of HECO's use (in its embedded cost of service study) of the AED method in allocating bulk power (production and transmission) costs. The AED method weighs all fixed bulk power costs by the annual system load factor to determine the portion attributable to energy usage; all excess costs are deemed to be demand-related. The Consumer Advocate claims that this method ignores the importance of marginal demand and energy costs in determining the appropriate separation between energy-related costs and demand-related costs. It notes that, under HECO's embedded cost of service study, demand-related bulk power costs account for 38 per cent of HECO's bulk power revenue requirement; in contrast,

under the Consumer Advocate's study, marginal demand-related bulk power costs account for less than 24 per cent of bulk power marginal costs.

The Consumer Advocate also criticizes HECO's method of allocating demand-related costs. HECO based the allocation on class noncoincident demands, rather than coincident demands. The Consumer Advocate contends that the noncoincident demand approach would cause an excessive portion of bulk power costs to be allocated to lower load factor customer classes (such as residential) and to customers who do not make significant contributions to peak demands. This would result in a subsidization of commercial and industrial customers whose demands are coincident with the system peak.

The Consumer Advocate's coincident peak demand approach to allocating functional costs resulted in the following differences between each class' allocated costs and its portion of HECO's revenue requirement at present rates:

	Consumer Advocate's Allocated Costs ($000)	HECO's Present Rev. ($000)	Difference ($000)
Schedule			
R	154,074	133,959	20,115
G	21,489	26,859	(5,370)
J	68,583	73,383	(4,800)
H	26,169	24,485	1,684
P	203,850	174,145	29,705
F	2,820	2,624	196

In light of the fact that the present class revenue levels deviate significantly from long-run marginal costs, the Consumer Advocate proposes to adjust class revenue levels as follows: (1) for schedules G, J, H and F, increase rates by 7.75 per cent, or approximately 80 per cent of the average percentage increase, and (2) assign the remainder, or approximately 10.3 per cent, to schedules R and P, since these two rate classes deviate most significantly from costs under present rates. The Consumer Advocate recommends that, if the commission grants a higher revenue requirement, the additional amount be distributed in proportion to the Consumer Advocate's proposed revenues.

3. The DOD's proposal.

The DOD agrees that cost should be the primary factor in establishing class revenue requirement and rate design. However, it concedes that other factors, such as simplicity, gradualism, and ease of administration, may also be considered.[38] The DOD prefers the embedded cost approach over the marginal cost approach in allocating the system cost among the various service classes and for rate design. The DOD rejects the use of marginal cost, because (1) marginal cost does not represent the utility's revenue requirement and, thus, cannot be calculated in a straightforward manner, (2) the sum of the calculated marginal costs for individual customer classes will equal the utility's total revenue requirement only by coincidence, necessitating a reconciliation of marginal

[38] The DOD's basic reasons for considering cost as a primary factor are equity, conservation, engineering efficiency (cost-minimization), rate stability, and revenue stability.

cost and the utility's revenue requirement to avoid underrecovery or overrecovery by the utility that would otherwise result from setting rates equal to marginal cost, and (3) the economic justification for marginal cost pricing exists only in theory--the basic assumption underlying the theoretical justification for the use of marginal cost is that all other goods and services in the economy are priced at their respective marginal costs, a situation not likely to occur.

The DOD reviewed the load pattern of HECO's system. Upon review, it determined that HECO's system has a relatively high load factor, a relatively low seasonality, and a fairly broad peak on peak days. Given such load characteristics, the DOD concluded that the use of the AED methodology is appropriate for a study of the cost of service. In general, the DOD concurs with HECO's cost of service study and rate design proposal. However, it objects to HECO's inclusion of approximately $19,000,000 in pension and benefit expenses within the nonlabor component of A&G expenses and to HECO's allocation of revenue responsibility to schedule P.

The DOD contends that HECO erroneously included the $19,000,000 in the nonlabor component of A&G expenses. The DOD asserts that a more correct treatment of the pension and benefit expenses is inclusion in the labor component of A&G expenses, since pension and benefit costs are closely associated with direct labor costs. By inclusion in the labor component, when A&G expenses are distributed among the production, transmission, and distribution functions, the pension and benefit expenses are distributed in proportion to the labor component of each function. The DOD's

treatment of pension and benefit costs would result in a shift of revenue requirement of $1,227,000 to schedule R and $136,000 to schedule G from other rate schedules.

The DOD takes issue with HECO's allocation of the total revenue increase to the various rate schedules. It maintains that there are significant differences in the cost of providing service to the various classes of customers and that these differences must be properly reflected in both revenue allocation and rate design to achieve equitable results. The DOD cautions that if a disproportionate share of the revenue requirement is assigned to a customer class that has an alternative energy resource, the utility will be confronted with a situation where it must discount the rates or lose the load of the customers in the class, either in whole or in part.

The DOD contends that HECO's allocation of the proposed revenue increase in this docket is inconsistent with HECO's expressed long-term objective of achieving an equalized rate of return for all rate classes. It notes that, under HECO's proposal, schedule R will move further below cost, and schedule J will move further above cost. In addition, the DOD observes that the assignment of a substantial revenue increase above cost to schedule P is similarly inconsistent with HECO's long-term objective. Under the DOD's analysis, schedules G, J, and H are subsidizing schedules P, R, and F under present rates. At HECO's proposed rates, the subsidies for schedules R and F will increase further, with schedule P joining the subsidizers.

The DOD produced a comparison of (1) the revenue increases proposed by HECO for each rate class to make up HECO's proposed total system revenue requirement, (2) the revenue increases for each rate class, if each class were assigned such portion of HECO's proposed total revenue requirement that would result in each class generating the same rate of return as the total system rate of return, (3) the revenue increases for each rate class, if the existing subsidies to customer classes P, R, and F were to be reduced by 50 per cent, and (4) the revenue increases for each rate class, if the existing subsidies to customer classes P, R, and F were to be reduced by 25 per cent. The DOD presented this comparison in dollar and percentage terms as follows:

Schedule	Proposed Increases (in $000)							
	(1) HECO's Proposal		(2) Equal Rate of Return		(3) Reduce Sub. by 50%		(4) Reduce Sub. by 25%	
R	$26,679	19.99%	42,730	31.74%	39,017	28.98%	37,138	27.58%
G	4,161	15.08	1,704	6.13	3,480	12.51	4,368	15.70
J	11,378	15.65	4,684	6.43	7,647	10.50	9,129	12.54
H	4,737	20.01	5,019	21.04	5,037	21.12	5,045	21.15
P	32,995	19.01	26,753	15.39	25,762	14.82	25,289	14.54
F	522	20.02	636	24.35	583	22.32	557	21.32
Others	1,054	53.83						
Total	81,526	18.72	81,526	18.72	81,526	18.72	81,526	18.72

The DOD recommends that, at a minimum, the commission adopt a revenue increase allocation plan that will reduce the

existing subsidies by 25 per cent. The DOD believes that failure to move the rates closer to the cost of service will only perpetuate improper price signals and make more attractive the uneconomic bypass of the utility's system. The DOD also proposes that, if the commission concludes HECO is entitled to a smaller increase than requested, such increase be allocated to each schedule in accordance with the allocation plan that will reduce the existing subsidies by 25 per cent.

4. Discussion

The use of long-run marginal cost in allocating system cost and assigning revenue requirement responsibility to the various customer classes has been debated many times in proceedings before this commission. See, e.g., In re Hawaiian Elec. Co., Docket No. 2793; In re Hawaiian Elec. Co., Docket No. 3705; In re Hawaiian Elec. Co., Docket No. 3874; In re Hawaii Elec. Light Co., Docket No. 6432. In each instance, the commission considered but rejected the use of marginal cost in designing rates. The arguments presented in this docket on the issue are not new. For the reasons already stated in the earlier dockets, we decline to adopt the long-run marginal cost approach in this docket. See, in particular, In re Hawaii Elec. Light Co., Docket No. 6432, for our rationale.

HECO and the Consumer Advocate allocated functionalized costs to the various customer schedules in essentially the same manner, except for the allocation of bulk power demand cost. HECO used the AED method, and the Consumer Advocate used the

"12 coincidental peak" method to allocate this cost. In previous cases, the commission approved the use of the AED allocation method. See In re Hawaii Elec. Light Co., Docket No. 6432. We see no reason to alter our position, and reaffirm its use.

Although HECO and the Consumer Advocate used different methods in allocating their respective proposed total revenue increase to various rate classes, they still reached results that are fairly close. The following table illustrates this.

	HECO	Consumer Advocate
Schedule R	33.60%	33.16%
Schedule G	5.31%	5.00%
Schedule J	14.00%	13.67%
Schedule H	5.92%	4.56%
Schedule P	40.52%	43.11%
Schedule F	0.65%	0.49%
Total	100.00%	100.00%

We considered in previous dockets the issue raised by the DOD here that the allocation of the total revenue requirement to the various customer classes should be fashioned in a manner that achieves the generation of a rate of return by each class equal to the system rate of return. We concluded in those dockets that although a large disparity in class rates of return is not desirable, equalization in the rates of return among all classes is not necessarily a goal to be achieved. We recognized that some disparity may be necessary for certain justifiable reasons, so long

as the rates are not unduly discriminatory. In re Hawaiian Elec. Co., Docket No. 4536, Decision and Order No. 7678 at 141 (Sept. 16, 1983). See also In re Hawaiian Elec. Co., Docket No. 3705 (Phase B). We continue to subscribe to that view.

The impact on rate stability and on the various rate schedules is an important consideration in the allocation of revenue increases and in rate design. Under HECO's proposal, the residential class is allocated 33.2 per cent of the proposed increase in total revenue requirement. If the DOD's proposal is adopted and the existing subsidies are reduced by 25 per cent, the residential class would be allocated nearly 50 per cent of the revenue increase. This result is incongruous with our previously stated position on rate design. We conclude that HECO's approach is a reasonable method for maintaining rate stability and avoiding rate shock.

Finally, we reject the DOD's proposal to reclassify $19,000,000 in employee pensions from nonlabor to labor. HECO's inclusion of the pensions within the nonlabor component of A&G expenses is proper. It is in accord with HECO's accounting and budgeting system and is consonant with the Uniform System of Accounts published by NARUC for Class A and B Electric Utilities.

In conclusion, we approve as reasonable HECO's approach and methodology in the allocation of the revenue requirement to the various customer classes. We reject the Consumer Advocate's marginal cost approach and the DOD's recommendations.

B. Rate Changes

1. HECO's proposals

In designing its rates, HECO proposes a number of changes to its rules, schedules, and rate schedule charges. These changes result in increases to customer charges, demand charges, and energy charges. HECO represents that these changes take into account generally accepted rate design objectives, including (1) recovering revenue requirement, (2) moving toward cost of service, (3) improving revenue stability, (4) providing interclass fairness, (5) improving intraclass fairness, (6) maintaining rate continuity, (7) encouraging efficient use of utility plant and improving load factor, (8) improving understandability of rate schedules and rules, (9) facilitating tariff administration, (10) encouraging load management, and (11) improving marketability of load management riders. However, HECO asserts that certain increases in customer and demand charges will still leave these charges substantially below the full cost of service. It represents that such a result is unavoidable, if it is to maintain rate stability and to prevent rate shock.

a.

HECO proposes modifications in customer charges, demand charges, and energy charges in each of its rate schedules R, G, J, H, P, and F as follows.[39]

(1) Schedule R (residential). HECO proposes to (a) increase the customer charge from $6 per month to $10 per month, (b) increase the nonfuel charge from 3.586 cents per kWh to 4.532 cents per kWh, (c) increase the base fuel energy charge from 6.452 cents per kWh to 6.499 cents per kWh, (d) increase the minimum charge from $15 per month to $17 per month, and (e) delete the $2 per month multi-family dwelling charge.

(2) Schedule G (general service, non-demand). HECO proposes to (a) increase the customer charge from $15 per month to $20 per month for single-phase customers and from $30 per month to $40 per month for three-phase customers, (b) increase the energy charge from 11.177 cents per kWh to 12.004 cents per kWh, and (c) increase the minimum charge from $15 per month to $30 per month for single-phase customers and from $30 per month to $50 per month for three-phase customers.

(3) Schedule J (general service, demand). HECO proposes to (a) increase the customer charge from $15 per month to $30 per month for single-phase customers and from $30 per month to $50 per month for three-phase customers, (b) increase the demand charge

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[39] These rate design proposals are based on a total revenue increase of $85,212,000, which is $3,189,000 more than the revenue increase of $82,023,000 requested by HECO in its application. HECO will be required to submit a new rate design consistent with the methods and amounts approved by the commission in this decision and order.

from $4 per kW to $5 per kW, which is substantially lower than HECO's original proposal of $8 per kW, (c) increase the energy charge in the first 200 kWh per kW load factor block from 9.220 cents per kWh to 9.980 cents per kWh, in the second 200 kWh per kW load factor block from 8.571 cents per kWh to 9.234 cents per kWh, and in the third over 400 kWh per kW load factor block from 7.040 cents per kWh to 7.500 cents per kWh, and (d) add a power factor adjustment provision for customers with demand of 200 kW or higher to account for the cost of providing reactive power to the customers.

(4) Schedule H (commercial heating, cooking, and air conditioning). HECO seeks to (a) increase the customer charge from $10 per month to $15 per month for single-phase customers and from $20 per month to $35 for three-phase customers, (b) increase the demand charge from $4 per kW to $6 per kW, and (c) increase the energy charge from 8.709 cents per kWh to 9.283 cents per kWh.

(5) Schedule P (large power). HECO proposes to (a) decrease the customer charge from $400 per month to $350 per month, (b) increase the demand charge from $6.50 per kW to $7.00 per kW for the first 500 kW of billing demand, from $6.00 per kW to $6.40 per kW for the next 1,000 kW, from $5.70 per kW to $5.90 kW for the next 3,500 kW, and from $5.50 per kW to $5.60 per kW for over 5,000 kW of billing demand, and (c) decrease the energy charges, to reflect lower fuel prices, from 7.825 cents per kWh to 6.683 cents per kWh in the first 200 kWh per kW block, from 7.750 cents per kWh to 5.632 cents per kWh in the next 200 kWh per

kW block, and from 6.848 cents per kWh to 4 cents per kWh for all energy over 400 kWh per kW.

(6) Schedule F (street lighting service). HECO proposes to (a) increase the energy charge from 11.690 cents per kWh to 13.300 cents per kWh in the first 150 kWh per kW load factor block and from 7.880 cents per kWh to 8.968 cents per kWh in the over 150 kWh per kW load factor block and (b) decrease the minimum charge from $38 per month to $35 per month.

b.

HECO proposes to add a new schedule U, delete schedule O, and modify rider T and schedule Q, as follows.

(1) Schedule U. The proposed schedule U (time of use service) is a stand-alone, time-of-day rate schedule that would be available to any customer with a demand of 300 kW or more. It is intended to encourage off-peak energy use and to discourage on-peak demand without penalizing on-peak energy use. It is a load management schedule. Schedule U replaces to some extent schedule O (off-peak service), which HECO proposes to eliminate.

Current schedule P customers are potential subscribers of schedule U. As a result, the customer charge of $300 per month and the demand charge of $10.75 per kW in schedule U are identical to the customer charge and the demand charge in schedule P. The proposed minimum charge is the sum of the customer charge and the demand charge.

(2) Schedule O. HECO proposes to eliminate schedule O (off-peak service), because the terms and provisions of the

schedule are so inflexible as to make the schedule difficult, if not impossible, to market. There are currently no subscribers to this service.

(3) Rider T. HECO proposes to modify rider T to make it easier to administer and more understandable. HECO would eliminate the excess off-peak demand charge, modify the minimum energy charge by excluding surcharges and credits, and use the on-peak billing demand to calculate demand, energy, and minimum charges.

(4) Schedule Q. HECO proposes to increase the base purchased energy payment rate in schedule Q from 6.60 cents to 6.74 cents per kWh to reflect test year composite fuel prices. HECO would not make any other modifications to schedule Q.

c.

HECO proposes to change its rules in the following respects.

(1) Service establishment charge. HECO proposes to increase the amount of the service establishment charge from $10 to $12.50. The increase will bring the charge closer to HECO's cost of service.

(2) Field collection charge. HECO proposes to increase the field collection charge from $10 to $12.50 to move the charge closer to HECO's cost of service. HECO also proposes to modify the circumstances under which the charge may be collected. HECO would assess the charge whenever a field collection call is made, whether or not the unpaid bill is successfully collected. HECO

asserts that the cost responsibility should be assigned to the customer who causes HECO to incur the cost. Otherwise, HECO's customers who pay on time will be subsidizing those who cause HECO to make field calls.

(3) Fuel adjustment clause. HECO proposes to move the fuel adjustment clause from each separate rate schedule into one common rate sheet. This will simplify the individual rate schedules. HECO also proposes changes in its fuel adjustment clause. These proposed changes are addressed in another part of this decision and order.

(4) Master metering. HECO proposes to move the master metering provision from rate schedules G, J, and P to rule 10. This change will simplify the individual rate schedules by consolidating the master metering provisions in one rule.

(5) Late payment charge. HECO proposes to modify the late payment charge clause to clarify the timing of its late payment charge. The modification provides that HECO will assess the late payment charge on any unpaid balance when HECO calculates the next bill.

2. The Consumer Advocate's position

From the Consumer Advocate's perspective, rate design and structure influence energy use and demand patterns and customer behavior. The Consumer Advocate's general observation is that HECO's rate structure proposals encourage consumption. It believes that, instead of encouraging consumption, HECO's rate design should encourage conservation. The Consumer Advocate is concerned that

HECO's proposals would adversely impact the development of demand-side options and integrated resource planning. The Consumer Advocate is particularly critical of HECO's approach because it results in increases to fixed charges (e.g., customer charges and demand charges) that are higher than increases in energy charges. The Consumer Advocate claims that HECO's proposals fail to consider customer conservation or energy efficiency improvements.

Despite these general objections, the Consumer Advocate has not proposed an alternative rate design scheme or offered specific comments, except on HECO's proposal to increase the customer charge in various rate schedules. The Consumer Advocate recommends that customer charges be frozen at current levels until HECO provides a detailed impact analysis and justification for its proposed increase.

The Consumer Advocate offers specific comments only with respect to HECO's proposal to increase the customer charge from $6 per month to $10 per month in schedule R. The Consumer Advocate deems this increase of 66.7 per cent unwarranted. It asserts that the customer charge should reflect the costs that are avoided if customers leave the system. Such costs are primarily those associated with the operation and maintenance of specific customer service facilities, meter reading, and billing functions. The Consumer Advocate calculates the annual avoidable residential customer costs at $3.40 per customer per month and argues that the existing $6 per customer per month charge is more than adequate to cover that amount.

The Consumer Advocate further asserts that the $6 charge is more consistent with the commission's interest in promoting conservation and economic efficiency. It claims that increasing the fixed charge adversely affects low use customers. The increase would force them to bear a disproportionate share of the revenue collection responsibility, to the benefit of high use customers. Finally, the Consumer Advocate accuses HECO of raising the fixed residential service charge to recover as much of its costs as possible through nonreviewable automatic recovery provisions.

The Consumer Advocate recommends that the commission require HECO in future rate applications to:

1. Include customer conservation and energy efficiency improvements in its rate design objectives;
2. Provide a detailed analysis of the anticipated and potential impacts of proposed rate changes on customer conservation and energy efficiency options; and
3. Delineate the potential for demand-side management (DSM) and the impacts of any rate change on DSM and integrated resource planning options.

The Consumer Advocate also recommends that the commission require HECO to address HECO's DSM potential through a pilot DSM analysis, implementation, and evaluation program, either as a result of this rate case or the pending IRP investigation in Docket No. 6617.

In addition to the above, the Consumer Advocate would have the commission subject any rate changes approved in this docket to the findings and results of the IRP docket.

3. Discussion

On a general note, we share the Consumer Advocate's concern that HECO seems to assign more of the increases in revenue requirement to fixed charges than to charges associated with energy use. However, with the exceptions detailed below, we agree with HECO's proposals in the design of its rates.

a.

We agree with the Consumer Advocate that HECO's proposal to increase schedule R's customer charge from $6 to $10 per month represents too large an increase to be implemented at once. The customer charge is a sensitive issue, particularly with residential customers. As we stated before, an increase in customer charge should be on a gradual basis, since it has a direct financial impact on low-income customers. See In re Hawaiian Elec. Co., Docket No. 3874, Decision and Order No. 6696 (June 26, 1981); In re Hawaii Elec. Light Co., Docket No. 6432, Decision and Order No. 10993 (Mar. 6, 1991).

However, the commission appreciates HECO's desire to move customer charge closer to customer cost as determined by HECO's cost of service study. Thus, we do not agree with the Consumer Advocate that the customer charge should be kept at $6 per month. Customer cost has increased since the last rate case. We conclude

that a moderate increase of $1 per month is appropriate and reasonable. This modest increase should not unduly burden residential customers.

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b.

We are as concerned as the Consumer Advocate that HECO has not included any substantive discussion or proposals regarding customer conservation and energy efficiency improvements in its rate design. In view of the substantial rise in incremental new plant costs in recent years, we believe that HECO must give serious consideration to these matters. We, therefore, accept the Consumer Advocate's recommendations and direct HECO to include the following in its next rate case:

1. Customer conservation and energy efficiency improvements as part of its rate design objectives.
2. A detailed analysis of the anticipated and potential impact of proposed rate changes on customer conservation and energy efficiency options.
3. A delineation of the potential for DSM and the impact of any rate change on DSM and IRP options.

c.

The Consumer Advocate does not raise any objection to HECO's proposals to increase the field collection charge and to modify the circumstances under which the field collection charge may be collected. However, we find the proposal to change HECO's method of collecting the field collection charge to be

unreasonable. HECO proposes to assess a field collection charge regardless of whether an overdue payment has been successfully collected.

The assessment of field collection charges has been repeatedly addressed by the commission in rate cases. See In re Maui Elec. Co., Docket No. 4691, Decision and Order No. 8048 (Aug. 20, 1984); In re Hawaii Elec. Light Co., Docket No. 4833, Decision and Order No. 8179 (Nov. 23, 1984); In re Hawaii Elec. Light Co., Docket No. 6432, Decision and Order No. 10993 (Mar. 6, 1991). The commission decided in these cases that an assessment of a field collection charge should not be allowed where collection is unsuccessful. HECO has not offered any rationale in this docket to cause the commission to alter its position. Therefore, HECO's proposal to assess a field collection charge, regardless of success in collection, is denied.

d.

HECO does not propose in this docket changes in schedule Q similar to those proposed by HELCO in Docket No. 6432. In that docket, HELCO proposed revisions that included the elimination of the avoided O&M cost component and the revision of heat rates consistent with the operating conditions established in that rate case. The effect of the proposed revisions was a reduction in HELCO's avoided energy costs. In proposing the revisions, HELCO cited the commission's rule 6-74-17(b), which states:

> Each electric utility shall submit avoided energy costs consisting of cost of fuel, which shall be computed based on the latest composite fuel price stated in cents per million BTU multiplied by the heat rate per million BTU

> per net kilowatthour. The subtotal is then adjusted for the power factor adjustment in cents per net kilowatthours plus the generation operating and maintenance costs in cents per net kilowatthour multiplied by the hour-weighing factor for on-peak and off-peak periods. The heat rate, power factor adjustment and generation operating and maintenance costs shall be derived from the electric utility's last rate increase approved by the commission.

We made no ruling on HELCO's proposal. In Decision and Order No. 10993, issued in Docket No. 6432, we stated that we will address the issue later in a separate decision and order.

Because HECO and HELCO have identical formulas for the calculation of avoided energy costs for schedule Q, the ruling on HELCO's proposal would probably impact on HECO (as well as on other utilities that utilize the same formula). We, therefore, reserve for later examination possible revisions in HECO's schedule Q.

C. Integrated Resource Planning Cost Recovery

1. HECO's proposal

Earlier in our discussion of HECO's proposed administrative and general expenses, we allowed HECO to include as expense for the test year $200,000 in consultant's fees for integrated resource planning. HECO also proposes to include an integrated resource plan cost recovery provision (IRP clause) in its rates, identical to the IRP clause we approved for HELCO in In re Hawaii Elec. Light Co., Docket No. 6432, Decision and Order No. 10993 (Mar. 6, 1991).

The IRP clause is intended as a mechanism through which HECO may recover, without instituting a rate case, expenses associated with the development of an integrated resource plan and

implementation of specific IRP programs. HECO intends the IRP clause to operate like its fuel adjustment clause and firm capacity surcharge. The expenses incurred by HECO to develop its integrated resource plan and to implement integrated resource programs would be recovered through a surcharge contained in HECO's customers' bills. The expenses to be included in the clause would be subject to prior commission review and approval. The amount of the surcharge would be determined by the commission. It would be based on (1) the expenses for integrated resource planning that are incurred by HECO and are not recovered through the base rates, (2) the period of time over which the expenses would be recovered, and (3) the number of kilowatthours that are forecasted over that time period. A reconciliation to actual cost recovery would be made on a quarterly basis.

Alternatively, if the commission does not approve an IRP clause, HECO proposes a less preferable cost recovery mechanism--the inclusion of integrated resource planning costs in its rate base. This measure would allow HECO to recover its investment over the life of integrated resource planning projects. HECO asserts that developing an integrated resource plan and implementing recommended programs will be expensive, and some cost recovery mechanism must be instituted. HECO estimates that it would probably cost somewhere between $300,000 and $1,000,000 over a two-year period to develop an integrated resource plan.

2. The Consumer Advocate's position

The Consumer Advocate is willing to support HECO's IRP clause proposal, provided HECO enters immediately into a pilot demand-side management program. The Consumer Advocate would condition the allowance of the IRP clause on the establishment of (1) a balancing account for the recovery of all expenses associated with the integrated resource planning process on an automatic recovery basis and (2) meaningful checks and balances to ensure that HECO's expenditures against the account are reasonable and prudent.

Specifically, the Consumer Advocate would require a detailed procedure for advance review and approval by the commission of proposed integrated resource planning projects and expenditures. It would also require that all expenditures be subject to later prudence review. The Consumer Advocate suggests that projects be approved on a project-by-project basis and that HECO be required to provide detailed, analytic information on each project, including a statement of the need for and the objectives of the project, the timetable for the implementation of the project, and the full costs of the project. It also suggests that integrated resource planning projects be approved on a "not to exceed" basis. The Consumer Advocate would have itself and other interested parties involved in the approval process and suggests that a final report, outlining accomplishments and other pertinent information, be filed with the commission upon the conclusion of the project.

HECO objects to linking the allowance of an IRP clause to the conditions suggested by the Consumer Advocate. HECO contends that proposals for pilot demand-side management programs should be considered on their own merit and not be tied to the approval of an IRP clause. Since DSM is only one component of integrated resource planning, HECO believes that it is premature to embark on a pilot DSM project before a determination has been made in the commission's integrated resource planning docket (Docket No. 6617). HECO posits two additional reasons against conducting a pilot DSM program: (1) HECO has already conducted four DSM projects and (2) HECO will be hiring a consultant with special expertise in developing and evaluating demand-side options. HECO agrees that meaningful checks and balances for IRP projects and expenditures are warranted, but strongly objects to later prudence review.

3. The DOD's position.

The DOD believes that it is inappropriate to single out a particular set of costs for automatic recovery, unless they (1) represent a large percentage of the utility's total costs, (2) tend to be unpredictable, and (3) are generally not within the control of the utility. The DOD claims that HECO has not demonstrated the need for an automatic adjustment clause for integrated resource planning costs. It argues that integrated resource planning costs are not subject to unpredictable price fluctuations and are fully within HECO's ability to control. As a result, such costs should be treated and recovered in the same

way that costs for developing other studies are treated and recovered. The DOD warns that providing an automatic recovery of IRP costs without considering other factors in HECO's operations could result in overearnings by HECO.

4. Discussion

As asserted by the DOD, automatic adjustment clauses, or balancing accounts, are generally appropriate only for expenses that are substantial, volatile, and beyond the control of the utilities. HECO's proposed IRP clause does not meet these criteria. However, since integrated resource planning is a new, complex, and likely costly undertaking, we believe it is appropriate to provide HECO with a cost recovery mechanism to remove impediments to proceeding with that planning process.

We share the Consumer Advocate's concerns about the growth in demand for energy and the high costs of generation expansion. We appreciate the reasons for the Consumer Advocate's insistence that approval of an IRP clause be conditioned on HECO embarking immediately on a pilot demand-side management program. However, we do not believe it is appropriate to require HECO to pursue a pilot demand-side management program at this time or in this docket. In this docket, we focus simply on whether HECO should be allowed an IRP clause, which HECO claims (and we agree) is necessary for HECO to engage in integrated resource planning as required by this commission in Docket No. 6617.

Whether HECO should undertake immediately a pilot demand-side management program is an issue that should be addressed

in Docket No. 6617. Indeed, our prehearing order in Docket No. 6617 poses as an issue whether the utilities should undertake immediate demand-side management programs, pending the full development of integrated resource plans. Docket No. 6617 is progressing as scheduled, and we see no need in this docket to order HECO to implement a demand-side management program as a condition to the allowance of an IRP clause.[40]

We are in accord with the Consumer Advocate, however, that there is a need for checks and balances to ensure the reasonableness and prudence of HECO's IRP expenditures. An IRP clause is a new undertaking. Given the nature of the expenses of integrated resource planning, the clause requires greater monitoring than a fuel adjustment clause.

Integrated resource planning costs appear to fall into at least two major categories: (1) the costs of planning and (2) the costs of implementing particular options. The costs of planning include those associated with the development of the framework for planning and those associated with the planning process. Included in these costs are the costs of data gathering, development of models, and research and development of options in meeting the demand for energy. The costs of implementing

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[40] On August 2, 1991, HECO, together with MECO and HELCO, filed an application with the commission for approval of a commercial lighting pilot demand-side management program (Kukui'uila energy efficiency program) for implementation on the islands of Oahu, Maui, Lanai, Molokai, and Hawaii. The program consists of two components: (1) an education program on lighting options and (2) efficient lighting measures, including exit light retrofits, incandescent retrofits, T-12 electric ballast conversions, and T-8 TriChrome lamps and electronic ballast conversions. The docket is pending.

particular options include the costs of particular programs or projects selected to satisfy the demand for energy.

With respect to the first category of costs, we will require HECO to develop an annual budget of the costs it proposes to include in the IRP clause. HECO shall submit this budget to the commission for approval. The utility shall also furnish the commission with an accounting of expenditures and a report on the variance between the budget and actual expenditures before any cost is included in the IRP clause. With respect to the second category of costs, we will require HECO to present its proposed program or project to the commission for prior approval, together with information concerning the expenses expected to be incurred, in much the same manner as it is required to do, under General Order No. 7, rule 2.3.g.2, for proposed capital expenditures in excess of $500,000.

Although we approve the establishment of an IRP clause, we retain the authority to determine whether any particular cost or expense may be recovered through the clause. The IRP clause may not be the proper mechanism for the recovery of all integrated resource planning costs. Particularly with respect to program or project costs, legitimate questions may be raised as to whether such costs should be recovered through the IRP clause or whether they should be included in HECO's rate base. The commission retains the authority to make that determination on a case-by-case basis.

D. Employee Discount

In schedule E, HECO provides residential service rates for HECO employees that are one-third less than the rates for nonemployee residents under schedule R. HECO is required to provide the employee discount to its union employees and retirees pursuant to a collective bargaining agreement between HECO and the International Brotherhood of Electrical Workers, Local 1260, AFL-CIO. The employee discount has been in effect for at least 20 years.

The Consumer Advocate suggests that the commission disallow the employee discount or impute to HECO the revenues that the company would receive but for the discount. The Consumer Advocate contends that the employee discount is contrary to public policy of encouraging energy conservation, as set forth in HRS § 226-18(c)(3). The Consumer Advocate asserts that HECO's employee discount encourages inefficient use of electricity by its employees. It notes that an average employee's usage of electricity is currently 32 per cent higher than that of a nonemployee residential customer. Over the past six years, this figure has varied between 32 per cent to 35 per cent. Further, the Consumer Advocate submits that the ratepaying public perceives the discount as basically unfair. In addition to disallowance of the discount, the Consumer Advocate recommends that the commission impute to HECO the sum of $555,000, which HECO has foregone in past revenues as a result of the discount program and disallow all expenses associated with the employee discount program from the test year expenses.

The DOD would also disallow the employee discount. It argues that providing discounted electric service effectively promotes consumption of a scarce resource, contrary to conservation objectives and public policy. The DOD also notes that the employee discount on electric service is generally not considered a part of an electric utility's compensation package. The DOD recommends that the employee discount rate provision be eliminated and that $478,300 in employee electric service discounts be restored to test year revenues.

HECO defends the employee discount as follows: (1) the employee discount is a contractual obligation between the company and the employee union, and the Consumer Advocate's and the DOD's proposals constitute an unwarranted interference with the collective bargaining process between HECO and its employees; (2) the employee discount is a mechanism through which the company compensates its employees without subjecting that compensation to various taxes; (3) it would cost from $1.50 to $1.70 in additional salary or benefit costs to replace a $1 discount on an employee's electric bill; (4) adoption of the recommendation that revenues associated with the program be imputed to HECO would not address the matter of the inefficient use of energy, as employees would continue to use electricity at the discounted rates; and (5) both the Consumer Advocate and the DOD ignore the differences in demographics of the customers within schedules E and R. With respect to the last point, HECO states its 1980 survey shows that schedule E households were 19 per cent larger than schedule R households, that one-third more schedule E customers had

all-electric homes, and that 25 per cent more schedule E customers lived in single-family dwellings. HECO asserts that these demographic differences are the cause of higher consumption of energy, not the inefficient use of energy.

Employee discount has been an issue many times before in rate cases. We have repeatedly rejected its elimination, and we reject it in this docket. The employee discount has been negotiated in good faith between HECO and its employees. We are constrained from interfering with that negotiated agreement, although there is nothing that legally requires us to recognize the discount.

However, we are disturbed by the fact that the average HECO employee's usage of electricity is more than 30 per cent higher than that of a nonemployee residential consumer. It appears that higher electricity usage is the norm among all electric utility employees in the State. It may be true that the demographic differences between HECO employees and HECO's nonemployee residential customers may partially account for the difference in the consumption of electricity. However, we do not believe that differences in demographics alone sufficiently account for the higher consumption of electricity by HECO employees.

We agree with the Consumer Advocate that a wrong energy conservation impression is conveyed to the public by the employee discount. General ratepayers should not have to subsidize high energy consumption by HECO employees. For these reasons, we urge HECO to consider other compensation alternatives.

VIII.

ULTIMATE FINDINGS AND CONCLUSIONS

1. The operating revenues, operating expenses, and operating income for the test year, as set forth in Exhibit A, are reasonable.

2. The use of an average test year rate base is reasonable.

3. The test year average depreciated rate base under present rates is $536,485,900. The test year average depreciated rate base under approved rates is $533,413,800. See Exhibit B.

4. Under existing rates, HECO's income for the test year would provide a rate of return of 4.44 per cent on the average rate base.

5. The capital structure for the test year is as follows: short-term debt, 2.45 per cent; long-term debt, 41.90 per cent; preferred stock, 11.13 per cent; and common equity, 44.52 per cent. The costs of capital are 8.15 per cent for short-term debt, 7.60 per cent for long-term debt, 7.36 per cent for preferred stock, and 13.00 per cent for common equity. A fair rate of return for the test year is 9.99 per cent.

6. HECO is entitled to a final total rate increase that will produce a revenue increase of $52,019,600.

7. The interim increase of $602,500 granted under Decision and Order No. 10775, effective October 5, 1990, was necessary, just, and reasonable. No refunds are required.

8. An additional increase of $5,430,100 over and above the interim increases is necessary, just, and reasonable.

9. The interim fuel adjustment clause approved by Decision and Order No. 10568 was necessary, just, and reasonable. No refund is required.

10. A provision to recover costs associated with integrated resource planning and with the implementation of particular IRP options is necessary, just, and reasonable.

IX.

THE COMMISSION ORDERS:

1. HECO may increase its rates to produce a final total annual sales revenue increase of $52,019,600, as shown on Exhibit A, or a rate of return of 9.99 per cent on the rate base for the test year. This increase supplants the increases previously approved by the commission on an interim basis in this docket. The effective date of the rate increase is October 25, 1991.

2. HECO shall provide to the commission revised cost of service studies, rate design changes, rules, rate schedules, and appropriate work papers (collectively, rate revisions) reflecting the increases authorized by this decision and order. The rate revisions shall be served on the parties and shall be filed with the commission by October 23, 1991.

3. HECO may place into effect, on a permanent basis, the fuel adjustment clause made effective on an interim basis by Decision and Order No. 10568.

4. HECO may place into effect a cost recovery provision (IRP clause) in its rates to recover its costs associated with

integrated resource planning and with the implementation of particular IRP options. The recovery of costs through the IRP clause shall be subject to the conditions, reservations, and retentions of authority set forth in this decision and order.

5. HECO shall submit annually to the commission for approval, a budget of the costs it proposes to include in the IRP clause. HECO shall submit to the commission for approval an accounting of expenditures and a report on the variance between the budget and actual expenditures before the inclusion of any cost in the IRP clause.

6. HECO shall submit annually to the commission and to the Consumer Advocate an "Annual Service Reliability Report" and "Annual Circuit Report."

7. HECO shall submit annually to the commission and to the Consumer Advocate a study or review of the manner in which its flex credit levels and its flex prices are determined. The study shall include a comparative schedule disclosing the actual savings realized as a result of the flex plan, over HECO's former health benefits plan.

8. HECO shall submit to the commission for calendar year 1990 an itemized schedule describing each of its training programs and comparing the amount approved in this rate case with the actual expenditure for each training program.

9. HECO's firm capacity surcharge associated with the purchased power contract with Kalaeloa shall be terminated upon the effective date of the revised rates approved by this decision and order. HECO shall submit a report reconciling the amounts

collected through the surcharge with the amounts actually paid under the Kalaeloa contract. Any overcollection of the firm capacity surcharge shall be refunded to HECO's ratepayers.

10. HECO shall include the following in its next rate case:

a. Customer conservation and energy efficiency improvements as part of its rate design objectives.

b. A detailed analysis of the anticipated and potential impact of proposed rate changes on customer conservation and energy efficiency options.

c. A delineation of the potential for DSM and the impact of any rate change on DSM and IRP options.

DONE at Honolulu, Hawaii this 17th day of October, 1991.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By _____
Yukio Naito, Chairman

By _____
Clyde S. DuPont, Commissioner

By _____
Patsy K. Young, Commissioner

APPROVED AS TO FORM:

_____
Sandra Y. Takahata
Commission Counsel

DOCKET NO. 6531

HAWAIIAN ELECTRIC COMPANY, INC.

RESULTS OF OPERATIONS
($ IN 000'S)

	PRESENT RATES	ADDITIONAL AMOUNT	APPROVED RATES
Operating Revenues:			
Electric	522,280.4	52,019.6	574,300.0
Other	2,083.5		2,083.5
Total Operating Revenues	524,363.9	52,019.6	576,383.5
Operating Expenses:			
O&M:			
Fuel	213,582.9		213,582.9
Purchased Power	121,403.0		121,403.0
Production	27,456.0		27,456.0
Transmission	5,304.0		5,304.0
Distribution	11,089.0		11,089.0
Customer Accounts	6,398.3	52.0	6,450.3
Customer Service	1,671.4		1,671.4
Administrative & General	32,803.0		32,803.0
Rate Case Labor Adjustment	285.0		285.0
Wage Rollback	775.0		775.0
Work Force Adjustment	(1,342.0)		(1,342.0)
Total O&M	419,425.6	52.0	419,477.6
Depreciation & Amortization	32,095.8		32,095.8
Taxes, Other than Income Tax	48,094.7	4,492.0	52,586.7
Interest on Customer Deposit	89.0		89.0
Income Taxes	836.1	18,026.4	18,862.5
Total Operating Expenses	500,541.2	22,570.4	523,111.6
Net Operating Income	23,822.7	29,449.2	53,271.9
Average Depreciated Rate Base	536,485.9	(3,072.1)	533,413.8
Rate of Return	4.44%		9.99%

EXHIBIT A
Page 1 of 4

DOCKET NO. 6531

HAWAIIAN ELECTRIC COMPANY, INC.

ANALYSIS OF RATE INCREASE
($ IN 000'S)

	AMOUNT	% INCREASE
INTERIM INCREASES GRANTED:		
INTERIM 10/5/90 *	602.5	0.12%
KALAELOA 5/19/91 *	45,987.0	8.81%
TOTAL INTERIM GRANTED	46,589.5	8.92%
ADDITIONAL INCREASE	5,430.1	1.04%
TOTAL RATE INCREASE	52,019.6	9.96%

* Effective dates.

DOCKET NO. 6531

HAWAIIAN ELECTRIC COMPANY, INC.

TAXES OTHER THAN INCOME TAXES

($ IN 000'S)

	PCT.	PRESENT RATES	APPROVED RATES
Electric Revenues		522,280.4	574,300.0
Other Revenues		2,083.5	2,083.5
PUBLIC SVC CO TAX	5.885%	30,858.8	33,920.2
PUC FEES	0.250%	1,310.9	1,441.0
FRANCHISE ROYALTY TAX	2.500%	13,057.0	14,357.5
		45,226.7	49,718.7
PAYROLL TAXES		2,868.0	2,868.0
		48,094.7	52,586.7

DOCKET NO. 6531

HAWAIIAN ELECTRIC COMPANY, INC.

COMPUTATION OF INCOME TAX EXPENSE
($ IN 000'S)

	PRESENT RATES		APPROVED RATES
Income:			
Operating Revenues	522,280.4	52,019.6	574,300.0
Other	2,083.5		2,083.5
Total Income	524,363.9	52,019.6	576,383.5
Deductions:			
Fuel Oil & Purchased Power	334,985.9		334,985.9
Other O&M Expenses	84,439.7	52.0	84,491.7
Depreciation	32,095.8		32,095.8
Taxes, Other than Income	48,094.7	4,492.0	52,586.7
Interest on Customer Deposit	89.0		89.0
Total Deductions	499,705.1	4,544.0	504,249.1
Tax Adjustments:			
Interest Expense	(17,490.9)		(17,490.9)
Depreciation Adjustment	2,807.0		2,807.0
Meals & Entertainment	32.0		32.0
Keyman Insurance	128.0		128.0
Total Tax Adjustments	(14,523.9)	0.0	(14,523.9)
Taxable Income	10,134.9	47,475.6	57,610.5
Income Tax:			
Tax Rate: 37.9699%	3,848.2	18,026.4	21,874.6
Less Amortization of:			
Federal ITC	(1,193.0)		(1,193.0)
State ITC (Net of Tax)	(67.0)		(67.0)
Excess Deferred Taxes	(1,752.1)		(1,752.1)
Total Income Tax	836.1	18,026.4	18,862.5

DOCKET NO. 6531

HAWAIIAN ELECTRIC COMPANY, INC.

AVERAGE DEPRECIATED RATE BASE
($ IN 000'S)

	1/1/90	12/31/90
Utility Plant in Service	950,177.0	1,048,590.0
Less Accumulated Depreciation	(315,720.0)	(343,934.0)
Net Plant in Service	634,457.0	704,656.0
Additions:		
Materials & Supplies	6,921.6	6,521.6
Fuel Oil Inventory	18,062.1	18,062.1
Property Held for Future Use	762.0	762.0
Total Additions	25,745.7	25,345.7
Deduct:		
Unamortized Contributions	43,501.0	68,249.0
Customer Advances	2,166.0	2,472.0
Customer Deposits	1,508.0	1,455.0
Deferred Income Taxes	103,079.5	98,864.9
Unamortized ITC	1,935.0	2,020.0
Unamortized Lease Premium	1,013.0	963.0
Deferred Gain on Sale	2,408.0	2,408.0
Total Deductions	155,610.5	176,431.9
Depreciated Rate Base Before Working Cash	504,592.2	553,569.8
Average		529,081.0
Add Working Cash		7,404.9
Average Depreciated Rate Base - Present Rates		536,485.9
Less Change in Working Cash		(3,072.1)
Average Depreciated Rate Base - Approved Rates		533,413.8

EXHIBIT B

DOCKET NO. 6531

HAWAIIAN ELECTRIC COMPANY, INC.

COMPUTATION OF WORKING CASH ITEMS
($ IN 000'S)

	Collection Lag Days	Payment Lag Days	Net Lag Days	Net Lag Days/365
Expenses Requiring Cash:				
Fuel Oil Purchases	38	21	17	4.6575%
Purchased Power	38	38	0	0.0000%
O&M - Labor	38	10	28	7.6712%
O&M - Other	38	21	17	4.6575%
Depreciation			0	0.0000%
Deferred Taxes			0	0.0000%
Return on Common			0	0.0000%
Expenses Providing Cash:				
Revenue Taxes	38	95	(57)	-15.6164%
Income Taxes	38	86	(48)	-13.1507%
Interest Expense			0	0.0000%
Preferred Dividend			0	0.0000%

	Present Rates		Approved Rates	
	Expense	Working Cash	Expense	Working Cash
Expenses Requiring Cash:				
Fuel Oil Purchases	213,582.9	9,947.7	213,582.9	9,947.7
Purchased Power	121,403.0	0.0	121,403.0	0.0
O&M - Labor	37,997.9	2,914.9	37,997.9	2,914.9
O&M - Other	46,441.8	2,163.0	46,441.8	2,163.0
Depreciation		0.0		0.0
Deferred Taxes		0.0		0.0
Return on Common		0.0		0.0
Expenses Providing Cash:				
Revenue Taxes	48,094.7	(7,510.7)	52,586.7	(8,212.2)
Income Taxes	836.1	(110.0)	18,862.5	(2,480.6)
Interest Expense		0.0	0.0	0.0
Preferred Dividend		0.0	0.0	0.0
Total		7,404.9		4,332.8
Change in Working Cash				3,072.1

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing Decision and Order No. 11317 upon the following parties, by causing a copy hereof to be mailed, postage prepaid, and properly addressed to each such party.

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DIVISION OF CONSUMER ADVOCACY
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Bertha F. Kurosawa
Chief Clerk

DATED: October 17, 1991