



October 29, 2018

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2018 OCT 29 P 3:19

The Honorable Chair and Members
of the Hawaii Public Utilities Commission
Kekuanaoa Building, First Floor
465 South King Street
Honolulu, Hawai'i 96813

PUBLIC UTILITIES
COMMISSION

Dear Commissioners:

Subject: Hawaiian Electric Energy Cost Adjustment Factor for November 2018

Hawaiian Electric Company, Inc.'s ("Hawaiian Electric" or "Company") November 2018 energy cost adjustment factor is 5.151 cents per kilowatt-hour ("kWh"), an increase of 1.143 cents per kWh from last month. A residential customer consuming 500 kWh of electricity will be paying \$167.62, a decrease of \$0.51 compared to rates effective October 1, 2018. The decrease in the residential typical bill is comprised of the increase in energy cost adjustment factor (+\$5.72), increase in the DSM Adjustment (+\$0.13), offset by the decrease in the Purchase Power Adjustment (-\$6.36).

The Company's fuel composite cost of major energy increased 69.44 cents per million BTU to 1,474.55 cents per million BTU. The Company's composite cost of minor energy increased 26.335 cents per kWh to 40.700 cents per kWh. The composite cost of purchased energy increased 0.649 cents per kWh to 10.422 cents per kWh.

The attached sheets set forth the energy cost adjustment factor in cents per kWh for each rate schedule that is applicable for *pro rata* use beginning November 1, 2018.

Very truly yours,

Dean K. Matsuura
Director, Regulatory Rate Proceedings

Attachments

cc: Division of Consumer Advocacy

Hawaiian Electric Company, Inc.
ENERGY COST ADJUSTMENT FACTOR

	<u>Effective Dates</u>		<u>Change</u>
	<u>10/01/18</u>	<u>11/01/18</u>	
Composite Cost Of Major Energy, ¢/mmbtu	1,405.11	1,474.55	69.44
Composite Cost Of Minor Energy, ¢/kwh	14.364	40.700	26.335
Composite Cost Of Purchased Energy, ¢/kWh	9.773	10.422	0.649
 <u>Residential, Schedule "R"</u>			
Energy Cost Adjustment, ¢/kWh	4.008	5.151	1.143
 <u>Others, Schedules "G,J,DS,P,F"</u>			
Energy Cost Adjustment, ¢/kWh	4.008	5.151	1.143
 <u>Residential Customer with:</u>			
500 kWh Consumption, \$/bill	168.13	167.62	(0.51)
600 kWh Consumption, \$/bill	200.01	199.40	(0.61)

Supersedes Sheet Effective: October 1, 2018

Hawaiian Electric Company, Inc.
ENERGY COST ADJUSTMENT FILING

ENERGY COST ADJUSTMENT (ECA) FILING - November 1, 2018 (page 1 of 2)

Line		
1	Effective Date	- November 1, 2018
2	Supercedes Factor	- October 1, 2018

GENERATION COMPONENT

MAJOR ENERGY COMPONENT					MINOR ENERGY COMPONENT					
FUEL PRICES, ¢/mmbtu					Gen Cost Percent of Weighted Gen					
					<u>Fuel Type</u>	<u>¢/KWH</u>	<u>Minor Energy</u>	<u>Cost ¢/KWH</u>		
3	Honolulu	0.00			32a Airport DG	33.42	1.19%	0.3991		
4	Kahe	1,474.64			32b CIP-Biodiesel	0	0.00%	0.0000		
5	Waiau-Steam	1,474.32			32c CIP-Diesel	31.45	3.85%	1.2121		
6	(Future Use)	0.00			32d SGS - Biodiesel	34.46	38.95%	13.4205		
7	(Future Use)	0.00			32e SGS - ULSD	21.89	2.24%	0.4909		
8	(Future Use)	0.00			32f Waiau-Diesel	46.82	53.77%	25.1770		
9	Other	0			32g COMPOSITE COST OF MINOR ENERGY, ¢/kWh				40.700	
BTU MIX, %					33 % Input to System kWh Mix					1.05
10	Honolulu	0.00			34 WTD COMP MINOR ENERGY COST, ¢/kWh (Lines 32d x 33)					0.42735
11	Kahe	72.25			35 2017 TY Loss Factor					1.0490
12	Waiau-Steam	27.75			36 WTD COMP MINOR ENERGY COST, '¢/kWh (Line 34 x 35)					0.44829
13	(Future Use)	0.00			37 BASE MINOR ENERGY COMP COST					35.2185
14	(Future Use)	0.00			38 Base % Input to System kWh Mix					0.5117
15	(Future Use)	0.00			39 WTD BASE MINOR ENERGY COST, ¢/kWh (Line 37 x 38)					0.18021
16	Other	100.00			40 2017 TY Loss Factor					1.0490
17	COMPOSITE COST OF GENERATION, MAJOR ENERGY ¢/mmbtu	1,474.55			41 WTD COMP MINOR ENERGY COST, '¢/kWh (Line 39 x 40)					0.18904
18	% Input to system kWh Mix	43.73			42 Cost Less Base (Line 36 - 41)					0.259250
EFFICIENCY FACTOR, mmbtu/kWh					43 Revenue Tax Adjustment (1 / (1-0.08885))					1.097514
	(A)	(B)	(C)	(D)	44 MINOR ENERGY FACTOR, ¢/kWh (Line 42 x 43)					0.28453
		Eff Factor	Percent of	Weighted						
	<u>Fuel Type</u>	<u>mmbtu/kwh</u>	<u>Centrl Stn +</u>	<u>Eff Factor</u>						
			<u>Other</u>							
19	LSFO	0.011165	100.00	0.011165						
20	(Future Use)	0.000000	0.00	0.000000						
21	(Future Use)	0.000000	0.00	0.000000						
22	Other	0.011165	0.00	0.000000						
(Lines 19 through 22): Col(B) x Col(C) = Col(D)										
23	Weighted Efficiency Factor, mmbtu/kWh			0.011165						
[lines 19(D) + 20(D) + 21(D) + 22(D)]										
24	WEIGHTED MAJOR ENERGY COST, ¢/kWh Sales (lines 17 x 18 x 23)			7.19942						
25	BASE MAJOR ENERGY COST, ¢/mmbtu			909.59						
26	Base % Input to System kWh Mix			45.4505						
27	Efficiency Factor, Mbtu/kWh			0.011165						
28	WEIGHTED BASE MAJOR ENERGY COST ¢/KWH Sales (lines 25 x 26 x 27)			4.61576						
29	Cost Less Base (Line 24 - 28)			2.58366						
30	Revenue Tax Adjustment (1 / (1-0.08885))			1.097514						
31	MAJOR ENERGY GENERATION FACTOR, ¢/KWH (Line 29 x 30)			2.83560						

SUMMARY OF TOTAL GENERATION FACTOR, ¢/kWh	
45 MAJOR ENERGY (line 31)	2.83560
46 MINOR ENERGY (line 44)	0.28453
47 TOTAL GENERATION FACTOR, ¢/KWH (lines 45 + 46)	3.12013

Hawaiian Electric Company, Inc.
ENERGY COST ADJUSTMENT FILING

ENERGY COST ADJUSTMENT (ECA) FILING - November 1, 2018 (page 2 of 2)

<u>Line</u>		
1	Effective Date	- November 1, 2018
2	Supersedes Factor	- October 1, 2018

<u>Line</u>	<u>PURCHASED ENERGY COMPONENT</u>		
	PURCHASED ENERGY PRICE - ¢/KWH		
48	PAR Hawaii	- On Peak	15.605
49	PAR Hawaii	- Off Peak	15.275
50	HRRV	- On Peak	17.19
51		- Off Peak	16.70
52	HRRV	- On Peak (excess)	10.95
53		- Off Peak (excess)	6.57
54	IES Downstream	- On Peak	15.605
55	IES Downstream	- Off Peak	15.275
56	Kalaeloa		14.148
57	AES-HI		3.286
58	Kawailoa		22.064
59	Kahuku Wind		20.704
60	Waianae Solar PV		14.500
61	As Available I		22.058
62	FIT		19.202
	PURCHASED ENERGY KWH MIX, %		
63	PAR Hawaii	- On Peak	0.22
64	PAR Hawaii	- Off Peak	0.16
65	HRRV	- On Peak	6.67
66		- Off Peak	2.44
67	HRRV	- On Peak (excess)	0.00
68		- Off Peak (excess)	2.07
69	IES Downstream	- On Peak	0.01
70	IES Downstream	- Off Peak	0.01
71	Kalaeloa		37.87
72	AES-HI		40.68
73	Kawailoa		3.72
74	Kahuku Wind		2.56
75	Waianae Solar PV		1.66
76	As Available I		0.47
77	FIT		1.46
			100.00
78	COMPOSITE COST OF PURCHASED ENERGY, ¢/KWH		10.422
79	% Input to System kWh Mix		55.22
80	WTD CMP PURCH ENRGY COST, ¢/KWH (lines 78 x 79)		5.75503
81	2017 TY Loss Factor		1.0490
82	WTD CMP PURCH ENRGY COST, ¢/KWH (lines 80 x 81)		6.03703
83	BASE PURCHASED ENERGY COMPOSITE COST, ¢/KWH		7.762
84	Base % Input to System kWh Mix		54.0378
85	WEIGHTED BASE PURCHASED ENERGY COST, ¢/KWH SALES (lines 83 x 84)		4.19441
86	2017 TY Loss Factor		1.049
87	WTD CMP PURCH ENRGY COST, ¢/KWH sales (lines 85 x 86)		4.39994
88	Cost Less Base (Line 82 - 87)		1.63709
89	Revenue Tax Adjustment (1 / (1-0.08885))		1.097514
90	PURCHASED ENERGY FACTOR, ¢/KWH (lines 88 x 89)		1.79673
	<u>Line SYSTEM COMPOSITE</u>		
	91 GEN AND PURCHASED ENERGY FACTOR, ¢/kWh (lines 47 + 90)		4.91686
	92 (Future Use) Adjustment, ¢/kWh		0.000
	93 ECA Reconciliation Adjustment		0.234
	94 ECA FACTOR, ¢/kWh (lines 91 + 92 + 93)		5.151

Hawaiian Electric Company, Inc.
FUEL OIL INVENTORY PRICES FOR 11-01-18

	<u>Honolulu</u>	<u>Kahe</u>	<u>Waiau</u>
Average Low Sulfur Fuel Oil, ¢/Mbtu	1,474.32	1,474.32	1,474.32
Kahe Fuel Additive, ¢/Mbtu	-	0.32	-
Honolulu Trucking Cost, ¢/Mbtu	-	-	-
	<hr/>		
Low Sulfur Fuel Oil Prices Used For Filing, ¢/Mbtu	1,474.32	1,474.64	1,474.32
	<hr/>		
	<u>Waiau</u>	<u>CIP Biodiesel</u>	<u>CIP Diesel</u>
Average Diesel / Biodiesel Oil, ¢/Mbtu	1,741.79	2,960.56	1892.41
Thruput Charges, ¢/Mbtu	-	-	0
	<hr/>		
Diesel / Biodiesel Oil Prices Used for Filing, ¢/Mbtu	1,741.79	2,960.56	1,892.41
	<hr/>		
	<u>Honolulu</u>	<u>Kahe</u>	<u>Waiau</u>
Average Low Sulfur Fuel Oil, \$/bbl	92.63	92.63	92.63
Kahe Fuel Additive, \$/bbl	-	0.02	-
Honolulu Trucking Cost, \$/bbl	-	-	-
	<hr/>		
Low Sulfur Fuel Oil Prices Used For Filing, \$/bbl	92.63	92.65	92.63
	<hr/>		
	<u>Waiau</u>	<u>CIP Biodiesel</u>	<u>CIP Diesel</u>
Average Diesel / Biodiesel Oil, \$/bbl	99.78	154.49	108.22
Thruput Charges, ¢/Mbtu	-	-	-
	<hr/>		
Diesel / Biodiesel Oil Prices Used for Filing, \$/bbl	99.78	154.49	108.22
	<hr/>		
Distributed Generation Fuel Prices Used for Filing, ¢/kWh			33.840

FOAC November 2018

<u>LSFO</u>	<u>BARRELS</u>	<u>MBTU</u>	<u>AMOUNT</u>	<u>AVE \$/MBTU</u>
Per FOAC run	617,031	3,876,626.11	57,154,053.49	14.743246
Additional	-	-	-	-
Forecast Amt	617,031	3,876,626.11	57,154,053.49	14.743246
	-	6.20	-	ADD'L BBL
	3,876,626	617,031	6.2827	MBTU / BBL
	57,154,053	617,031	92.63	DOLLARS / BBL
<u>WAIKU DIESEL</u>	35,098	201,057.32	3,502,003.33	17.417935
	3,502,003	35,098	99.78	DOLLARS / BBL
<u>CIP BIODIESEL</u>	3,573	18,644.85	551,992.94	29.605646
	551,993	3,573	154.49	DOLLARS / BBL
<u>CIP DIESEL</u>	23,911	136,735.91	2,587,604.42	18.924103
	2,587,604	23,911	108.22	DOLLARS / BBL
KAHE FUEL ADDITIVE *				
Additional	-	-	-	0.003194
Forecast Amt	-	-	-	0.003194
\$ / BBL =		-	0.02	DOLLARS / BBL
HONOLULU TRUCKING COST				
Per FOAC run	-	-	-	-
Additional	-	-	-	-
Forecast Amt	-	-	-	-
\$ / BBL =	-	-	-	DOLLARS / BBL

Hawaiian Electric Company, Inc.

CONTRACT PRICES EFFECTIVE 10-1-18

<u>TYPE OF OIL BURNED</u>	<u>\$/BBL</u>	<u>¢/MBTU</u>
LOW SULFUR FUEL OIL		
Tax *	5.4982	88.68
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00
DIESEL		
Tax *	6.6138	112.87
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00
ULTRA LOW SULFUR DIESEL		
Tax *	7.0245	122.58
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00
BIODIESEL		
Tax *	7.7974	148.58
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00

* Tax includes HGET, Hawaii Use Tax, Liquid Fuel Tax, LUST, Federal Oil Spill Recovery Fee, and Environmental Response, Energy and FS Tax.

Note: Since these components are not accounted for separately in inventory, contract prices for the current month are being provided. Contract prices are considered accurate pending actual delivery of the fuel.

HAWAIIAN ELECTRIC COMPANY, INC.

DETERMINATION OF DISTRIBUTED GENERATION EXPENSE

Line No.					
L1		Estimated Distributed Generation Fuel Cost (\$/mbtu)	\$		34.21
L2		Estimated Distributed Generation Fuel Transport Cost (\$/mbtu)			\$0.00
L3 = L1 + L2		Estimated Total Fuel and Transportation Cost (\$/mbtu)	\$		34.21
L4	Sum of (B)	Estimated Mbtu Generation for month (November 2018)			38,576
L5 = L3 x L4	Sum of (C)	Estimated Distributed Generation Total Fuel Cost (\$)			\$1,319,583
L6	Sum of (D)	Estimated Distributed Generation kWh Produced (November 2018)			3,899,794
L7 = (L5 ÷ L6) x 100		Distributed Generation Fuel Prices Used for Filing, (¢/kWh)			33.8400
		Airport DG Biodiesel		Schofield Biodiesel	
(A)	\$	29.76	\$	35.16	\$
(B)		1078		35,457	
(B1)		205		6,756	
(C) = (A) x (B)		\$32,083		\$1,246,653	\$40,847
(D)		96,000		3,617,226	186,568
(E) = ((C) ÷ (D)) x 100		33.420		34.460	21.890

Fuel Prices for Avoided Cost Filing, Page 2 of 9 (¢/kWh)

Hawaiian Electric Company, Inc.
ECA RECONCILIATION ADJUSTMENT
November 2018

1.	Amount to be collected	\$	3,451,000
2.	Monthly Amount (Line 1 x 1/3)	\$	1,150,333
3.	Revenue Tax Divisor		0.91115
4.	Total (Line 2 / Line 3)	\$	1,262,507
5.	Estimated MWh Sales (NOVEMBER 2018)		540,000
6.	ECA Reconciliation Adjustment, ¢/kWh (Line 4 ÷ Line 5)		<u><u>0.234</u></u>

Hawaiian Electric Company, Inc.
FUEL OIL ADJUSTMENT RECONCILIATION SUMMARY
September 2018
(Thousand \$)

<u>Line</u>	<u>Description</u>	Info Only		Basis for Recon	
		W/O DeadBand September 2018 Cumulative <u>YTD Total</u>	collectn by <u>company*</u>	W/ DeadBand September 2018 Cumulative <u>YTD Total</u>	collectn by <u>company*</u>
ACTUAL COSTS:					
1	Generation / Major Fuels	\$365,470.9		\$365,470.9	
2	Distributed Generation / Minor Fuels	\$7,935.4		\$7,935.4	
3	Purch Power	\$243,893.4		\$243,893.4	
4	TOTAL	\$617,299.7		\$617,299.7	
FUEL FILING COST					
5	Generation / Major Fuels	\$362,010.1		\$365,136.0	
6	Distributed Generation / Minor Fuels	\$7,935.4		\$7,935.4	
7	Purch Power	\$243,893.4		\$243,893.4	
8	TOTAL	\$613,838.9		\$616,964.8	
BASE FUEL COST					
9	Generation / Major Fuels	\$295,816.2		\$295,816.2	
10	Distributed Generation / Minor Fuels	\$4,320.4		\$4,320.4	
11	Purch Power	\$283,405.3		\$283,405.3	
12	TOTAL	\$583,541.9		\$583,541.9	
13	FUEL-BASE COST (Line 8-12)	\$30,297.0		\$33,422.9	
14	ACTUAL FOA LESS TAX	\$34,305.5		\$34,305.5	
15	Less: FOA reconciliation adj for prior year	\$6,969.7		\$6,969.7	
16	ADJUSTED FOA LESS TAX	\$27,335.8		\$27,335.8	
17	FOA-(FUEL-BASE) (Line 16-13)	-\$2,961.2	under	-\$6,087.1	under
ADJUSTMENTS:					
18	Current year FOA accrual reversal	-\$7,777.3		-\$7,777.3	
19	SGS test fuel removal	\$2,420.1		\$2,420.1	
20	Other	\$77.1		\$77.1	
21	QUARTERLY FOA RECONCILIATION (Line 17+18+19+20)	-\$8,241.3	under	-\$11,367.2	under
22	2nd Quarter Reconciliation YTD			-\$7,916.2	
23	Amount to be collected			-\$3,451.0	

* Over means an over-collection by the company.
Under means an under-collection by the company.

Hawaiian Electric Company, Inc.
DEADBAND CALCULATION
2018

ATTACHMENT4
PAGE 3 OF 5

FOR PERIOD: JANUARY 1, 2018 - APRIL 12, 2018

	Notes	YTD
Industrial		
Heat Rate Days		1,130,058
Industrial Efficiency Factor (per D&O), BTU/kWh*	f	11,079
Industrial Deadband Definition, +/- BTU/kWh	d	50
Industrial Portion of Recorded Sales, kWh	a	874,645,679
Industrial Consumption (Recorded), MMBTU	b	9,794,533
Industrial Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	11,198
Lower limit of Industrial Deadband, BTU/kWh	e = f-d	11,029
Higher limit of Industrial Deadband, BTU/kWh	g = f+d	11,129
Industrial Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	11,129
Diesel		
Diesel Efficiency Factor (per D&O), BTU/kWh*	f	19,721
Diesel Deadband Definition, +/- BTU/kWh	d	50
Diesel Portion of Recorded Sales, MWh	a	6,463,149
Diesel Consumption (Recorded), MMBTU	b	188,720
Diesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	29,199
Lower limit of Diesel Deadband, BTU/kWh	e = f-d	19,671
Higher limit of Diesel Deadband, BTU/kWh	g = f+d	19,771
Diesel Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	19,771
Biodiesel		
Biodiesel Efficiency Factor (per D&O), BTU/kWh*	f	20,169
Biodiesel Deadband Definition, +/- BTU/kWh	d	50
Biodiesel Portion of Recorded Sales, MWh	a	16,727,814
Biodiesel Consumption (Recorded), MMBTU	b	274,835
Biodiesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	16,430
Lower limit of Biodiesel Deadband, BTU/kWh	e = f-d	20,119
Higher limit of Biodiesel Deadband, BTU/kWh	g = f+d	20,219
Biodiesel Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	20,119
Hydro		
Hydro Efficiency Factor (per D&O), BTU/kWh*	f	0
Hydro Deadband Definition, +/- BTU/kWh	d	50
Hydro Portion of Recorded Sales, MWh	a	0
Hydro Consumption (Recorded), MMBTU	b	0
Hydro Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	0
Lower limit of Hydro Deadband, BTU/kWh	e = f-d	-50
Higher limit of Hydro Deadband, BTU/kWh	g = f+d	50
Hydro Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	0
Other		
Other Efficiency Factor (per D&O), BTU/kWh*	f	11,143
Other Deadband Definition, +/- BTU/kWh	d	50
Other Portion of Recorded Sales, MWh	a	0
Other Consumption (Recorded), MMBTU	b	0
Other Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	0
Lower limit of Other Deadband, BTU/kWh	e = f-d	11,093
Higher limit of Other Deadband, BTU/kWh	g = f+d	11,193
Other Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	11,093

Hawaiian Electric Company, Inc.
DEADBAND CALCULATION
2018

ATTACHMENT 4
PAGE 4 OF 5

FOR PERIOD: APRIL 13, 2018 TO SEPTEMBER 30, 2018

	Notes	YTD
Industrial		
Industrial Efficiency Factor (per D&O), BTU/kWh*	f	11,165
Industrial Deadband Definition, +/- BTU/kWh	d	125
Industrial Portion of Recorded Sales, kWh	a	1,564,314,672
Industrial Consumption (Recorded), MMBTU	b	17,691,100
Industrial Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	11,309
Lower limit of Industrial Deadband, BTU/kWh	e = f-d	11,040
Higher limit of Industrial Deadband, BTU/kWh	g = f+d	11,290
Industrial Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	11,290
Diesel		
Diesel Efficiency Factor (per D&O), BTU/kWh*	f	0
Diesel Deadband Definition, +/- BTU/kWh	d	50,000
Diesel Portion of Recorded Sales, MWh	a	0
Diesel Consumption (Recorded), MMBTU	b	0
Diesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	0
Lower limit of Diesel Deadband, BTU/kWh	e = f-d	-50,000
Higher limit of Diesel Deadband, BTU/kWh	g = f+d	50,000
Diesel Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	0
Biodiesel		
Biodiesel Efficiency Factor (per D&O), BTU/kWh*	f	0
Biodiesel Deadband Definition, +/- BTU/kWh	d	50,000
Biodiesel Portion of Recorded Sales, MWh	a	0
Biodiesel Consumption (Recorded), MMBTU	b	0
Biodiesel Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	0
Lower limit of Biodiesel Deadband, BTU/kWh	e = f-d	-50,000
Higher limit of Biodiesel Deadband, BTU/kWh	g = f+d	50,000
Biodiesel Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	0
Hydro		
Hydro Efficiency Factor (per D&O), BTU/kWh*	f	0
Hydro Deadband Definition, +/- BTU/kWh	d	0
Hydro Portion of Recorded Sales, MWh	a	0
Hydro Consumption (Recorded), MMBTU	b	0
Hydro Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	0
Lower limit of Hydro Deadband, BTU/kWh	e = f-d	0
Higher limit of Hydro Deadband, BTU/kWh	g = f+d	0
Hydro Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	0
Other		
Other Efficiency Factor (per D&O), BTU/kWh*	f	0
Other Deadband Definition, +/- BTU/kWh	d	0
Other Portion of Recorded Sales, MWh	a	0
Other Consumption (Recorded), MMBTU	b	0
Other Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	0
Lower limit of Other Deadband, BTU/kWh	e = f-d	0
Higher limit of Other Deadband, BTU/kWh	g = f+d	0
Other Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	0

HAWAIIAN ELECTRIC COMPANY, INC.
GENERATION FUEL FILING COST AND GENERATION BASE FUEL COST,
September 2018 Year-to-Date

	<u>Without Deadband</u>	<u>With Deadband - As Filed</u>
<u>INDUSTRIAL FUEL FILING COST</u>		
LSFO Portion of Recorded Sales , MWH	2,438,960,351	2,438,960,351
LSFO Sales Efficiency Factor (mmbtu/kwh)	0.011079	0.011129
Mmbtu adjusted for Sales Efficiency Factor	27,021,241,729	27,143,189,746
\$/mmbtu	<u>\$12.9707</u>	<u>\$13.0283</u>
TOTAL LSFO \$ TO BE RECOVERED	\$350,485,181	\$353,629,694
<u>DIESEL FUEL FILING COST</u>		
Diesel Portion of Recorded Sales, MWH	6,463,149	6,463,149
Diesel Sales Efficiency Factor (mmbtu/kwh)	0.019721	0.019771
Mmbtu adjusted for Sales Efficiency Factor	127,459,761	127,782,919
\$/mmbtu	<u>\$15.6339</u>	<u>\$15.6339</u>
TOTAL DIESEL \$ TO BE RECOVERED	\$1,992,692	\$1,997,745
<u>BIODIESEL FUEL FILING COST</u>		
Biodiesel Portion of Recorded Sales , MWH	16,727,814	16,727,814
Biodiesel Sales Efficiency Factor (mmbtu/kwh)	0.020169	0.020119
Mmbtu adjusted for Sales Efficiency Factor	337,383,281	336,546,890
\$/mmbtu	<u>\$28.2533</u>	<u>\$28.2533</u>
TOTAL BIODIESEL \$ TO BE RECOVERED ¹	\$9,532,177	\$9,508,546
<u>TOTAL GENERATION FUEL FILING COST</u>		
Generation Portion of Recorded Sales , MWH		
Sales Efficiency Factor (mmbtu/kwh)		
Mmbtu adjusted for Sales Efficiency Factor		
\$/mmbtu		
TOTAL GENERATION FUEL FILING COST \$	\$362,010,050	\$365,135,985
<u>GENERATION BASE FUEL COST</u>		
TOTAL GENERATION BASE FUEL COST	\$295,816,202	\$295,816,202
TOTAL GENERATION FUEL FILING COST \$ YTD	\$362,010,050	\$365,135,985
TOTAL GENERATION BASE FUEL COST YTD	\$295,816,202	\$295,816,202

1) Diesel & Biodiesel are included under DG as of April 13, 2018

HAWAIIAN ELECTRIC COMPANY, INC.
2018 Cumulative Reconciliation Balance

	(1)		(2)	(3)	(4)	(5)	(6)
Month	YTD FOA Reconciliation	Qtr	FOA Rec Adjust Variance	FOA Rec Less Variance	Try to Collect	Actual Collect	Month-end Cumulative Balance
November '17	(988,400)	(3)	140,027	(1,128,427)	329,467	323,129	(663,027)
December					329,467	305,191	(357,836)
January '18					329,467	320,330	(37,506)
February	(6,640,300)	(4)	(28,376)	(6,611,924)	2,213,433	2,088,724	(4,560,707)
March					2,213,433	2,155,118	(2,405,589)
April					2,213,433	2,229,374	(176,215)
May	(7,499,100)	(1)	(192,161)	(7,306,939)	2,499,700	2,387,495	(5,095,658)
June					2,499,700	2,571,358	(2,524,300)
July					2,499,700	2,540,846	16,546
August	(417,100)	(2)	(24,606)	(392,494)	139,033	142,637	(233,311)
September					139,033	140,763	(92,548)
October					139,033		
November	(3,451,000)	(3)	46,479	(3,497,479)	1,150,333		

NOTES:

- Col(1): Quarterly FOA reconciliation amounts. (Refer to Attachment 4)
A positive number is an over-collection. A negative number is an under-collection.
- Col(2): FOA reconciliation adjustment variance accumulated during the last three months, starting with the fourth prior month; the difference between the estimated recorded sales used to derive the \$/kwh adjustment and the actual recorded sales.
(Col(5)-Col(4))
- Col(3): FOA reconciliation generated in the current quarter. The YTD FOA reconciliation difference minus the adjustment variance. Col(1)-Col(2)
- Col(4): Amount that the FOA reconciliation adjustment is trying to collect. (Col(1) * 1/3)
- Col(5): Actual collected amount. (recorded sales * \$/kwh adjustment/1.09751)
- Col(6): Cumulative balance of the FOA reconciliation (Previous balance + Col(3) + Col(5))

Hawaiian Electric Company, Inc.
FUEL OIL ADJUSTMENT FACTOR DATA

<u>EFFECTIVE DATE</u>	FUEL FACTOR CENTS / KWH		RESIDENTIAL BILL (\$)	
	<u>RESIDENTIAL & COMMERCIAL</u>	<u>@ 500 KWH</u>	<u>@ 600 KWH</u>	
January 1, 2016	-3.748	129.34	153.97	
February 1, 2016	-4.637	127.47	151.74	
March 1, 2016	-5.498	123.06	146.43	
April 1, 2016	-5.393	123.34	146.76	
May 1, 2016	-5.527	124.85	148.58	
June 1, 2016	-4.651	129.34	153.95	
July 1, 2016	-3.854	133.43	158.90	
August 1, 2016	-3.176	134.73	160.45	
September 1, 2016	-3.345	133.98	159.57	
October 1, 2016	-3.964	130.77	155.71	
November 1, 2016	-3.848	131.04	156.03	
December 1, 2016	-3.578	132.32	157.56	
January 1, 2017	-2.091	135.39	161.22	
February 1, 2017	-1.863	142.81	170.13	
March 1, 2017	-1.730	143.26	170.66	
April 1, 2017	-1.608	143.43	170.86	
May 1, 2017	-2.347	140.42	167.26	
June 1, 2017	-2.215	141.89	169.01	
July 1, 2017	-2.003	141.79	168.91	
August 1, 2017	-2.180	140.14	166.92	
September 1, 2017	-2.288	139.74	166.45	
October 1, 2017	-2.216	139.91	166.65	
November 1, 2017	-2.109	139.52	166.18	
December 1, 2017	-1.629	141.82	168.96	
January 1, 2018	-1.145	144.26	171.84	
February 1, 2018	-0.261	150.24	179.01	
March 1, 2018	-0.389	152.06	181.14	
April 1, 2018	-0.483	152.06	181.14	
May 1, 2018	0.923	149.05	177.53	
June 1, 2018	1.529	154.86	184.50	
July 1, 2018	1.204	158.27	188.61	
August 1, 2018	0.802	158.79	189.22	
September 1, 2018	4.201	169.09	201.16	
October 1, 2018	4.008	168.13	200.01	
November 1, 2018	5.151	167.62	199.40	

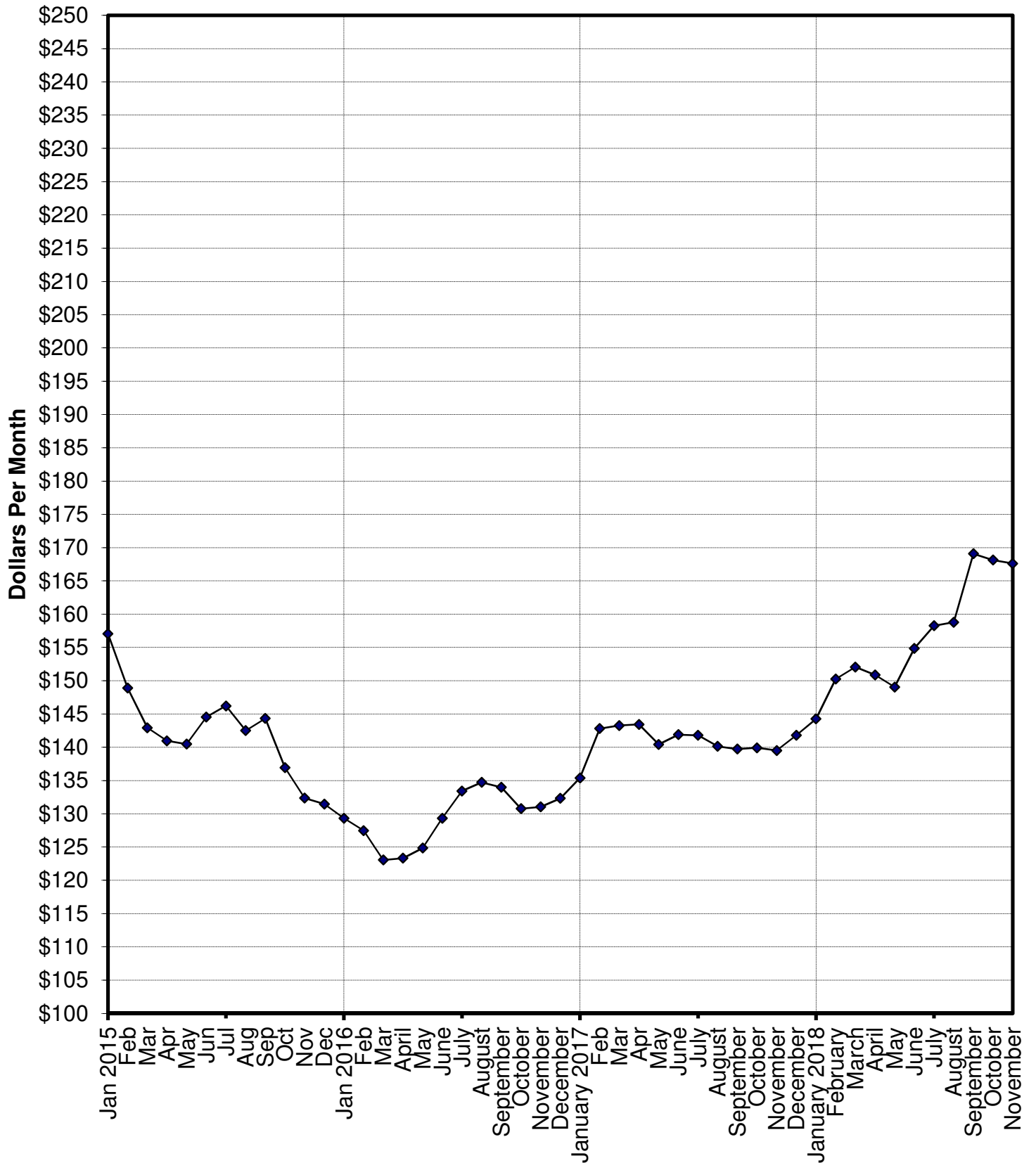
Hawaiian Electric Company, Inc.
RESIDENTIAL SURCHARGE DATA

EFFECTIVE DATE	DESCRIPTION OF SURCHARGE	RATE
09/01/12 - 8/31/2018	FINAL RATE INCREASE (TY2011) 3.39% EFFECTIVE 09/01/12, DOCKET NO. 2010-0080	
2/1/2013	REFUND OF 2011 INTERIM RATE INCREASE	0.00 PERCENT ON BASE
01/1/2016 - 01/31/2016	PURCHASED POWER ADJUSTMENT CLAUSE	2.8642 CENTS/KWH
12/17/2015 - 02/29/2016	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0204 CENTS/KWH
01/01/2016 - 06/30/2016	GREEN INFRASTRUCTURE FEE	1.3000 DOLLARS/MONTH
02/1/2016 - 02/29/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.3809 CENTS/KWH
03/1/2016 - 03/31/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.3578 CENTS/KWH
3/1/2016 - 05/14/2016	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0204 CENTS/KWH
04/1/2016 - 04/30/2016	SOLAR SAVER ADJUSTMENT	-0.1223 CENTS/KWH
04/1/2016 - 04/30/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.3834 CENTS/KWH
4/1/2016 - 3/31/2017	RESIDENTIAL DSM ADJUSTMENT	0.0811 CENTS/KWH
5/1/2016 - 3/31/2017	SOLAR SAVER ADJUSTMENT	0.00 CENTS/KWH
05/1/2016 - 05/31/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.6989 CENTS/KWH
5/15/2016	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0000 CENTS/KWH
06/1/2016 - 06/30/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.7373 CENTS/KWH
6/1/2016 - 5/31/2017	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	2.1098 CENTS/KWH
07/1/2016 - 07/31/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.6808 CENTS/KWH
7/1/2016 - 12/31/2016	GREEN INFRASTRUCTURE FEE	1.1300 DOLLARS/MONTH
7/1/2016 - 6/30/2017	RESID. PBF SURCHARGE ADJUSTMENT	0.5865 CENTS/KWH
08/1/2016 - 08/31/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.2621 CENTS/KWH
09/1/2016 - 09/30/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.2827 CENTS/KWH
10/1/2016 - 10/31/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.2576 CENTS/KWH
11/1/2016 - 11/30/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.1959 CENTS/KWH
12/1/2016 - 12/31/2016	PURCHASED POWER ADJUSTMENT CLAUSE	3.1815 CENTS/KWH
01/1/2017 - 01/31/2017	PURCHASED POWER ADJUSTMENT CLAUSE	2.2812 CENTS/KWH
1/01/2017 - 06/30/2017	GREEN INFRASTRUCTURE FEE	1.2700 DOLLARS/MONTH
02/1/2017 - 02/28/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.5384 CENTS/KWH
03/1/2017 - 03/31/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.4937 CENTS/KWH
04/1/2017 - 04/30/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.5276 CENTS/KWH
4/1/2017 - 02/15/2018	RESIDENTIAL DSM ADJUSTMENT	0.0774 CENTS/KWH
4/1/2017 - 4/30/2017	SOLAR SAVER ADJUSTMENT	-0.1187 CENTS/KWH
5/1/2017-3/31/2018	SOLAR SAVER ADJUSTMENT	0.0000 CENTS/KWH
05/1/2017 - 05/31/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.5484 CENTS/KWH
06/1/2017 - 06/30/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.5894 CENTS/KWH
6/1/2017 - 2/15/2018	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	2.2291 CENTS/KWH
7/1/2017 - 12/31/2017	GREEN INFRASTRUCTURE FEE	1.1800 DOLLARS/MONTH
7/1/2017 - 7/31/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.5388 CENTS/KWH
7/1/2017 - 6/30/2018	RESID. PBF SURCHARGE ADJUSTMENT	0.4244 CENTS/KWH
8/1/2017 - 8/31/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.3840 CENTS/KWH
9/1/2017 - 9/30/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.4128 CENTS/KWH
10/1/2017 - 10/31/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.3748 CENTS/KWH
11/1/2017 - 11/30/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.1890 CENTS/KWH
12/1/2017 - 12/31/2017	PURCHASED POWER ADJUSTMENT CLAUSE	3.1709 CENTS/KWH
1/1/2018 -1/31/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.1422 CENTS/KWH
1/1/2018 - 6/30/2018	GREEN INFRASTRUCTURE FEE	1.3400 DOLLARS/MONTH
2/1/2018 - 2/28/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.4536 CENTS/KWH
2/16/2018 -04/12/018	INTERIM RATE INCREASE 2017 TEST YEAR	8.8700 PERCENT ON BASE
2/16/2018 - 5/31/2018	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	0.7116 CENTS/KWH
2/16/2018 - 3/31/2018	RESIDENTIAL DSM ADJUSTMENT	0.0000 CENTS/KWH
3/1/2018 -3/31/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.4266 CENTS/KWH
4/1/2018 - 4/30/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.4413 CENTS/KWH
4/1/2018 - 4/30/2018	SOLAR SAVER ADJUSTMENT	-0.1063 CENTS/KWH
4/1/2018 - 7/31/2018	RESIDENTIAL DSM ADJUSTMENT	-0.0513 CENTS/KWH
4/13/2018 -8/31/2018	INTERIM RATE INCREASE 2017 TEST YEAR	5.8900 PERCENT ON BASE
5/1/2018	SOLAR SAVER ADJUSTMENT	0.0000 CENTS/KWH
5/1/2018 - 5/31/2018	PURCHASED POWER ADJUSTMENT CLAUSE	2.2718 CENTS/KWH
6/1/2018 - 6/30/2018	PURCHASED POWER ADJUSTMENT CLAUSE	2.5042 CENTS/KWH
6/1/2018	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	1.0350 CENTS/KWH
7/1/2018	GREEN INFRASTRUCTURE FEE	1.2100 DOLLARS/MONTH
7/1/2018	RESID. PBF SURCHARGE ADJUSTMENT	0.4658 CENTS/KWH
7/1/2018 - 7/31/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.4959 CENTS/KWH
8/1/2018 - 8/31/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.9557 CENTS/KWH
8/1/2018	RESIDENTIAL DSM ADJUSTMENT	-0.0064 CENTS/KWH
9/1/2018	PURCHASED POWER ADJUSTMENT CLAUSE	4.3234 CENTS/KWH
9/1/2018	INTERIM RATE INCREASE 2017 TEST YEAR	0.0000 PERCENT ON BASE
9/1/2018	FINAL RATE INCREASE (TY2017) -0.039% EFFECTIVE 09/01/18, DOCKET NO. 2016-0328	
10/1/2018	PURCHASED POWER ADJUSTMENT CLAUSE	4.3252 CENTS/KWH
11/1/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.0539 CENTS/KWH
11/1/2018	RESIDENTIAL DSM ADJUSTMENT	0.0203 CENTS/KWH

~ Surcharges currently in effect are in bold.

~ Base charges include customer charge, demand charge, energy charge, power factor adjustment, voltage discount and minimum charge.

Hawaiian Electric Company, Inc. Residential Bill at 500 KWH/Month Consumption



Hawaiian Electric Company, Inc.
CALCULATIONS OF THE AVERAGE RESIDENTIAL CUSTOMER BILL

	Rate			Charge (\$) at 500 kWh		
		10/1/2018	11/1/2018	10/1/2018	11/1/2018	Difference
Base Rates	effective date:	09/01/18	09/01/18			
Base Fuel/Energy Charge	¢/kWh	10.2278	10.2278	51.14	51.14	0.00
Non-fuel Fuel Energy Charge						
First 350 kWh per month	¢/kWh	10.6812	10.6812	37.38	37.38	0.00
Next 850 kWh per month	¢/kWh	11.8347	11.8347	17.75	17.75	0.00
Customer Charge	\$	11.50	11.50	11.50	11.50	0.00
Total Base Charges				117.77	117.77	0.00
Purchase Power Adjustment	¢/kWh	4.3252	3.0539	21.63	15.27	-6.36
RBA Rate Adjustment	¢/kWh	1.0350	1.0350	5.18	5.18	0.00
DSM Adjustment	¢/kWh	-0.0064	0.0203	-0.03	0.10	0.13
Interim Rate Increase (TY 2017)	% on base	0.000%	0.000%	0.00	0.00	0.00
Refund of 2011 Interim	% on base	0.000%	0.000%	0.00	0.00	0.00
PBF Surcharge	¢/kWh	0.4658	0.4658	2.33	2.33	0.00
Renewable Energy Infrastructure Cost						
Recovery Provision	¢/kWh	-	-	0.00	0.00	0.00
SolarSaver Adjustment	¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Energy Cost Adjustment	¢/kWh	4.008	5.151	20.04	25.76	5.72
Green Infrastructure Fee	\$	1.21	1.21	1.21	1.21	0.00
Avg Residential Bill at 500 kWh				168.13	167.62	

Increase / (Decrease -) -0.51
 % Change -0.30%

	Rate			Charge (\$) at 600 kWh		
		10/1/2018	11/1/2018	10/1/2018	11/1/2018	Difference
Base Rates	effective date:	09/01/18	09/01/18			
Base Fuel/Energy Charge	¢/kWh	10.2278	10.2278	61.37	61.37	0.00
Non-fuel Fuel Energy Charge						
First 350 kWh per month	¢/kWh	10.6812	10.6812	37.38	37.38	0.00
Next 850 kWh per month	¢/kWh	11.8347	11.8347	29.59	29.59	0.00
Customer Charge	\$	11.50	11.50	11.50	11.50	0.00
Total Base Charges				139.84	139.84	0.00
Purchase Power Adjustment	¢/kWh	4.3252	3.0539	25.95	18.32	-7.63
RBA Rate Adjustment	¢/kWh	1.0350	1.0350	6.21	6.21	0.00
DSM Adjustment	¢/kWh	-0.0064	0.0203	-0.04	0.12	0.16
Interim Rate Increase (TY 2017)	% on base	0.000%	0.000%	0.00	0.00	0.00
Refund of 2011 Interim	% on base	0.000%	0.000%	0.00	0.00	0.00
PBF Surcharge	¢/kWh	0.4658	0.4658	2.79	2.79	0.00
Renewable Energy Infrastructure Cost						
Recovery Provision	¢/kWh	-	-	0.00	0.00	0.00
SolarSaver Adjustment	¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Energy Cost Adjustment	¢/kWh	4.008	5.151	24.05	30.91	6.86
Green Infrastructure Fee	\$	1.21	1.21	1.21	1.21	0.00
Avg Residential Bill at 600 kWh				200.01	199.40	

Increase / (Decrease -) -0.61
 % Change -0.30%