



January 29, 2020

FILED

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

2020 JAN 29 P 3:31

PUBLIC UTILITIES
COMMISSION

Dear Commissioners:

Subject: Hawaiian Electric Energy Cost Recovery Factor for February 2020

Hawaiian Electric Company, Inc.'s ("Hawaiian Electric" or "Company") February 2020 Energy Cost Recovery Factor is 14.648 cents per kilowatt-hour ("kWh"), an increase of 1.019 cents per kWh from last month. A residential customer consuming 500 kWh of electricity will be paying \$161.90, an increase of \$5.93 compared to rates effective January 1, 2020. The increase in the residential typical bill is due to an increase in the Purchase Power Adjustment Clause rate (+\$0.56), an increase in the Energy Cost Recovery Factor (+\$5.09), and an increase in the DSM Adjustment (+\$0.33), partially offset by a decrease in the Demand Response Adjustment Clause rate (-\$0.05).

The Company's fuel composite cost of major energy increased 57.29 cents per million BTU to 1,266.66 cents per million BTU. The Company's composite cost of minor energy increased 1.427 cents per kWh to 20.781 cents per kWh. The composite cost of purchased energy increased 0.251 cents per kWh to 9.348 cents per kWh.

Hawaiian Electric's Energy Cost Recovery Clause ("ECRC") tariff states:

2. The target sales heat rate for LSFO may be reestablished each calendar year, beginning at January 1, 2019. If the prior year's actual sales heat rate is greater than or equal to the established target sales heat rate in place at the end of the prior calendar year, the target sales heat rate for LSFO remains unchanged. If the prior year's actual sales heat rate is less than the established target sales heat rate in place at the end of the prior calendar year, the target sales heat rate in place at the end of the prior calendar year shall be reduced by one-half of the difference between the prior year's actual sales heat rate and the established target sales heat rate in place at the end of the prior calendar year.¹

The Efficiency Factors used reflect the factors for 2020 are provided in *Hawaiian Electric Revised Target Sales Heat Rates* filed on January 29, 2020, in Docket No. 2016-0328. Hawaiian Electric's 2019 actual LSFO sales heat rate of 0.011119 million Btu per kWh is less than the

¹ See Hawaiian Electric's ECRC tariff, Revised Sheet No. 63B.

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established target sales heat rate at 2019 year-end of 0.011165 million Btu per kWh. Therefore, the target sales heat rate for LSFO decreases to 0.011142 for 2020.

The attached sheets set forth the energy cost recovery factor in cents per kWh for each rate schedule that is applicable for *pro rata* use beginning February 1, 2020.

Very truly yours,

A handwritten signature in black ink, appearing to read "Dean K. Matsuura", with a long horizontal flourish extending to the right.

Dean K. Matsuura
Director, Regulatory Rate Proceedings

Enclosures

cc: Division of Consumer Advocacy

Hawaiian Electric Company, Inc.
ENERGY COST RECOVERY FACTOR

	<u>Effective Dates</u>		<u>Change</u>
	<u>01/01/20</u>	<u>02/01/20</u>	
Composite Cost Of Major Energy, ¢/mmbtu	1,209.37	1,266.66	57.29
Composite Cost Of Minor Energy, ¢/kwh	19.353	20.781	1.427
Composite Cost Of Purchased Energy, ¢/kWh	9.097	9.348	0.251
 <u>Residential, Schedule "R"</u>			
Energy Cost Recovery, ¢/kWh	13.629	14.648	1.019
 <u>Others, Schedules "G,J,DS,P,F"</u>			
Energy Cost Recovery, ¢/kWh	13.629	14.648	1.019
 <u>Residential Customer with:</u>			
500 kWh Consumption, \$/bill	155.97	161.90	5.93
600 kWh Consumption, \$/bill	185.42	192.54	7.12

Supersedes Sheet Effective:

January 1, 2020

Hawaiian Electric Company, Inc.
ENERGY COST RECOVERY FILING

ENERGY COST RECOVERY (ECR) FILING - February 1, 2020 (page 1 of 2)

Line		
1	Effective Date	- February 1, 2020
2	Supersedes Factor	- January 1, 2020

GENERATION COMPONENT

MAJOR ENERGY COMPONENT				MINOR ENERGY COMPONENT					
				Fuel Type	Gen Cost \$/KWH	Percent of Minor Energy	Weighted Gen Cost \$/KWH		
3	Honolulu		0.00	32a Airport DG	32.50	1.89%	0.6151		
4	Kahe		1,266.66	32b CIP-Biodiesel	0.00	0.00%	0.0000		
5	Waiau-Steam		1,266.66	32c CIP-Diesel	26.74	12.45%	3.3279		
6	(Future Use)		0.00	32d SGS - Biodiesel	26.94	35.46%	9.5532		
7	(Future Use)		0.00	32e SGS - ULSD	16.69	1.43%	0.2391		
8	(Future Use)		0.00	32f Waiau-Diesel	25.18	27.98%	7.0452		
9	Other		0	32g West Loch PV	0.00	20.79%	0.0000		
	BTU MIX, %			32h COMPOSITE COST OF MINOR ENERGY, \$/kWh				20.781	
10	Honolulu		0.00	33 % Input to System kWh Mix				2.71	
11	Kahe		70.32	34 WTD COMP MINOR ENERGY COST, \$/kWh (Lines 32h x 33)				0.56398	
12	Waiau-Steam		29.68	35 2017 TY Loss Factor				1.0490	
13	(Future Use)		0.00	36 WTD COMP MINOR ENERGY COST, \$/kWh (Line 34 x 35)				0.59162	
14	(Future Use)		0.00	37 BASE MINOR ENERGY COMP COST				0.0000	
15	(Future Use)		0.00	38 Base % Input to System kWh Mix				0.0000	
16	Other		0.00	39 WTD BASE MINOR ENERGY COST, \$/kWh (Line 37 x 38)				0.00000	
			100.00	40 2017 TY Loss Factor				0.00000	
17	COMPOSITE COST OF GENERATION, MAJOR ENERGY \$/mmbtu		1,266.66	41 WTD COMP MINOR ENERGY COST, \$/kWh (Line 39 x 40)				0.591615	
18	% Input to system kWh Mix		51.67	42 Cost Less Base (Line 36 - 41)				0.591615	
	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)				0.64931
			Percent of Centri Stn + Other	Weighted Eff Factor					
19	LSFO	0.011142	100.00	0.011142					
20	(Future Use)	0.000000	0.00	0.000000					
21	(Future Use)	0.000000	0.00	0.000000					
22	Other	0.011142	0.00	0.000000					
	(Lines 19 through 22): Col(B) x Col(C) = Col(D)								
23	Weighted Efficiency Factor, mmbtu/kWh [(lines 19(D) + 20(D) + 21(D) + 22(D))]			0.011142					
24	WEIGHTED MAJOR ENERGY COST, \$/kWh Sales (lines 17 x 18 x 23)			7.29239					
25	BASE MAJOR ENERGY COST, \$/mmbtu			0.00					
26	Base % Input to System kWh Mix			0.0000					
27	Efficiency Factor, Mbtu/kWh			0.000000					
28	WEIGHTED BASE MAJOR ENERGY COST \$/KWH Sales (lines 25 x 26 x 27)			0.00000					
29	Cost Less Base (Line 24 - 28)			7.29239					
30	Revenue Tax Adjustment (1 / (1-0.08885))			1.097514					
31	MAJOR ENERGY GENERATION FACTOR, \$/KWH (Line 29 x 30)			8.00350					

SUMMARY OF TOTAL GENERATION FACTOR, \$/kWh	
45 MAJOR ENERGY (line 31)	8.00350
46 MINOR ENERGY (line 44)	- 0.64931
47 TOTAL GENERATION FACTOR, \$/KWH (lines 45 + 46)	- 8.65281

Hawaiian Electric Company, Inc.
ENERGY COST RECOVERY FILING

ENERGY COST RECOVERY (ECR) FILING - February 1, 2020 (page 1 of 2)

Line

- 1 Effective Date - February 1, 2020
- 2 Supersedes Factor - January 1, 2020

Line	PURCHASED ENERGY COMPONENT		
	PURCHASED ENERGY PRICE - FOSSIL - ¢/KWH		
48	PAR Hawaii	- On Peak	10.925
49	PAR Hawaii	- Off Peak	12.005
50	IES Downstream		0.000
51	Kalaeloa		12.306
52	AES-HI		3.377
53			
	PURCHASED ENERGY PRICE - RENEWABLE - ¢/KWH		
54	HRRV	- On Peak	17.95
55		- Off Peak	17.43
56	HRRV	- On Peak (excess)	11.43
57		- Off Peak (excess)	6.86
58	Kawailoa Wind		22.73
59	Kahuku Wind		21.33
60	Waianae Solar PV		14.50
61	As Available I		23.60
62	FIT		23.53
63	CBRE PV		15.00
64	Kawailoa PV		12.73
65	Lanikuhana PV		13.05
66	Waipio PV		12.18
67	Na Pua Makani Wind		13.93
	PURCHASED ENERGY KWH MIX - FOSSIL - %		
68	PAR Hawaii	- On Peak	0.25
69	PAR Hawaii	- Off Peak	0.18
70	IES Downstream		0.02
71	Kalaeloa		19.47
72	AES-HI		47.89
73			
73a	Subtotal Fossil %		67.81
	PURCHASED ENERGY KWH MIX - RENEWABLE - %		
74	HRRV	- On Peak	7.66
75		- Off Peak	3.22
76	HRRV	- On Peak (excess)	0.00
77		- Off Peak (excess)	2.73
78	Kawailoa Wind		3.33
79	Kahuku Wind		1.36
80	Waianae Solar PV		1.80
81	As Available I		0.65
82	FIT		2.09
83	CBRE PV		0.00
84	Kawailoa PV		3.03
85	Lanikuhana PV		0.91
86	Waipio PV		2.84
87	Na Pua Makani Wind		2.56
87a	Subtotal Renewable %		32.19
87b	Total Purchased Energy %		100.00
87c	Composite Cost of Purchased Energy, Fossil		5.99
87d	Composite Cost of Purchased Energy, Renewable		16.42
88	COMPOSITE COST OF PURCHASED ENERGY, ¢/KWH		9.348
89	% Input to System kWh Mix		45.62
90	WTD CMP PURCH ENRGY COST, ¢/KWH (lines 88 x 89)		4.26409
91	2017 TY Loss Factor		1.0490
92	WTD CMP PURCH ENRGY COST, ¢/KWH (lines 90 x 91)		4.47303
93	BASE PURCHASED ENERGY COMPOSITE COST, ¢/KWH		0.000
94	Base % Input to System kWh Mix		0.0000
95	WEIGHTED BASE PURCHASED ENERGY COST, ¢/KWH SALES (lines 93 x 94)		0.00000
96	2017 TY Loss Factor		1.049
97	WTD CMP PURCH ENRGY COST, ¢/KWH sales (lines 95 x 96)		0.00000
98	Cost Less Base (Line 92 - 97)		4.47303
99	Revenue Tax Adjustment (1 / (1-0.08885))		1.097514
100	PURCHASED ENERGY FACTOR, ¢/KWH (lines 98 x 99)		4.90921

Calculation of Monthly Fossil Fuel Cost Risk Sharing Component		
Baseline LSFO (Actual)		
101	LSFO \$, baseline month	\$38,140,512
102	LSFO mmbtu, baseline	3,153,750
103	Baseline LSFO, ¢/mmbtu	1209.37
Baseline Diesel (Actual)		
104	Diesel \$, baseline month	\$576,947
105	Diesel mmbtu, baseline	38,076
106	Baseline Diesel, ¢/mmbtu	1,515.26
Month LSFO		
107	LSFO mmbtu, budget	2,944,402
108	LSFO Cost, ¢/mmbtu	1,266.66
109	LSFO ECRC Fossil Cost	\$37,295,606
110	LSFO Base ECRC Recovery Target	\$35,608,709
111	LSFO differential	\$1,686,897
Month Diesel		
112	Diesel mmbtu, budget	97,737
113	Diesel Cost, ¢/mmbtu	1,528.27
114	Diesel ECRC Fossil Cost	\$1,493,687
115	Diesel Base ECRC Recovery Target	\$1,480,970
116	Diesel differential	\$12,716
117	Total Fossil	\$1,699,614
118	2% of above	\$33,992
118A	Total Monthly Fossil Fuel Cost Risk Sharing, Prior Months in Year	\$0
118B	Maximum Annual Cap (bi-directional)	\$2,500,000
118C	Applicable Monthly Fossil Fuel Cost Risk Sharing	\$33,992
118D	Total Monthly Fossil Fuel Cost Risk Sharing, Including This Month	\$33,992
119	Fossil Cost Risk Sharing before taxes	\$33,992
120	Revenue Tax Adjustment	1,097,514
121	Fossil Cost Risk Sharing w/revenue tax	\$37,307
122	Forecasted Month MWh Sales	497,500
123	Fossil Fuel Cost Risk Sharing Component, ¢/kWh	-0.0075
Derivation of Non-Adjustable Component:		
80A	Fuel Handling Exp, \$000 Final Settlement, HECO-603, p1	\$7,604.5
80B	Revenue Tax Adjustment	1,097,514
80C	Non-Adj Revenues, \$000	\$8,346.0
80D	2017 TY Sales, MWh HECO-301, p1	6,660,200
80E	Non-Adj Revenues, ¢/kWh	0.12531
Line SYSTEM COMPOSITE		
124	GEN AND PURCHASED ENERGY FACTOR, ¢/kWh (lines 47 + 100)	13.5620
125	(Future Use) Adjustment, ¢/kWh	0.0000
126	ECR Reconciliation Adjustment	0.9680
127	Non-Adjustable Component (line 80E)	0.1253
128	Fossil Fuel Cost Risk Sharing Component (line 123)	-0.0075
129	Monthly Energy Cost Recovery Factor (lines 124 + 125 + 126 + 127 + 128)	14.648

Hawaiian Electric Company, Inc.
FUEL OIL INVENTORY PRICES FOR February 1, 2020

	Honolulu	Kahe	Waiau
Average Low Sulfur Fuel Oil, ¢/Mbtu	1,265.36	1,265.36	1,265.36
Fuel Additive, ¢/Mbtu	-	1.30	1.30
Honolulu Trucking Cost, ¢/Mbtu	-	-	-
Low Sulfur Fuel Oil Prices Used For Filing, ¢/Mbtu	1,265.36	1,266.66	1,266.66

	Waiau	CIP Biodiesel	CIP Diesel
Average Diesel / Biodiesel Oil, ¢/Mbtu	1,511.46	-	1,538.38
Thruput Charges, ¢/Mbtu	-	-	0
Diesel / Biodiesel Oil Prices Used for Filing, ¢/Mbtu	1,511.46	-	1,538.38

	SGS ULSD	SGS Biodiesel
Average Diesel / Biodiesel Oil, ¢/Mbtu	2,000.71	3,213.86
Thruput Charges, ¢/Mbtu	-	-
Diesel / Biodiesel Oil Prices Used for Filing, ¢/Mbtu	2,000.71	3,213.86

	Honolulu	Kahe	Waiau
Average Low Sulfur Fuel Oil, \$/bbl	79.02	79.02	79.02
Fuel Additive, \$/bbl	-	0.08	0.08
Honolulu Trucking Cost, \$/bbl	-	-	-
Low Sulfur Fuel Oil Prices Used For Filing, \$/bbl	79.02	79.10	79.10

	Waiau	CIP Biodiesel	CIP Diesel
Average Diesel / Biodiesel Oil, \$/bbl	87.77	-	87.91
Thruput Charges, ¢/Mbtu	-	-	-
Diesel / Biodiesel Oil Prices Used for Filing, \$/bbl	87.77	-	87.91

	SGS ULSD	SGS Biodiesel
Average Diesel / Biodiesel Oil, \$/bbl	115.96	165.83
Thruput Charges, ¢/Mbtu	-	-
Diesel / Biodiesel Oil Prices Used for Filing, \$/bbl	115.96	165.83

Distributed Generation Fuel Prices Used for Filing, ¢/kWh			32.500
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FOAC February 2020

<u>LSFO</u>	BARRELS	MBTU	AMOUNT	AVE \$/MBTU
Per FOAC run	599,005	3,740,742	47,333,919	12.653617
Additional	-	-	-	-
Forecast Amt	599,005	3,740,742	47,333,919	12.653617
	-	6.20	-	ADD'L BBL
	3,740,742	599,005	6.2449	MBTU / BBL
	47,333,919	599,005	79.02	DOLLARS / BBL
<u>WAIU DIESEL</u>	14,856	86,267	1,303,891	15.114622
	1,303,891	14,856	87.77	DOLLARS / BBL
<u>CIP BIODIESEL</u>	-	-	-	-
	-	-	-	DOLLARS / BBL
<u>CIP DIESEL</u>	67,833	387,636	5,963,326	15.383838
	5,963,326	67,833	87.91	DOLLARS / BBL
<u>SGS ULSD</u>	426	2,469	49,400	20.007140
	49,399.63	426	115.96	DOLLARS / BBL
<u>SGS BIODIESEL</u>	7,650	39,472	1,268,565	32.13857932
	1,268,565	7,650	165.83	DOLLARS / BBL
FUEL ADDITIVE				0.013019
Additional				
Forecast Amt	-	-	-	0.013019
\$ / BBL =	-	-	0.08	DOLLARS / BBL
HONOLULU TRUCKING COST				
Per FOAC run	-	-	-	-
Additional				
Forecast Amt	-	-	-	-
\$ / BBL =	-	-	-	DOLLARS / BBL

Hawaiian Electric Company, Inc.

CONTRACT PRICES EFFECTIVE 1-1-20

<u>TYPE OF OIL BURNED</u>	<u>\$/BBL</u>	<u>¢/MBTU</u>
LOW SULFUR FUEL OIL		
Tax *	4.4348	71.53
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00
DIESEL		
Tax *	5.3810	91.83
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 *	5.5445	96.76
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00
BIODIESEL		
Tax *	7.1400	136.05
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.		<u>Airport DG</u> <u>Biodiesel</u>	<u>Schofield</u> <u>Biodiesel</u>	<u>Schofield</u> <u>ULSD</u>			
(A)	\$	31.83	\$	32.14	\$	20.01	Estimated Distributed Generation Fuel Cost (\$/MBTU)
(B)		2720		41,837		1683	Estimated MBTU Consumption
(B1)		518		7,972		294	Estimated fuel consumption barrels
(C) = (A) x (B)		\$86,578		\$1,344,589		\$33,663	Estimated Distributed Generation Fuel Cost (\$)
(D)		266,407		4,991,174		201,641	Estimated Distributed Generation kWh
(E) = ((C) ÷ (D)) x 100		<u>32.500</u>		<u>26.940</u>		<u>16.690</u>	¢/kWh

Hawaiian Electric Company, Inc.
ECA RECONCILIATION ADJUSTMENT
February 2020

1.	Amount to be collected	\$	13,170,400
2.	Monthly Amount (Line 1 x 1/3)	\$	4,390,133
3.	Revenue Tax Divisor		0.91115
4.	Total (Line 2 / Line 3)	\$	4,818,233
5.	Estimated MWh Sales (February 2020)		497,500
6.	ECA Reconciliation Adjustment, ¢/kWh (Line 4 ÷ Line 5)		<u>0.968</u>

Hawaiian Electric Company, Inc.
FUEL OIL ADJUSTMENT RECONCILIATION SUMMARY
December 2019
(Thousand \$)

Line	Description	Info Only		Basis for Recon	
		W/O DeadBand December 2019 Cumulative YTD Total	collectn by company*	W/ DeadBand December 2019 Cumulative YTD Total	collectn by company*
ACTUAL COSTS:					
1	Generation / Major Fuels	\$441,968.0		\$441,968.0	
2	Distributed Generation / Minor Fuels	\$47,077.4		\$47,077.4	
3	Purch Power	\$330,879.2		\$330,879.2	
4	TOTAL	\$819,924.6		\$819,924.6	
FUEL FILING COST					
5	Generation / Major Fuels	\$443,742.9		\$441,914.7	
6	Distributed Generation / Minor Fuels	\$47,077.4		\$47,077.4	
7	Purch Power	\$330,879.2		\$330,879.2	
8	TOTAL	\$821,699.5		\$819,871.2	
BASE FUEL COST					
9	Generation / Major Fuels	-\$201.6		-\$201.6	
10	Distributed Generation / Minor Fuels	-\$7.7		-\$7.7	
11	Purch Power	-\$140.8		-\$140.8	
12	TOTAL	-\$350.0		-\$350.0	
13	FUEL-BASE COST (Line 8-12)	\$822,049.5		\$820,221.3	
14	ACTUAL FOA LESS TAX	\$822,371.0		\$822,371.0	
15	Less: FOA reconciliation adj for prior year	\$9,364.9		\$9,364.9	
15A	Less: Non-Adjustable Component Revenues Less Tax	\$7,493.5		\$7,493.5	
16	ADJUSTED FOA LESS TAX	\$805,512.6		\$805,512.6	
17	FOA-(FUEL-BASE) (Line 16-13)	-\$16,536.9	under	-\$14,708.7	under
ADJUSTMENTS:					
18	Current year FOA accrual reversal	\$0.0		\$0.0	
19	SGS test fuel removal	-\$20,101.3		-\$20,101.3	
20	Other	\$0.0		\$0.0	
21	QUARTERLY FOA RECONCILIATION (Line 17+18+19+20)	-\$36,638.2	under	-\$34,810.0	under
21A	YTD Fossil Fuel Cost Risk Sharing Adjustment	-\$702.1		-\$702.1	
21B	QUARTERLY FOA RECON w/Fossil Risk Adj (Line 21+Line 21A)	-\$37,340.3		-\$35,512.1	
22	3rd Quarter Reconciliation YTD			-\$22,341.7	under
23	Amount to be collected			-\$13,170.4	under

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

Hawaiian Electric Company, Inc.
DEADBAND CALCULATION
2019

FOR PERIOD: JANUARY 1, 2019 TO DECEMBER 31, 2019

	Notes	YTD
Low Sulfur Fuel Oil (LSFO)		
LSFO Efficiency Factor (per D&O), BTU/kWh*	f	11,165
LSFO Deadband Definition, +/- BTU/kWh	d	125
LSFO Portion of Recorded Sales, kWh	a	3,189,907,385
LSFO Consumption (Recorded), MMBTU	b	35,470,022
LSFO Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	11,119
Lower limit of LSFO Deadband, BTU/kWh	e = f-d	11,040
Higher limit of LSFO Deadband, BTU/kWh	g = f+d	11,290
LSFO Efficiency Factor for cost-recovery, BTU/kWh	h = c, e or g	11,119
Recorded BTU/kWh vs. Deadband		Neutral

* YTD Efficiency Factor (per D&O) is actual YTD & projected to the end of the year weighted by calendar days in the year.

HAWAIIAN ELECTRIC COMPANY, INC.
FUEL FILING COST AND BASE FUEL COST, MAJOR FUELS, WITHOUT and WITH DEADBAND
December 2019 Year-to-Date

	Without Deadband	With Deadband AS FILED
<u>FUEL FILING COST, MAJOR FUELS</u>	<u>Jan 1-Dec 31</u>	<u>Jan 1-Dec 31</u>
LSFO Portion of Recorded Sales , MWH	3,189,907,385	3,189,907,385
LSFO Sales Efficiency Factor (mmbtu/kwh)	0.011165	0.011119
Mmbtu adjusted for Sales Efficiency Factor	35,615,315,954	35,468,580,214
\$/mmbtu	<u>\$12.4593</u>	<u>\$12.4593</u>
TOTAL LSFO \$ TO BE RECOVERED	\$443,742,907	\$441,914,678
<u>BASE FUEL COST, MAJOR FUELS</u>		
TOTAL BASE FUEL COST	-\$201,576	-\$201,576
TOTAL FUEL FILING COST, MAJOR FUELS \$ YTD	\$443,742,907	\$441,914,678
TOTAL BASE FUEL COST, MAJOR FUELS YTD	-\$201,576	-\$201,576

Hawaiian Electric Company, Inc.
 Fuel Oil Adjustment Reconciliation

ATTACHMENT 4
 PAGE 5 OF 5

Fossil Fuel Cost Risk Sharing Mechanism and Non-Adjustable Component, December 2019

LSFO Fossil Fuel Cost Risk Sharing		Jan-19, Baseline	YTD
A	MMBtu	3,300,499 mmbtu	35,470,022 mmbtu
B	\$ cost, actuals	\$44,129,782	\$441,968,025
C = B / A (Jan Column)	Jan 2019 baseline \$/MMBtu	13.370640	13.370640
D	LSFO Gen kWh		3,323,462,401
E	Total kWh, Gen, Purch Pwr, DG		6,840,237,874
F	Sales kWh		6,563,104,237
G = (D / E) x F	LSFO kWh-sales		3,188,811,642
H	Target Heat Rate		11,165
I	Recovery heat rate		11,119
J = B/A (YTD Column)	Actual Cost \$/MMBtu		12.460326
K = C x H x G / 1,000,000	Base Cost Recovery w/Target Heat Rate		\$476,035,983
L = I x J x G / 1,000,000	Fuel Filing Cost Recovery		\$441,798,247
M = 2% x (L-K)	LSFO Cost Risk Sharing		-\$684,755
Diesel Fossil Fuel Cost Risk Sharing (w/o target heat rate)			
AA	MMBtu	107,471 mmbtu	1,983,535 mmbtu
BB	Fuel Filing Cost Recovery (no heat rate)	\$1,726,670	\$31,002,331
CC = BB/AA (Jan Column)	Jan 2019 baseline \$/MMBtu	16.066354	16.066354
DD = AA x CC	Base Cost Recovery		\$31,868,176
EE = (BB - DD) x 2%	Diesel Cost Risk Sharing		-\$17,317
FF = M + EE, up to ±\$2.5MM	Total Fossil Fuel Cost Risk Sharing Adjustment, subject to ±\$2.5MM cap		-\$702,072
Non-Adjustable Component			
AAA = F	YTD kWh		6,563,104,237
BBB	Non-Adjustable Component, c/kWh		0.12531
CCC = AAA x BBB	Non-Adjustable Component Revenues w/tax		\$8,224,226
DDD = CCC / (1/(1-.08885))	Non-Adjustable Component Revenues less tax		\$7,493,503

HAWAIIAN ELECTRIC COMPANY, INC.
2019 Cumulative Reconciliation Balance

	(1)		(2)	(3)	(4)	(5)	(6)
<u>Month</u>	<u>YTD FOA Reconciliation</u>	<u>Qtr</u>	<u>FOA Rec Adjust Variance</u>	<u>FOA Rec Less Variance</u>	<u>Try to Collect</u>	<u>Actual Collect</u>	<u>Month-end Cumulative Balance</u>
November '18	(3,451,000)	(3)	46,479	(3,497,479)	1,150,333	1,163,303	(2,284,162)
December					1,150,333	1,102,163	(1,181,999)
January '19					1,150,333	1,121,708	(60,291)
February	(8,214,600)	(4)	(31,672)	(8,182,928)	2,738,200	2,387,566	(5,855,653)
March					2,738,200	2,502,912	(3,352,741)
April					2,738,200	2,610,703	(742,038)
May	(9,386,800)	(1)	(614,547)	(8,772,253)	3,128,933	3,065,471	(6,448,820)
June					3,128,933	3,272,756	(3,176,064)
July					3,128,933	3,238,171	62,107
August	(6,233,900)	(2)	(47,137)	(6,186,763)	2,077,967	2,162,647	(3,962,009)
September					2,077,967	2,178,140	(1,783,869)
October					2,077,967	2,160,610	376,741
November	(6,720,985)	(3)	294,091	(7,015,076)	2,240,328	2,353,575	(4,284,761)
December					2,240,328	2,361,239	(1,923,522)
January '20					2,240,328		
February	(13,170,400)	(4)	316,801	(13,487,201)	4,390,133		

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.
ENERGY COST RECOVERY FACTOR DATA

<u>EFFECTIVE DATE</u>	ENERGY COST FACTOR CENTS / KWH <u>RESIDENTIAL & COMMERCIAL</u>	RESIDENTIAL BILL (\$)	
		<u>@ 500 KWH</u>	<u>@ 600 KWH</u>
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
December 1, 2018	5.553	169.64	201.82
January 1, 2019	14.095	161.36	191.85
February 1, 2019	12.044	147.31	175.01
March 1, 2019	13.449	154.51	183.63
April 1, 2019	14.338	158.42	188.34
May 1, 2019	14.721	163.56	194.50
June 1, 2019	15.199	163.47	194.39
July 1, 2019	14.545	160.95	191.42
August 1, 2019	14.297	160.45	190.82
September 1, 2019	13.240	155.11	184.42
October 1, 2019	12.951	153.64	182.65
November 1, 2019	12.778	150.18	178.51
December 1, 2019	12.409	148.41	176.37
January 1, 2020	13.629	155.97	185.42
February 1, 2020	14.648	161.90	192.54

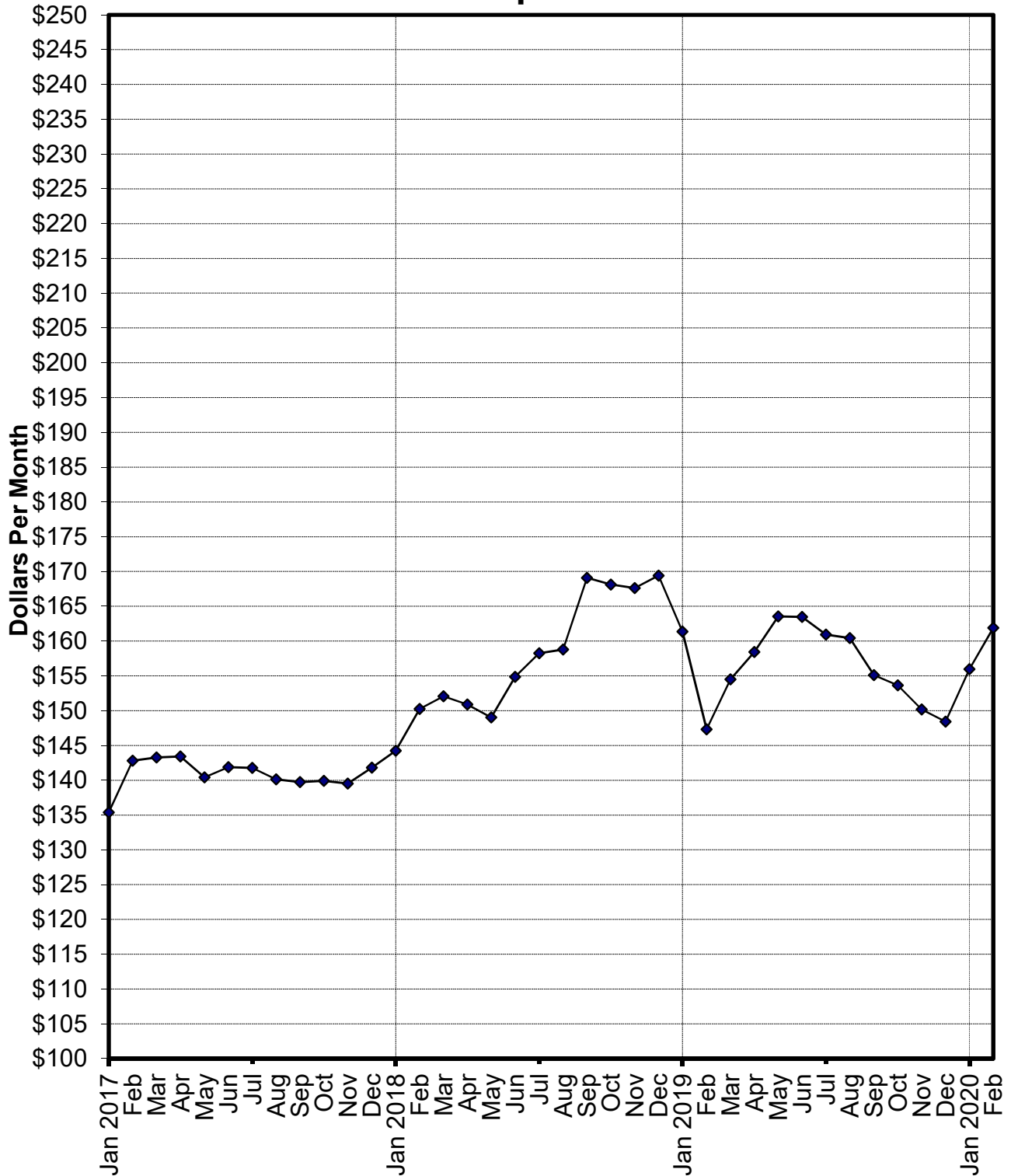
Hawaiian Electric Company, Inc.
RESIDENTIAL SURCHARGE DATA

EFFECTIVE DATE	DESCRIPTION OF SURCHARGE	RATE
5/15/2016	RENEWABLE ENERGY INFRASTRUCTURE COST RECOVERY PROVISION	0.0000 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 -04/12/2018	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 - 3/31/19	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 - 5/31/2019	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	1.0350 CENTS/KWH
7/1/2018 - 12/31/2018	GREEN INFRASTRUCTURE FEE	1.2100 DOLLARS/MONTH
7/1/2018 - 6/30/2019	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 - 10/31/2018	RESIDENTIAL DSM ADJUSTMENT	-0.0064 CENTS/KWH
9/1/2018 - 9/30/2018	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 - 10/31/2018	PURCHASED POWER ADJUSTMENT CLAUSE	4.3252 CENTS/KWH
11/1/2018 - 11/1/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.0539 CENTS/KWH
11/1/2018 - 1/31/2019	RESIDENTIAL DSM ADJUSTMENT	0.0203 CENTS/KWH
12/1/2018 - 12/31/2018	PURCHASED POWER ADJUSTMENT CLAUSE	3.0553 CENTS/KWH
1/1/2019 - 1/31/2019	PURCHASED POWER ADJUSTMENT CLAUSE	3.0574 CENTS/KWH
1/1/2019 - 6/30/2019	GREEN INFRASTRUCTURE FEE	1.3500 DOLLARS/MONTH
2/1/2019 - 4/30/2019	RESIDENTIAL DSM ADJUSTMENT	0.0000 CENTS/KWH
2/1/2019 - 2/28/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.3209 CENTS/KWH
3/1/2019 - 3/31/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.3532 CENTS/KWH
4/1/2019 - 4/30/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.3341 CENTS/KWH
4/1/2019 - 4/30/2019	SOLAR SAVER ADJUSTMENT	-0.0857 CENTS/KWH
5/1/2019 - 5/31/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.8780 CENTS/KWH
5/1/2019	SOLAR SAVER ADJUSTMENT	0.0000 CENTS/KWH
5/1/2019 - 7/31/2019	RESIDENTIAL DSM ADJUSTMENT	0.0133 CENTS/KWH
6/1/2019 - 6/30/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.4806 CENTS/KWH
6/1/2019	REVENUE BALANCING ACCOUNT RATE ADJUSTMENT	0.9376 CENTS/KWH
7/1/2019 - 7/31/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.6543 CENTS/KWH
7/1/2019	GREEN INFRASTRUCTURE FEE	1.17 DOLLARS/MONTH
7/1/2019	RESID. PBF SURCHARGE ADJUSTMENT	0.4658 CENTS/KWH
8/1/2019 - 8/31/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.8165 CENTS/KWH
8/1/2019 - 1/31/2020	RESIDENTIAL DSM ADJUSTMENT	0.0000 CENTS/KWH
9/1/2019 - 9/30/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.8061 CENTS/KWH
10/1/2019-10/31/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.8008 CENTS/KWH
11/1/2019 - 11/30/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.2849 CENTS/KWH
11/1/2019 - 1/31/2020	RESIDENTIAL DEMAND RESPONSE ADJUSTMENT CLAUSE (DRAC)	-0.0019 CENTS/KWH
12/1/2019 - 12/31/2019	PURCHASED POWER ADJUSTMENT CLAUSE	2.2980 CENTS/KWH
1/1/2020 - 1/31/2020	PURCHASED POWER ADJUSTMENT CLAUSE	2.3077 CENTS/KWH
1/1/2020	RESID. PBF SURCHARGE ADJUSTMENT	0.7437 CENTS/KWH
1/1/2020	GREEN INFRASTRUCTURE FEE	1.25 DOLLARS/MONTH
2/1/2020	RESIDENTIAL DEMAND RESPONSE ADJUSTMENT CLAUSE (DRAC)	-0.0116 CENTS/KWH
2/1/2020	RESIDENTIAL DSM ADJUSTMENT	0.0651 CENTS/KWH
2/1/2020	PURCHASED POWER ADJUSTMENT CLAUSE	2.4197 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			
	1/1/2020	2/1/2020	1/1/2020	2/1/2020	Difference	
Base Rates	effective date:	01/01/19	01/01/19			
Base Fuel/Energy Charge	¢/kWh	-	-	0.00	0.00	0.00
Non-fuel Fuel Energy Charge	¢/kWh	10.6812	10.6812	37.38	37.38	0.00
First 350 kWhr per month	¢/kWh	11.8347	11.8347	17.75	17.75	0.00
Next 850 kWhr per month	¢/kWh	11.50	11.50	11.50	11.50	0.00
Customer Charge	\$					
Total Base Charges				66.63	66.63	0.00
Purchase Power Adjustment	¢/kWh	2.3077	2.4197	11.54	12.10	0.56
RBA Rate Adjustment	¢/kWh	0.9376	0.9376	4.69	4.69	0.00
DSM Adjustment	¢/kWh	0.0000	0.0651	0.00	0.33	0.33
Demand Response Adjustment Clause	¢/kWh	-0.0019	-0.0116	-0.01	-0.06	-0.05
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	0.7437	0.7437	3.72	3.72	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 Recovery	¢/kWh	13.629	14.648	68.15	73.24	5.09
Green Infrastructure Fee	\$	1.25	1.25	1.25	1.25	0.00
Avg Residential Bill at 500 kWh				155.97	161.90	

Increase / (Decrease -) 5.93
% Change 3.80%

	Rate		Charge (\$) at 600 kWh			
	1/1/2020	2/1/2020	1/1/2020	2/1/2020	Difference	
Base Rates	effective date:	01/01/19	01/01/19			
Base Fuel/Energy Charge	¢/kWh	-	-	0.00	0.00	0.00
Non-fuel Fuel Energy Charge	¢/kWh	10.6812	10.6812	37.38	37.38	0.00
First 350 kWhr per month	¢/kWh	11.8347	11.8347	29.59	29.59	0.00
Next 850 kWhr per month	¢/kWh	11.50	11.50	11.50	11.50	0.00
Customer Charge	\$					
Total Base Charges				78.47	78.47	0.00
Purchase Power Adjustment	¢/kWh	2.3077	2.4197	13.85	14.52	0.67
RBA Rate Adjustment	¢/kWh	0.9376	0.9376	5.63	5.63	0.00
DSM Adjustment	¢/kWh	0.0000	0.0651	0.00	0.39	0.39
Demand Response Adjustment Clause	¢/kWh	-0.0019	-0.0116	-0.01	-0.07	-0.06
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	0.7437	0.7437	4.46	4.46	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 Recovery	¢/kWh	13.629	14.648	81.77	87.89	6.12
Green Infrastructure Fee	\$	1.25	1.25	1.25	1.25	0.00
Avg Residential Bill at 600 kWh				185.42	192.54	

Increase / (Decrease -) 7.12
% Change 3.84%