



October 29, 2019

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PUBLIC UTILITIES
COMMISSION

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

Dear Commissioners:


Subject: Hawaiian Electric Energy Cost Recovery Factor for November 2019

Hawaiian Electric Company, Inc.'s ("Hawaiian Electric" or "Company") November 2019 Energy Cost Recovery Factor is 12.778 cents per kilowatt-hour ("kWh"), a decrease of 0.173 cents per kWh from last month. A residential customer consuming 500 kWh of electricity will be paying \$150.18, a decrease of \$3.46 compared to rates effective October 1, 2019. The decrease in the residential typical bill is due to the decrease in the Energy Cost Recovery Factor (-\$0.87), decrease in the Purchase Power Adjustment Clause rate (-\$2.58) and implementation of the Demand Response Adjustment Clause ("DRAC") (-\$0.01).

The Company's fuel composite cost of major energy increased 4.99 cents per million BTU to 1,193.26 cents per million BTU. The Company's composite cost of minor energy increased 1.220 cents per kWh to 20.097 cents per kWh. The composite cost of purchased energy decreased 0.534 cents per kWh to 8.646 cents per kWh.

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 November 1, 2019.

Very truly yours,


(for) 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>10/01/19</u>	<u>11/01/19</u>	
Composite Cost Of Major Energy, ¢/mmbtu	1,188.27	1,193.26	4.99
Composite Cost Of Minor Energy, ¢/kwh	18.877	20.097	1.220
Composite Cost Of Purchased Energy, ¢/kWh	9.180	8.646	(0.534)
 <u>Residential, Schedule "R"</u>			
Energy Cost Recovery, ¢/kWh	12.951	12.778	(0.173)
 <u>Others, Schedules "G,J,DS,P,F"</u>			
Energy Cost Recovery, ¢/kWh	12.951	12.778	(0.173)
 <u>Residential Customer with:</u>			
500 kWh Consumption, \$/bill	153.64	150.18	(3.46)
600 kWh Consumption, \$/bill	182.65	178.51	(4.14)

Supersedes Sheet Effective:

October 1, 2019

Hawaiian Electric Company, Inc.
ENERGY COST RECOVERY FILING

ENERGY COST RECOVERY (ECR) FILING - November 1, 2019 (page 2 of 2)

Line		
1	Effective Date	- November 1, 2019
2	Supersedes Factor	- October 1, 2019

Line	PURCHASED ENERGY COMPONENT		
	PURCHASED ENERGY PRICE - FOSSIL - ¢/KWH		
48	PAR Hawaii	- On Peak	11.442
49	PAR Hawaii	- Off Peak	12.277
50	IES Downstream	- On Peak	11.442
51	IES Downstream	- Off Peak	12.277
52	Kalaeloa		11.195
53	AES-HI		3.350
	PURCHASED ENERGY PRICE - RENEWABLE - ¢/KWH		
54	HRRV	- On Peak	17.63
55		- Off Peak	17.13
56	HRRV	- On Peak (excess)	11.23
57		- Off Peak (excess)	6.74
58	Kawailoa		22.395
59	Kahuku Wind		21.013
60	Waianae Solar PV		14.500
61	As Available I		22.399
62	FIT		19.373
63	CBRE PV		15.000
64	(Future IPP)		0.000
65	(Future IPP)		0.000
66	(Future IPP)		0.000
67	(Future IPP)		0.000
	PURCHASED ENERGY KWH MIX - FOSSIL - %		
68	PAR Hawaii	- On Peak	0.22
69	PAR Hawaii	- Off Peak	0.16
70	IES Downstream	- On Peak	0.01
71	IES Downstream	- Off Peak	0.01
72	Kalaeloa		32.76
73	AES-HI		38.63
73a	Subtotal Fossil %		71.79
	PURCHASED ENERGY KWH MIX - RENEWABLE - %		
74	HRRV	- On Peak	4.72
75		- Off Peak	2.45
76	HRRV	- On Peak (excess)	0.00
77		- Off Peak (excess)	0.72
78	Kawailoa		4.63
79	Kahuku Wind		2.94
80	Waianae Solar PV		1.58
81	As Available I		0.49
82	FIT		1.62
83	CBRE PV		0.20
84	(Future IPP)		2.37
85	(Future IPP)		0.72
86	(Future IPP)		2.45
87	(Future IPP)		3.32
87a	Subtotal Renewable %		28.21
87b	Total Purchased Energy %		100.00
87c	Composite Cost of Purchased Energy, Fossil		6.98
87d	Composite Cost of Purchased Energy, Renewable		12.90
88	COMPOSITE COST OF PURCHASED ENERGY, ¢/KWH		8.646
89	% Input to System kWh Mix		55.63
90	WTD CMP PURCH ENRGY COST, ¢/KWH (lines 88 x 89)		4.80977
91	2017 TY Loss Factor		1.0490
92	WTD CMP PURCH ENRGY COST, ¢/KWH (lines 90 x 91)		5.04545
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)		5.04545
99	Revenue Tax Adjustment (1 / (1-0.08885))		1.097514
100	PURCHASED ENERGY FACTOR, ¢/KWH (lines 98 x 99)		5.53745

Calculation of Monthly Fossil Fuel Cost Risk Sharing Component		
Baseline LSFO (Actual)		
101	LSFO \$, baseline month	\$44,129,782
102	LSFO mmbtu, baseline	3,300,499
103	Baseline LSFO, ¢/mmbtu	1337.06
Baseline Diesel (Actual)		
104	Diesel \$, baseline month	\$1,726,670
105	Diesel mmbtu, baseline	107,471
106	Baseline Diesel, ¢/mmbtu	1,606.64
Month LSFO		
107	LSFO mmbtu, budget	2,611,629
108	LSFO Cost, ¢/mmbtu	1,193.26
109	LSFO ECRC Fossil Cost	\$31,163,521
110	LSFO Base ECRC Recovery Target	\$34,919,147
111	LSFO differential	-\$3,755,626
Month Diesel		
112	Diesel mmbtu, budget	79,767
113	Diesel Cost, ¢/mmbtu	1,528.26
114	Diesel ECRC Fossil Cost	\$1,219,049
115	Diesel Base ECRC Recovery Target	\$1,281,568
116	Diesel differential	-\$62,519
117	Total Fossil	-\$3,818,145
118	2% of above	-\$76,363
118A	Total Monthly Fossil Fuel Cost Risk Sharing, Prior Months in Year	-\$430,606
118B	Maximum Annual Cap (bi-directional)	\$2,500,000
118C	Applicable Monthly Fossil Fuel Cost Risk Sharing	-\$76,363
118D	Total Monthly Fossil Fuel Cost Risk Sharing, Including This Month	-\$506,969
119	Fossil Cost Risk Sharing before taxes	-\$76,363
120	Revenue Tax Adjustment	1.097514
121	Fossil Cost Risk Sharing w/revenue tax	-\$83,809
122	Forecasted Month MWh Sales	534,900
123	Fossil Fuel Cost Risk Sharing Component, ¢/kWh	0.0157
Derivation of Non-Adjustable Component:		
80A	Fuel Handling Exp, \$000 Final Settlement, HECO-603, p1	\$7,604.5
80B	Revenue Tax Adjustment	1.097514
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)	12.1768
125	(Future Use) Adjustment, ¢/kWh	0.0000
126	ECR Reconciliation Adjustment	0.4600
127	Non-Adjustable Component (line 80E)	0.1253
128	Fossil Fuel Cost Risk Sharing Component (line 123)	0.0157
129	Monthly Energy Cost Recovery Factor (lines 124 + 125 + 126 + 127 + 128)	12.778

Hawaiian Electric Company, Inc.
FUEL OIL INVENTORY PRICES FOR 11-01-19

	<u>Honolulu</u>	<u>Kahe</u>	<u>Waiau</u>
Average Low Sulfur Fuel Oil, ϕ /Mbtu	1,191.96	1,191.96	1,191.96
Fuel Additive, ϕ /Mbtu	-	1.30	1.30
Honolulu Trucking Cost, ϕ /Mbtu	-	-	-
Low Sulfur Fuel Oil Prices Used For Filing, ϕ /Mbtu	1,191.96	1,193.26	1,193.26

	<u>Waiau</u>	<u>CIP Biodiesel</u>	<u>CIP Diesel</u>
Average Diesel / Biodiesel Oil, ϕ /Mbtu	1,506.44	-	1,542.73
Thruput Charges, ϕ /Mbtu	-	-	0
Diesel / Biodiesel Oil Prices Used for Filing, ϕ /Mbtu	1,506.44	-	1,542.73

	<u>SGS ULSD</u>	<u>SGS Biodiesel</u>
Average Diesel / Biodiesel Oil, ϕ /Mbtu	2,000.71	3,231.95
Thruput Charges, ϕ /Mbtu	-	-
Diesel / Biodiesel Oil Prices Used for Filing, ϕ /Mbtu	2,000.71	3,231.95

	<u>Honolulu</u>	<u>Kahe</u>	<u>Waiau</u>
Average Low Sulfur Fuel Oil, $\$/$ bbbl	74.39	74.39	74.39
Fuel Additive, $\$/$ bbbl	-	0.08	0.08
Honolulu Trucking Cost, $\$/$ bbbl	-	-	-
Low Sulfur Fuel Oil Prices Used For Filing, $\$/$ bbbl	74.39	74.47	74.47

	<u>Waiau</u>	<u>CIP Biodiesel</u>	<u>CIP Diesel</u>
Average Diesel / Biodiesel Oil, $\$/$ bbbl	86.70	-	88.03
Thruput Charges, ϕ /Mbtu	-	-	-
Diesel / Biodiesel Oil Prices Used for Filing, $\$/$ bbbl	86.70	-	88.03

	<u>SGS ULSD</u>	<u>SGS Biodiesel</u>
Average Diesel / Biodiesel Oil, $\$/$ bbbl	115.96	174.53
Thruput Charges, ϕ /Mbtu	-	-
Diesel / Biodiesel Oil Prices Used for Filing, $\$/$ bbbl	115.96	174.53

Distributed Generation Fuel Prices Used for Filing, ϕ /kWh 36.870

FOAC November 2019

<u>LSFO</u>	<u>BARRELS</u>	<u>MBTU</u>	<u>AMOUNT</u>	<u>AVE \$/MBTU</u>
Per FOAC run	750,330	4,683,002.80	55,819,466.04	11.919588
Additional	-	-	-	-
Forecast Amt	750,330	4,683,002.80	55,819,466.04	11.919588
	-	6.20	-	ADD'L BBL
	4,683,003	750,330	6.2413	MBTU / BBL
	55,819,466	750,330	74.39	DOLLARS / BBL
<u>WAIU DIESEL</u>	23,034	132,570.23	1,997,095.52	15.064435
	1,997,096	23,034	86.70	DOLLARS / BBL
<u>CIP BIODIESEL</u>	-	-	-	-
	-	-	-	DOLLARS / BBL
<u>CIP DIESEL</u>	45,309	258,551.95	3,988,752.45	15.427276
	3,988,752	45,309	88.03	DOLLARS / BBL
<u>SGS ULSD</u>	426	2,469	49,399.63	20.00714025
	49,399.63	426	115.96	DOLLARS / BBL
<u>SGS BIODIESEL</u>	10,356	55,925.25	1,807,474.08	32.31946634
	1,807,474	10,356	174.53	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 10-1-19

<u>TYPE OF OIL BURNED</u>	<u>\$/BBL</u>	<u>¢/MBTU</u>
LOW SULFUR FUEL OIL		
Tax *	4.3233	69.74
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00
DIESEL		
Tax *	4.3233	69.74
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 *	5.3772	93.84
Ocean Transportation	0.0000	0.00
Land Transportation	0.0000	0.00
Storage	0.0000	0.00
Wharfage	0.0000	0.00
BIODIESEL		
Tax *	7.5600	144.05
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)	\$	32.83	\$	32.32	\$	20.01	Estimated Distributed Generation Fuel Cost (\$/MBTU)
(B)		1572		22,647		504	Estimated MBTU Consumption
(B1)		300		4,315		88	Estimated fuel consumption barrels
(C) = (A) x (B)		\$51,617		\$731,950		\$10,079	Estimated Distributed Generation Fuel Cost (\$)
(D)		140,000		2,445,880		52,602	Estimated Distributed Generation kWh
(E) = ((C) ÷ (D)) x 100		<u>36.870</u>		<u>29.930</u>		<u>19.160</u>	¢/kWh

Hawaiian Electric Company, Inc.
ECA RECONCILIATION ADJUSTMENT
November 2019

1.	Amount to be collected	\$	6,720,985
2.	Monthly Amount (Line 1 x 1/3)	\$	2,240,328
3.	Revenue Tax Divisor		0.91115
4.	Total (Line 2 / Line 3)	\$	2,458,792
5.	Estimated MWh Sales (November 2019)		534,900
6.	ECA Reconciliation Adjustment, ¢/kWh (Line 4 ÷ Line 5)		<u>0.460</u>

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

Line	Description	Info Only		Basis for Recon	
		W/O DeadBand September 2019 Cumulative YTD Total	collectn by company*	W/ DeadBand September 2019 Cumulative YTD Total	collectn by company*
ACTUAL COSTS:					
1	Generation / Major Fuels	\$333,179.6		\$333,179.6	
2	Distributed Generation / Minor Fuels	\$36,586.6		\$36,586.6	
3	Purch Power	\$246,368.2		\$246,368.2	
4	TOTAL	\$616,134.4		\$616,134.4	
FUEL FILING COST					
5	Generation / Major Fuels	\$334,633.5		\$333,134.9	
6	Distributed Generation / Minor Fuels	\$36,586.6		\$36,586.6	
7	Purch Power	\$246,368.2		\$246,368.2	
8	TOTAL	\$617,588.3		\$616,089.7	
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)	\$617,938.3		\$616,439.7	
14	ACTUAL FOA LESS TAX	\$622,929.5		\$622,929.5	
15	Less: FOA reconciliation adj for prior year	\$9,364.9		\$9,364.9	
15A	Less: Non-Adjustable Component Revenues Less Tax	\$5,525.8		\$5,525.8	
16	ADJUSTED FOA LESS TAX	\$608,038.8		\$608,038.8	
17	FOA-(FUEL-BASE) (Line 16-13)	-\$9,899.5	under	-\$8,400.9	under
ADJUSTMENTS:					
18	Current year FOA accrual reversal	\$0.0		\$0.0	
19	SGS test fuel removal	-\$13,542.7		-\$13,542.7	
20	Other	\$0.0		\$0.0	
21	QUARTERLY FOA RECONCILIATION (Line 17+18+19+20)	-\$23,442.2	under	-\$21,943.6	under
21A	YTD Fossil Fuel Cost Risk Sharing Adjustment	-\$398.1		-\$398.1	
21B	QUARTERLY FOA RECON w/Fossil Risk Adj (Line 21+Line 21A)	-\$23,840.3		-\$22,341.7	
22	2nd Quarter Reconciliation YTD			-\$15,620.7	under
23	Amount to be collected			-\$6,721.0	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 SEPTEMBER 30, 2019

	Notes	YTD
<u>Industrial</u>		
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	2,361,815,675
Industrial Consumption (Recorded), MMBTU	b	26,251,554
Industrial Efficiency Factor (Recorded), BTU/kWh	c = (b/a)*1000	11,115
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	11,115
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
September 2019 Year-to-Date

	Without Deadband	With Deadband AS FILED
<u>FUEL FILING COST, MAJOR FUELS</u>	<u>Jan 1-Sep 30</u>	<u>Jan 1-Sep 30</u>
LSFO Portion of Recorded Sales , MWH	2,361,815,675	2,361,815,675
LSFO Sales Efficiency Factor (mmbtu/kwh)	0.011165	0.011115
Mmbtu adjusted for Sales Efficiency Factor	26,369,672,011	26,251,581,228
\$/mmbtu	<u>\$12.6901</u>	<u>\$12.6901</u>
TOTAL LSFO \$ TO BE RECOVERED	\$334,633,468	\$333,134,886
<u>BASE FUEL COST, MAJOR FUELS</u>		
TOTAL BASE FUEL COST	-\$201,576	-\$201,576
TOTAL FUEL FILING COST, MAJOR FUELS \$ YTD	\$334,633,468	\$333,134,886
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, September 2019

LSFO Fossil Fuel Cost Risk Sharing		Jan-19, Baseline	YTD
A	MMBtu	3,300,499 mmbtu	26,251,554 mmbtu
B	\$ cost, actuals	\$44,129,782	\$333,179,618
C = B / A (Jan Column)	Jan 2019 baseline \$/MMBtu	13.370640	13.370640
D	LSFO Gen kWh		2,461,492,730
E	Total kWh, Gen, Purch Pwr, DG		5,046,464,085
F	Sales kWh		4,839,691,067
G = (D / E) x F	LSFO kWh-sales		2,360,635,918
H	Target Heat Rate		11,165
I	Recovery heat rate		11,115
J = B/A (YTD Column)	Actual Cost \$/MMBtu		12.691805
K = C x H x G / 1,000,000	Base Cost Recovery w/Target Heat Rate		\$352,403,266
L = I x J x G / 1,000,000	Fuel Filing Cost Recovery		\$333,013,530
M = 2% x (L-K)	LSFO Cost Risk Sharing		-\$387,795
Diesel Fossil Fuel Cost Risk Sharing (w/o target heat rate)			
AA	MMBtu	107,471 mmbtu	1,466,202 mmbtu
BB	Fuel Filing Cost Recovery (no heat rate)	\$1,726,670	\$23,041,747
CC = BB/AA (Jan Column)	Jan 2019 baseline \$/MMBtu	16.066354	16.066354
DD = AA x CC	Base Cost Recovery		\$23,556,520
EE = (BB - DD) x 2%	Diesel Cost Risk Sharing		-\$10,295
FF = M + EE, up to ±\$2.5MM	Total Fossil Fuel Cost Risk Sharing Adjustment, subject to ±\$2.5MM cap		-\$398,090
Non-Adjustable Component			
AAA = F	YTD kWh		4,839,691,067
BBB	Non-Adjustable Component, c/kWh		0.12531
CCC = AAA x BBB	Non-Adjustable Component Revenues w/tax		\$6,064,617
DDD = CCC / (1/(1-.08885))	Non-Adjustable Component Revenues less tax		\$5,525,776

HAWAIIAN ELECTRIC COMPANY, INC.
2019 Cumulative Reconciliation Balance

	(1)		(2)	(3)	(4)	(5)	(6)
	YTD FOA		FOA Rec	FOA Rec	Try to	Actual	Month-end
<u>Month</u>	<u>Reconciliation</u>	<u>Qtr</u>	<u>Adjust</u>	<u>Less</u>	<u>Collect</u>	<u>Collect</u>	<u>Cumulative</u>
			<u>Variance</u>	<u>Variance</u>			<u>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		
November	(6,720,985)	(3)	294,091	(7,015,076)	2,240,328		

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

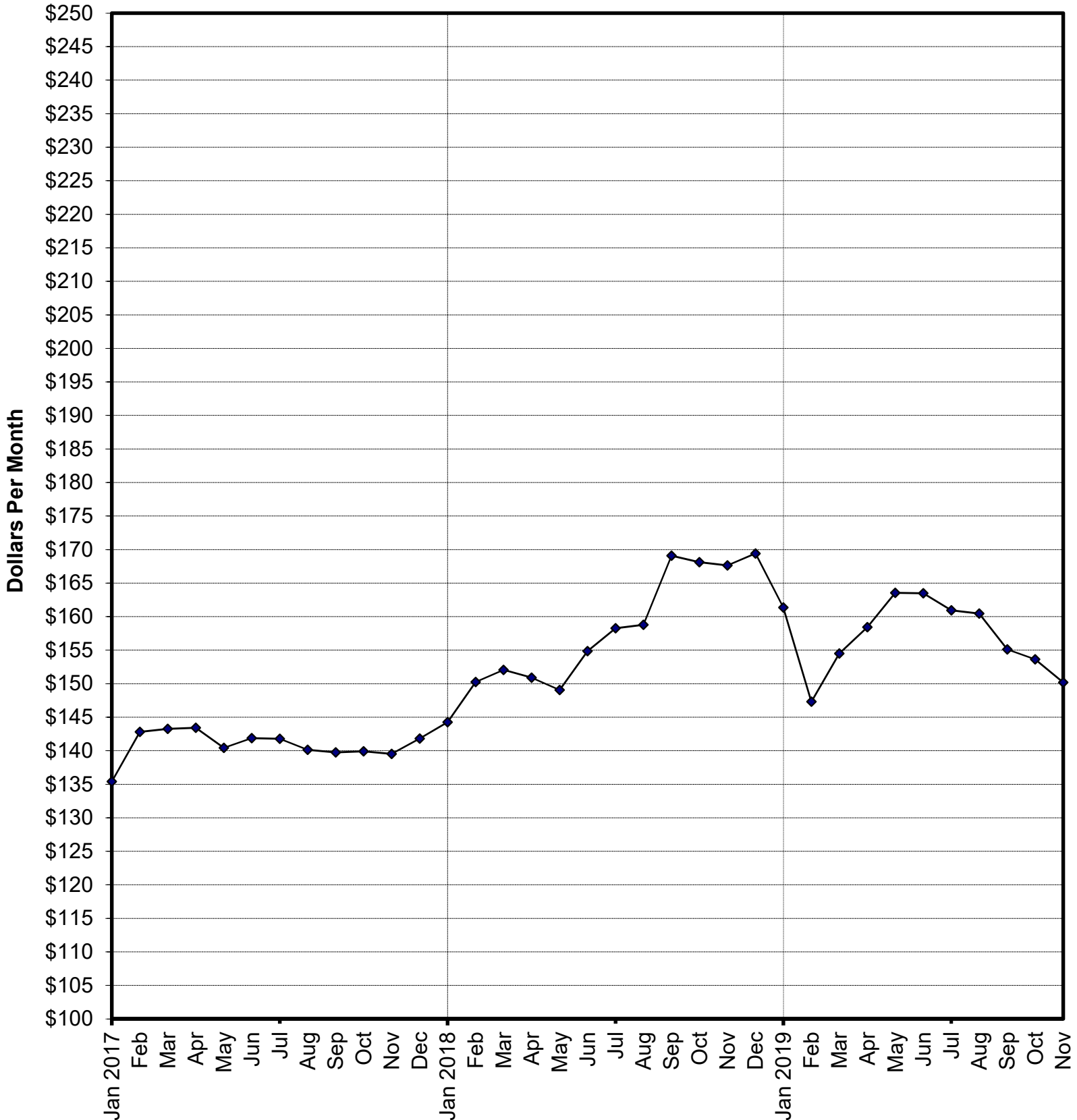
Hawaiian Electric Company, Inc.
RESIDENTIAL SURCHARGE DATA

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 - 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	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	PURCHASED POWER ADJUSTMENT CLAUSE	2.2849 CENTS/KWH
11/1/2019	RESIDENTIAL DEMAND RESPONSE ADJUSTMENT CLAUSE (DRAC)	-0.0019 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			
	10/1/2019	11/1/2019	10/1/2019	11/1/2019	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	2.8008	2.2849	14.00	11.42	-2.58
RBA Rate Adjustment	¢/kWh	0.9376	0.9376	4.69	4.69	0.00
DSM Adjustment	¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Demand Response Adjustment Clause	¢/kWh	0.0000	-0.0019	0.00	-0.01	-0.01
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	0.4775	0.4775	2.39	2.39	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	12.951	12.778	64.76	63.89	-0.87
Green Infrastructure Fee	\$	1.17	1.17	1.17	1.17	0.00
Avg Residential Bill at 500 kWh				153.64	150.18	

Increase / (Decrease -) -3.46
% Change -2.25%

	Rate		Charge (\$) at 600 kWh			
	10/1/2019	11/1/2019	10/1/2019	11/1/2019	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	2.8008	2.2849	16.80	13.71	-3.09
RBA Rate Adjustment	¢/kWh	0.9376	0.9376	5.63	5.63	0.00
DSM Adjustment	¢/kWh	0.0000	0.0000	0.00	0.00	0.00
Demand Response Adjustment Clause	¢/kWh	0.0000	-0.0019	0.00	-0.01	-0.01
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	0.4775	0.4775	2.87	2.87	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	12.951	12.778	77.71	76.67	-1.04
Green Infrastructure Fee	\$	1.17	1.17	1.17	1.17	0.00
Avg Residential Bill at 600 kWh				182.65	178.51	

Increase / (Decrease -) -4.14
% Change -2.27%