4E Limited Liability Company
A Hawaii-Based Energy Management Company

Energy Savings Performance Contract
Pohai Nani Retirement Community
Kaneohe, Oahu

Explanation of Calculation
for
Energy Savings Invoice

7 January 2005

Presented by:

4E Limited Liability Company

Executive Summary

Since the installation of ElectroFlow™ equipment at the Pohai Nani property in July 2004, power quality throughout the facility has been dramatically improved while the amount of electricity consumed has been simultaneously reduced. While both these beneficial effects of ElectroFlow™ technology create savings for Pohai Nani, the terms of the Energy Savings Performance Contract (ESPC) provide that only savings related to energy are shared with 4E Limited Liability Company (4E LLC) as the owner of the ElectroFlow™ equipment.

This document establishes the energy savings produced due to ElectroFlow™ during the months of July 2004 through December 2004, and furthermore explains the approach used to determine the savings. As presented in this report, the total energy savings due to the installation of ElectroFlow™ equipment was $12,774.61. Under the terms of the ESPC, two-thirds of this savings ($8516.41) are due to 4E LLC as owner of the equipment. A summary of the monthly savings is shown below:

	July	August	September	October	November	December
Savings %	7.5%	14.9%	14.9%	14.9%	14.9%	14.9%
Demand Savings	$151.22	$4.48	$86.26	$0.00	$0.00	$259.14
Energy Charge Savings	$746.89	$1,324.90	$1,264.73	$1,278.77	$1,169.43	$1,043.46
Tier Shifting Savings	$60.39	$1.79	$65.32	$0.00	$0.00	$103.48
ECAC Savings	$265.09	$565.82	$600.74	$626.37	$645.18	$619.62
IRP Savings	$25.84	$46.49	$44.61	$40.34	$36.89	$32.91
Power Factor Savings	$300.59	$322.92	$309.50	$244.56	$262.02	$224.86

TOTAL $1,550.02 $2,266.39 $2,371.17 $2,190.03 $2,113.52 $2,283.48 **$12,774.61**

4E's 2/3 Allocation $1,033.35 $1,510.93 $1,580.78 $1,460.02 $1,409.01 $1,522.32 **$8,516.41**

Note: this document and the associated invoice do not include any savings related to the cogeneration unit at the property; savings analysis for the cogeneration unit awaits resolution of an apparent metering/billing discrepancy with The Gas Company.

Explanation of Calculation

Measurement and verification (M&V) for the ESPC is as specified by Schedule F:

SCHEDULE F: SAVINGS MEASUREMENT AND VERIFICATION

Ongoing Measurement and Verification (M&V) will be performed by any combination of the following:

1. via the Cogen Intertie Beckwith Relay Monitor and secondary-side PTs and CTs that are connected to the 500 kVA main transformer;

2. via the lead-or-lag Cogen CView and Nexus monitoring equipment;

3. the spare CView and Nexus equipment on-hand at the Premises; or

4. Harmonitor™ equipment owned by 4E LLC.

The Equipment will be cycled on and off during the M&V session. Data will be recorded using the above or similar equipment during both the "on" and "off" Equipment cycles.

The kWh energy consumption avoided for any given period will be multiplied by HECO's then-applicable rates, as derived from the Customer's bill, for energy charge, ECAC charge, and IRP charge. The kW energy demand avoided for any given period will be multiplied by HECO's then-applicable rate, as derived from the Customer's bill, for demand charge. Power factor correction savings will be likewise be calculated from the Customer's energy bill, and generator fuel savings, if any, will be calculated from the Customer's fuel billings. These savings will sum to the Total Measured Savings due to the operation of the Equipment for the applicable period.

For the purposes of this invoice, M&V was perfromed using Harmonitor™ equipment only. (The cogen and CView equipment is used for cogen savings analysis, which, as discussed in the Executive Summary, cannot be performed until resolution of an apparent gas billing/metering issue.)

On/off testing was performed by Todd Scheibert on 3 December 04 pursuant to the terms cited above. Pohai Nani requires that on/off cycling of the ElectroFlow™ equipment be minimized to the greatest extent possible, as electrical and equipment problems arise when the ElectroFlow™ equipment is off, and as prolonged disabling of ElectroFlow™ will adversely affect demand savings. As a result, on/off cycling was limited to short periods of time, no more than 5 minutes of "off" during any 15-minute window of time (HECO measures demand in 15-minute intervals.)

As a result the on/off samples recorded were brief, and naturally-changing electrical loads within the property greatly affected the measurements, producing 100% variances in recorded data. Therefore, problem loads (most notably the elevators, the Jacuzzi heater, and the kitchen booster heaters) were shut down, and a second series of on/off testing was performed. The results of this series of measurements are as follows:

Analysis 1

TIME	ON/OFF	KWD	KWH
2:20	on	18.49	0
2:20	on	25.02	0.13
2:20	on	23.22	0.25
2:21	on	22.5	0.36
2:21	on	17.83	0.43
2:22	on	30.75	0.61
2:22	on	23.78	0.7
2:23	on	26.84	0.83
2:23	on	25.46	0.96
2:23	on	26.68	1.1
2:24	on	25.49	1.22
2:24	on	25.75	1.36
2:25	on	21.13	1.44
2:25	on	24.74	1.56
2:25	on	19.09	1.63
2:27	off	27.83	0
2:27	off	24.08	0.04
2:28	off	33.85	0.11
2:28	off	26.98	0.17
2:29	off	29.96	0.22
2:29	off	32.18	0.29
2:29	off	35	0.37
2:30	off	31.38	0.43
2:30	off	27.35	0.49
2:31	off	21.36	0.53
2:31	off	25.59	0.58
2:31	off	24.66	0.64
2:32	off	24.06	0.68
2:32	off	24.77	0.73
2:33	off	23.59	0.77

Sum of kW Demand with ElectroFlow on: **356.77**

Sum of kW Demand with ElectroFlow off: **412.64**

Savings Percentage: **15.66%**

Analysis 2			
TIME	**ON/OFF**	**KWD**	**KWH**
2:45	1	18.67	0
2:46	1	21.27	0.09
2:46	1	20.63	0.17
2:47	1	21.47	0.26
2:47	1	21.94	0.34
2:47	1	22.49	0.43
2:48	1	27.4	0.57
2:48	1	25.79	0.7
2:49	1	26.72	0.83
2:49	1	20.13	0.91
2:52	0	31.67	0
2:52	0	34.66	0.07
2:52	0	27.94	0.12
2:53	0	25.23	0.16
2:53	0	22.39	0.2
2:54	0	21.69	0.23
2:54	0	23.24	0.27
2:54	0	21.37	0.31
2:55	0	23.92	0.35
2:55	0	26.52	0.4

Sum of kW Demand with ElectroFlow on: **226.51**

Sum of kW Demand with ElectroFlow off: **258.63**

Savings Percentage: **14.18%**

The average savings measured by the analyses is 14.9%, and this savings percentage has been used to calculate the invoiced savings. If desired and requested by either ELGSS or Pohai Nani, 4E LLC will be happy to perform additional on/off testing at longer time intervals for the purposes of invoice calculation.

Appendix I contains the complete Monthly Savings Analyses for the property; the electronic Microsoft Excel spreadsheet is provided as well on a cd. Appendix II contains Harmonitor™ graphs captured during the on/off testing.

Appendix I

Monthly Energy Savings Analyses

Monthly breakdown of energy-related savings by HECO charge items.

	July	August	September	October	November	December	
Savings %	7.5%	14.9%	14.9%	14.9%	14.9%	14.9%	
Demand Savings	$151.22	$4.48	$86.26	$0.00	$0.00	$259.14	
Energy Charge Savings	$746.89	$1,324.90	$1,264.73	$1,278.77	$1,169.43	$1,043.46	
Tier Shifting Savings	$60.39	$1.79	$65.32	$0.00	$0.00	$103.48	
ECAC Savings	$265.09	$565.82	$600.74	$626.37	$645.18	$619.62	
IRP Savings	$25.84	$46.49	$44.61	$40.34	$36.89	$32.91	
Power Factor Savings	$300.59	$322.92	$309.50	$244.56	$262.02	$224.86	
TOTAL	$1,550.02	$2,266.39	$2,371.17	$2,190.03	$2,113.52	$2,283.48	**$12,774.61**
4E's 2/3 Allocation	$1,033.35	$1,510.93	$1,580.78	$1,460.02	$1,409.01	$1,522.32	**$8,516.41**

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ESPC Savings Percentage: **7.45%** (half of ElectroFlow stages on at start of month)

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kWh Avoided

Projected kWh = Billed kWh ÷ (100% - ESPC Savings Percentage)

Projected kWh =   118440   ÷   100%   -   7.5%

Projected kWh =   118440   ÷   92.6%

Projected kWh =   127974

kWh Avoided = Projected kWh - Billed kWh

kWh Avoided =   127974   -   118440

kWh Avoided =   9534

Demand Savings

Projected kW = Measured kW ÷ (100% - ESPC Savings Percentage)

Projected kW =   326.7   ÷   100%   -   7.5%

Projected kW =   326.7   ÷   92.6%

Projected kW =   353.0

kW Avoided = Projected kW - Billed kW

kW Avoided =   353.0   -   326.7

kW Avoided =   26.3

Projected kW > Billed kW?   Yes

Demand Savings =   (kW Avoided) x 5.75

Demand Savings =   26.3   x   5.75

Demand Savings = $151.22

Energy Charge Savings

Derivation of marginal cost/kWh

First 200 kWh per month per billed kW priced at	8.6900 ¢/kWh
Next 200 kWh per month per billed kW priced at	7.5419 ¢/kWh
All over 400 kWh per month per billed kW priced at	6.5130 ¢/kWh

Billed kW: 326.7

Tier I	First	65340	kWh priced at	8.6900
Tier II	Next	65340	kWh priced at	7.5419
Tier III	Remaining		kWh priced at	6.5130

For the month of July, avoided kWh were split between Tier II and Tier III

	Tier II	Tier III
kWh Avoided =	12240	-2706
Applicable Marginal Cost =	7.5419	6.5130
Energy Charge Savings =	**$923.13**	**-$176.24**

Marginal Energy Charge Savings due to Tier Shifting

Derivation of **Projected** marginal cost/kWh

First 200 kWh per month per billed kW priced at	8.6900 ¢/kWh
Next 200 kWh per month per billed kW priced at	7.5419 ¢/kWh
All over 400 kWh per month per billed kW priced at	6.5130 ¢/kWh

Projected kW: 353.0

	Tier I	First	70600	kWh priced at	8.6900 ¢/kWh
Projected	Tier II	Next	70600	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh
	Tier I	First	65340	kWh priced at	8.6900 ¢/kWh
Billed	Tier II	Next	65340	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh

Comparing Projected Energy Charge Tiers to Billed Energy Charge Tiers:

70600 - 65340 kWh were moved from Tier I to Tier II by ElectroFlow
= 5260 kWh were moved from Tier I to Tier II by ElectroFlow
5260 kWh at a marginal savings of (8.6900 - 7.5419) cents = **$60.39**

0 kWh were moved from Tier II to Tier III by ElectroFlow
= 0 kWh were moved from Tier II to Tier III by ElectroFlow
0 kWh at a marginal savings of (7.5419 -6.5130) cents = **$0.00**

Marginal Energy Charge Savings Due to Tier Shifting = **$60.39**

Energy Cost Adjustment Charge (ECAC) Savings

ECAC Savings = kWh Avoided x ECAC rate for applicable month

ECAC rate for July 2004 = 0.02780496 ¢/kWh

ECAC Savings = 9534 x 0.02780496

ECAC Savings = $265.09

IRP Charge Savings

IRP Charge Savings = kWh Avoided x IRP Charge Rate

IRP Charge rate for July 2004 = 0.00271032 ¢/kWh

IRP Charge Savings = 9534 x 0.00271032

IRP Savings = $25.84

Power Factor Savings

PF Savings = (PF with ETI - Historical PF w/o ETI) x 0.1 x (Energy Charge + Demand Charge)

PF Savings = (.96 - 0.70) x 0.1 x (9682.80 + 1878.53)

PF Savings = $300.59

ESPC Savings Percentage: 14.9%

kWh Avoided
Projected kWh = Billed kWh ÷ (100% - ESPC Savings Percentage)
Projected kWh = 111600 ÷ 100% - 14.9%
Projected kWh = 111600 ÷ 85.1%
Projected kWh = 131140
kWh Avoided = Projected kWh - Billed kWh
kWh Avoided = 131140 - 111600
kWh Avoided = 19540

Demand Savings
Projected kW = Measured kW ÷ (100% - ESPC Savings Percentage)
Projected kW = 248.9 ÷ 100% - 14.9%
Projected kW = 248.9 ÷ 85.1%
Projected kW = 292.5
kW Avoided = Projected kW - Billed kW
kW Avoided = 292.5 - 291.7
kW Avoided = 0.8
Projected kW > Billed kW? Yes
Demand Savings = (kW Avoided) x 5.75
Demand Savings = 0.8 x 5.75
Demand Savings = $4.48

Energy Charge Savings

Derivation of marginal cost/kWh

First 200 kWh per month per billed kW priced at			8.6900 ¢/kWh
Next 200 kWh per month per billed kW priced at			7.5419 ¢/kWh
All over 400 kWh per month per billed kW priced at			6.5130 ¢/kWh

Billed kW: 291.7

Tier I	First	58340	kWh priced at	8.6900
Tier II	Next	58340	kWh priced at	7.5419
Tier III	Remaining		kWh priced at	6.5130

For the month of August, avoided kWh were split between Tier II and Tier III

	Tier II	Tier III
kWh Avoided =	5080	14460
Applicable Marginal Cost =	7.5419	6.5130
Energy Charge Savings =	**$383.13**	**$941.77**

Marginal Energy Charge Savings due to Tier Shifting

Derivation of **Projected** marginal cost/kWh

First 200 kWh per month per billed kW priced at		8.6900 ¢/kWh
Next 200 kWh per month per billed kW priced at		7.5419 ¢/kWh
All over 400 kWh per month per billed kW priced at		6.5130 ¢/kWh

Projected kW: 292.5

	Tier I	First	58496	kWh priced at	8.6900 ¢/kWh
Projected	Tier II	Next	58496	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh
	Tier I	First	58340	kWh priced at	8.6900 ¢/kWh
Billed	Tier II	Next	58340	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh

Comparing Projected Energy Charge Tiers to Billed Energy Charge Tiers:

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  58496      -            58340 kWh were moved from Tier I to Tier II by ElectroFlow
             =              156 kWh were moved from Tier I to Tier II by ElectroFlow
     156 kWh at a marginal savings of (8.6900 - 7.5419) cents =        $1.79

                             0 kWh were moved from Tier II to Tier III by ElectroFlow
             =                0 kWh were moved from Tier II to Tier III by ElectroFlow
       0 kWh at a marginal savings of (7.5419 -6.5130) cents =         $0.00
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Marginal Energy Charge Savings Due to Tier Shifting =   **$1.79**

Energy Cost Adjustment Charge (ECAC) Savings

ECAC Savings = kWh Avoided x ECAC rate for applicable month

ECAC rate for August 2004 = 0.028957 ¢/kWh

ECAC Savings = 19540 x 0.028957

ECAC Savings = $565.82

IRP Charge Savings

IRP Charge Savings = kWh Avoided x IRP Charge Rate

IRP Charge rate for August 2004 = 0.002379 ¢/kWh

IRP Charge Savings = 19540 x 0.002379

IRP Savings = $46.49

Power Factor Savings

PF Savings = (PF with ETI - Historical PF w/o ETI) x 0.1 x (Energy Charge + Demand Charge)

PF Savings = (1.00 - 0.70) x 0.1 x (9086.56 + 1677.28)

PF Savings = $322.92

ESPC Savings Percentage: **14.9%**

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kWh Avoided

Projected kWh = Billed kWh ÷ (100% - ESPC Savings Percentage)

Projected kWh =   107100   ÷   100%   -   14.9%

Projected kWh =   107100   ÷   85.1%

Projected kWh =   125852

kWh Avoided = Projected kWh - Billed kWh

kWh Avoided =   125852   -   107100

kWh Avoided =   18752

Demand Savings

Projected kW = Measured kW ÷ (100% - ESPC Savings Percentage)

Projected kW =   249.6   ÷   100%   -   14.9%

Projected kW =   249.6   ÷   85.1%

Projected kW =   293.3

kW Avoided = Projected kW - Billed kW

kW Avoided =   293.3   -   278.3

kW Avoided =   15.0

Projected kW > Billed kW?   Yes

Demand Savings =   (kW Avoided) x 5.75

Demand Savings =   15.0   x   5.75

Demand Savings = $86.26

Energy Charge Savings

Derivation of marginal cost/kWh

First 200 kWh per month per billed kW priced at	8.6900 ¢/kWh
Next 200 kWh per month per billed kW priced at	7.5419 ¢/kWh
All over 400 kWh per month per billed kW priced at	6.5130 ¢/kWh

Billed kW: 278.3

Tier I	First	55660	kWh priced at	8.6900
Tier II	Next	55660	kWh priced at	7.5419
Tier III	Remaining		kWh priced at	6.5130

For the month of September, avoided kWh were split between Tier II and Tier III

	Tier II	Tier III
kWh Avoided =	4220	14532
Applicable Marginal Cost =	7.5419	6.5130
Energy Charge Savings =	**$318.27**	**$946.47**

Marginal Energy Charge Savings due to Tier Shifting

Derivation of **Projected** marginal cost/kWh

First 200 kWh per month per billed kW priced at	8.6900 ¢/kWh
Next 200 kWh per month per billed kW priced at	7.5419 ¢/kWh
All over 400 kWh per month per billed kW priced at	6.5130 ¢/kWh

Projected kW: 293.3

	Tier I	First	58660	kWh priced at	8.6900 ¢/kWh
Projected	Tier II	Next	58660	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh
	Tier I	First	55660	kWh priced at	8.6900 ¢/kWh
Billed	Tier II	Next	55660	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh

Comparing Projected Energy Charge Tiers to Billed Energy Charge Tiers:

58660 - 55660 kWh were moved from Tier I to Tier II by ElectroFlow
= 3000 kWh were moved from Tier I to Tier II by ElectroFlow
3000 kWh at a marginal savings of (8.6900 - 7.5419) cents = **$34.45**

58660 - 55660 kWh were moved from Tier II to Tier III by ElectroFlow
= 3000 kWh were moved from Tier II to Tier III by ElectroFlow
3000 kWh at a marginal savings of (7.5419 -6.5130) cents = **$30.87**

Marginal Energy Charge Savings Due to Tier Shifting = **$65.32**

Energy Cost Adjustment Charge (ECAC) Savings

ECAC Savings = kWh Avoided x ECAC rate for applicable month

ECAC rate for September 2004 =   0.0320363 ¢/kWh

ECAC Savings =   18752   x   0.03203632

ECAC Savings = $600.74

IRP Charge Savings

IRP Charge Savings = kWh Avoided x IRP Charge Rate

IRP Charge rate for November 2004 =   0.00237899 ¢/kWh

IRP Charge Savings =   18752   x   0.00237899

ECAC Savings = $44.61

Power Factor Savings

PF Savings = (PF with ETI - Historical PF w/o ETI) x 0.1 x (Energy Charge + Demand Charge)

PF Savings =   (1.00 - 0.70) x 0.1 x (8716.41 + 1600.23)

PF Savings = $309.50

ESPC Savings Percentage: **14.9%**

kWh Avoided
Projected kWh = Billed kWh ÷ (100% - ESPC Savings Percentage)
Projected kWh =   96840   ÷   100%   -   14.9%
Projected kWh =   96840   ÷   85.1%
Projected kWh =   113796
kWh Avoided = Projected kWh - Billed kWh
kWh Avoided =   113796   -   96840
kWh Avoided =   16956

Demand Savings
Projected kW = Measured kW ÷ (100% - ESPC Savings Percentage)
Projected kW =   226.9   ÷   100%   -   14.9%
Projected kW =   226.9   ÷   85.1%
Projected kW =   266.6
kW Avoided = Projected kW - Billed kW
kW Avoided =   266.6   -   278.3
kW Avoided =   -12
Projected kW > Billed kW?   No = No Dollar Demand Savings
Demand Savings =   0

Energy Charge Savings

Derivation of marginal cost/kWh

First 200 kWh per month per billed kW priced at		8.6900 ¢/kWh
Next 200 kWh per month per billed kW priced at		7.5419 ¢/kWh
All over 400 kWh per month per billed kW priced at		6.5130 ¢/kWh

Billed kW: 278.3

First	55660	kWh priced at	8.6900
Next	55660	kWh priced at	7.5419
Remaining		kWh priced at	6.5130

For the month of October, all avoided kWh were in the second cost tier

kWh Avoided = 16956

Applicable Marginal Cost = 7.5419

Energy Charge Savings = $1,278.77

Energy Cost Adjustment Charge (ECAC) Savings

ECAC Savings = kWh Avoided x ECAC rate for applicable month

ECAC rate for November 2004 = 0.036942 ¢/kWh

ECAC Savings = 16956 x 0.036942

ECAC Savings = $626.37

IRP Charge Savings

IRP Charge Savings = kWh Avoided x IRP Charge Rate

IRP Charge rate for November 2004 = 0.002379 ¢/kWh

IRP Charge Savings = 16956 x 0.002379

ECAC Savings = $40.34

Power Factor Savings

PF Savings = (PF with ETI - Historical PF w/o ETI) x 0.1 x (Energy Charge + Demand Charge)

PF Savings = (.98 - 0.70) x 0.1 x (7265.56 + 1468.55)

PF Savings = $244.56

ESPC Savings Percentage: 14.9%

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kWh Avoided

Projected kWh = Billed kWh ÷ (100% - ESPC Savings Percentage)

| Projected kWh = | 88560 | ÷ | 100% | - | 14.9% |

Projected kWh =   88560   ÷   85.1%

Projected kWh =   104066

kWh Avoided = Projected kWh - Billed kWh

kWh Avoided =   104066   -   88560

kWh Avoided =   15506

Demand Savings

Projected kW = Measured kW ÷ (100% - ESPC Savings Percentage)

| Projected kW = | 212 | ÷ | 100% | - | 14.9% |

Projected kW =   212   ÷   85.1%

Projected kW =   249.1

kW Avoided = Projected kW - Billed kW

kW Avoided =   249.1   -   255.4

kW Avoided =   -6

Projected kW > Billed kW?   No = No Dollar Demand Savings

Demand Savings =   0

Energy Charge Savings

      Derivation of marginal cost/kWh

      First 200 kWh per month per billed kW priced at   8.6900 ¢/kWh
      Next 200 kWh per month per billed kW priced at   7.5419 ¢/kWh
      All over 400 kWh per month per billed kW priced at   6.5130 ¢/kWh

      Billed kW: 255.4

First	51080	kWh priced at	8.6900
Next	51080	kWh priced at	7.5419
Remaining		kWh priced at	6.5130

For the month of November, all avoided kWh were in the second cost tier

kWh Avoided =   15506

Applicable Marginal Cost =   7.5419

Energy Charge Savings = $1,169.43

Energy Cost Adjustment Charge (ECAC) Savings

ECAC Savings = kWh Avoided x ECAC rate for applicable month

ECAC rate for November 2004 =   0.041609 ¢/kWh

ECAC Savings =   15506   x   0.041609

ECAC Savings = $645.18

IRP Charge Savings

IRP Charge Savings = kWh Avoided x IRP Charge Rate

IRP Charge rate for November 2004 =   0.002379 ¢/kWh

IRP Charge Savings =   15506   x   0.002379

ECAC Savings = $36.89

Power Factor Savings

PF Savings = (PF with ETI - Historical PF w/o ETI) x 0.1 x (Energy Charge + Demand Charge)

PF Savings =   (1.00 - 0.70) x 0.1 x (7265.56 + 1468.55)

PF Savings = $262.02

ESPC Savings Percentage: **14.9%**

kWh Avoided
Projected kWh = Billed kWh ÷ (100% - ESPC Savings Percentage)
Projected kWh =   79020   ÷   100%   -   14.9%
Projected kWh =   79020   ÷   85.1%
Projected kWh =   92855
kWh Avoided = Projected kWh - Billed kWh
kWh Avoided =   92855   -   79020
kWh Avoided =   13835

Demand Savings
Projected kW = Measured kW ÷ (100% - ESPC Savings Percentage)
Projected kW =   257.4   ÷   100%   -   14.9%
Projected kW =   257.4   ÷   85.1%
Projected kW =   302.5
kW Avoided = Projected kW - Billed kW
kW Avoided =   302.5   -   257.4
kW Avoided =   45.1
Projected kW > Billed kW?   Yes
Demand Savings =   (kW Avoided) x 5.75
Demand Savings =   45.1   x   5.75
Demand Savings = $259.14

Energy Charge Savings

Derivation of marginal cost/kWh

First 200 kWh per month per billed kW priced at	8.6900	¢/kWh
Next 200 kWh per month per billed kW priced at	7.5419	¢/kWh
All over 400 kWh per month per billed kW priced at	6.5130	¢/kWh

Billed kW: 257.4

Tier I	First	51480	kWh priced at	8.6900
Tier II	Next	51480	kWh priced at	7.5419
Tier III	Remaining		kWh priced at	6.5130

For the month of December, avoided kWh were from Tier II only

	Tier II	Tier III
kWh Avoided =	13835	0
Applicable Marginal Cost =	7.5419	6.5130
Energy Charge Savings =	**$1,043.46**	**$0.00**

Marginal Energy Charge Savings due to Tier Shifting

Derivation of **Projected** marginal cost/kWh

First 200 kWh per month per billed kW priced at	8.6900	¢/kWh
Next 200 kWh per month per billed kW priced at	7.5419	¢/kWh
All over 400 kWh per month per billed kW priced at	6.5130	¢/kWh

Projected kW: 302.5

	Tier I	First	60494	kWh priced at	8.6900 ¢/kWh
Projected	Tier II	Next	60494	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh
	Tier I	First	51480	kWh priced at	8.6900 ¢/kWh
Billed	Tier II	Next	51480	kWh priced at	7.5419 ¢/kWh
	Tier III	Remaining		kWh priced at	6.5130 ¢/kWh

Comparing Projected Energy Charge Tiers to Billed Energy Charge Tiers:

60494   -   51480 kWh were moved from Tier I to Tier II by ElectroFlow

     =   9014 kWh were moved from Tier I to Tier II by ElectroFlow

9014 kWh at a marginal savings of (8.6900 - 7.5419) cents =   **$103.48**

0 kWh were moved from Tier II to Tier III by ElectroFlow

     =   0 kWh were moved from Tier II to Tier III by ElectroFlow

0 kWh at a marginal savings of (7.5419 -6.5130) cents =   **$0.00**

Marginal Energy Charge Savings Due to Tier Shifting =   **$103.48**

Energy Cost Adjustment Charge (ECAC) Savings

ECAC Savings = kWh Avoided x ECAC rate for applicable month

ECAC rate for December 2004 =   0.044785 ¢/kWh

ECAC Savings =   13835   x   0.044785

ECAC Savings = $619.62

IRP Charge Savings

IRP Charge Savings = kWh Avoided x IRP Charge Rate

IRP Charge rate for December 2004 =   0.002379 ¢/kWh

IRP Charge Savings =   13835   x   0.002379

ECAC Savings = $32.91

Power Factor Savings

PF Savings = (PF with ETI - Historical PF w/o ETI) x 0.1 x (Energy Charge + Demand Charge)

PF Savings =   (.98 - 0.70) x 0.1 x (6550.65 + 1480.05)

PF Savings = $224.86

Appendix II

Harmonitor™ Graphs

Graphical representations of data captured by Harmonitor™ equipment during the 3 December 2004 on/off testing.

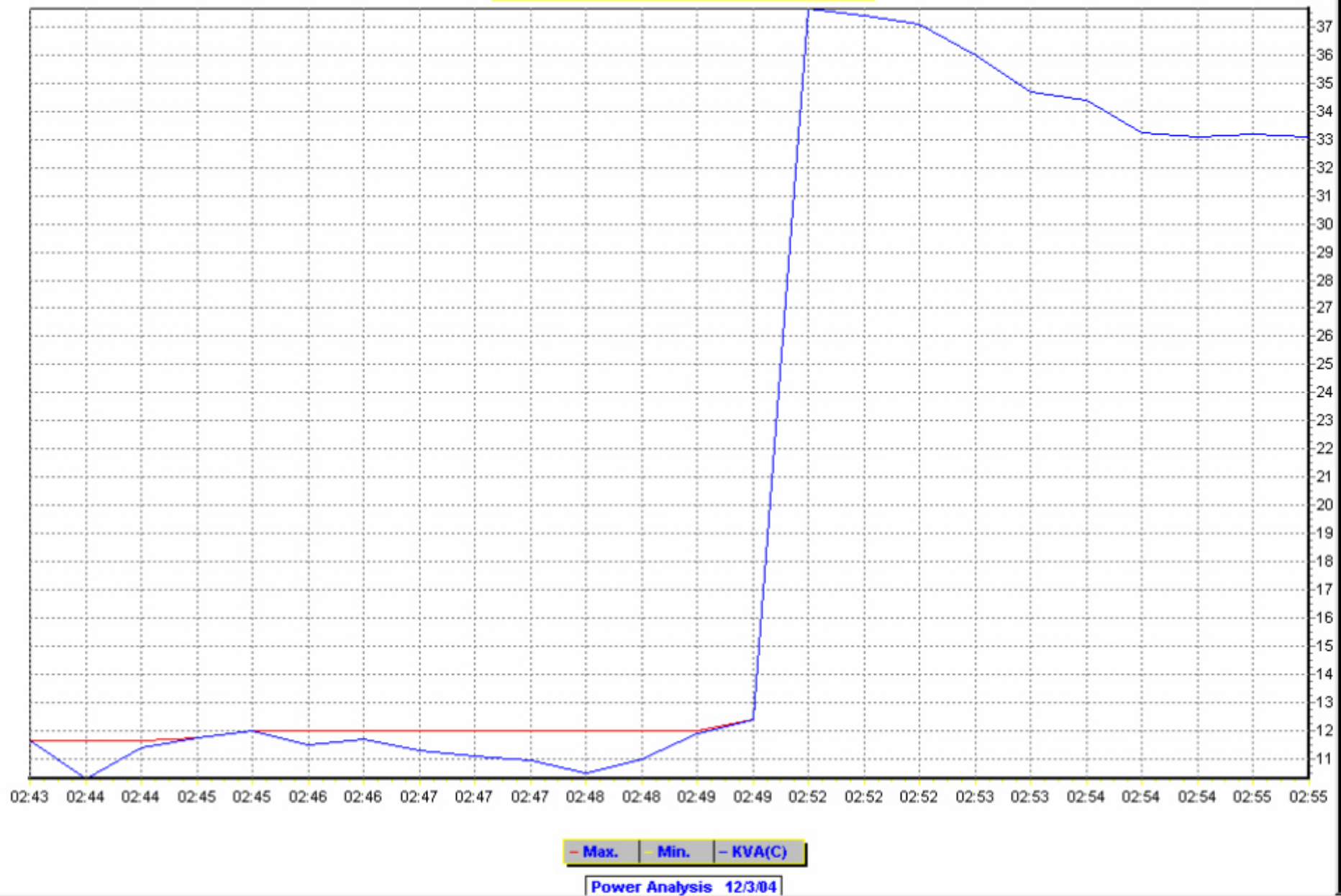Client: Pohai Xfmr   Load: Main 500MC

- I(C)

Power Analysis 12/3/04
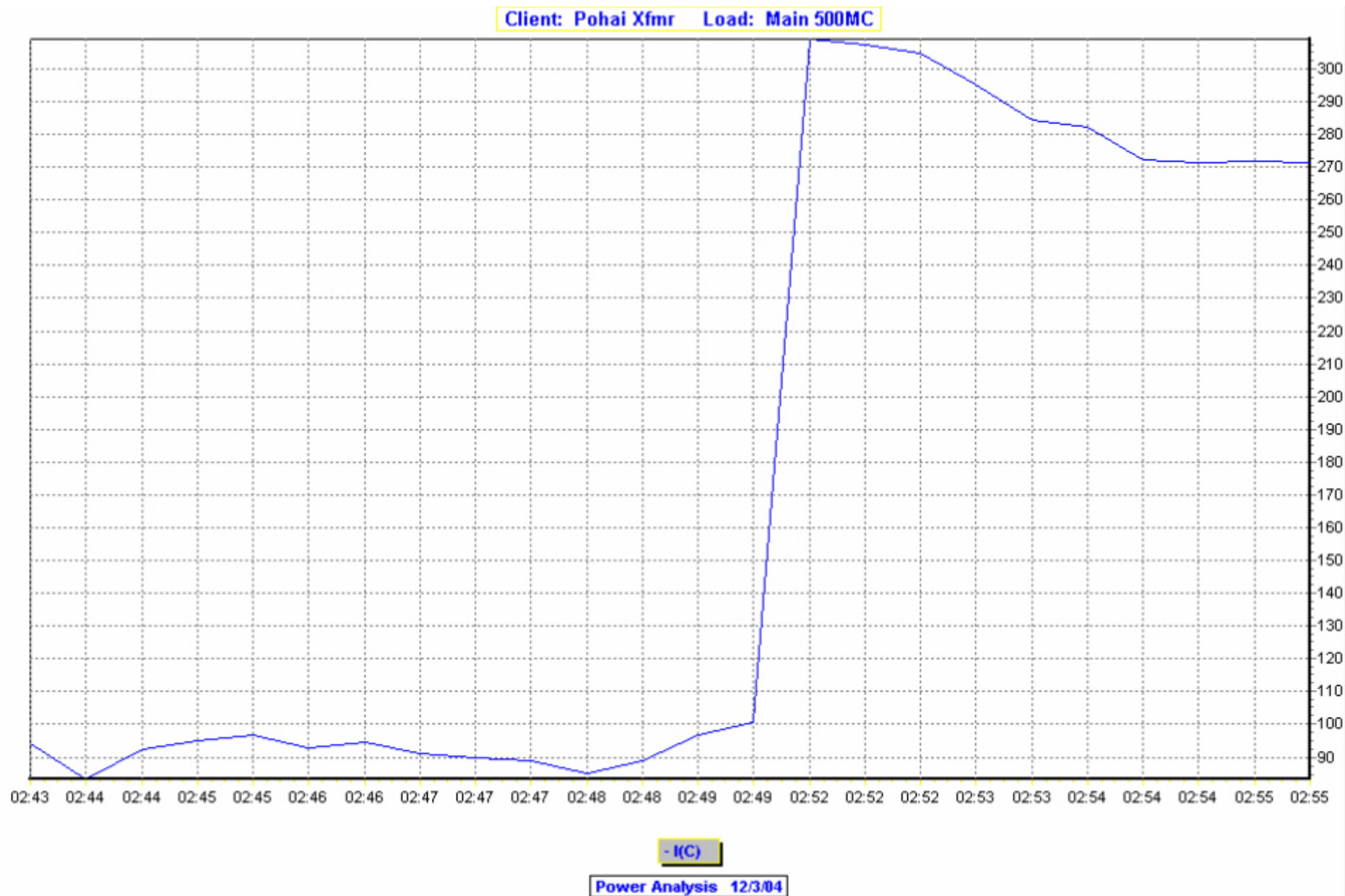
Graphical representation of marked increase in C Phase current upon disabling ElectroFlow™ equipment at 2:49 pm (during "Analysis 2" as shown at page 4 of the report.) Information captured using Harmonitor equipment connected at the Pohai Nani main transformer.

Graphical representation of marked increase in C Phase kVA upon disabling ElectroFlow™ equipment at 2:49 pm. Decreased kVA due to ElectroFlow™ is directly confirmed by HECO billings (typically at page 2.)

Client: Pohai Xfmr   Load: Main 500MC

I-THD(C)
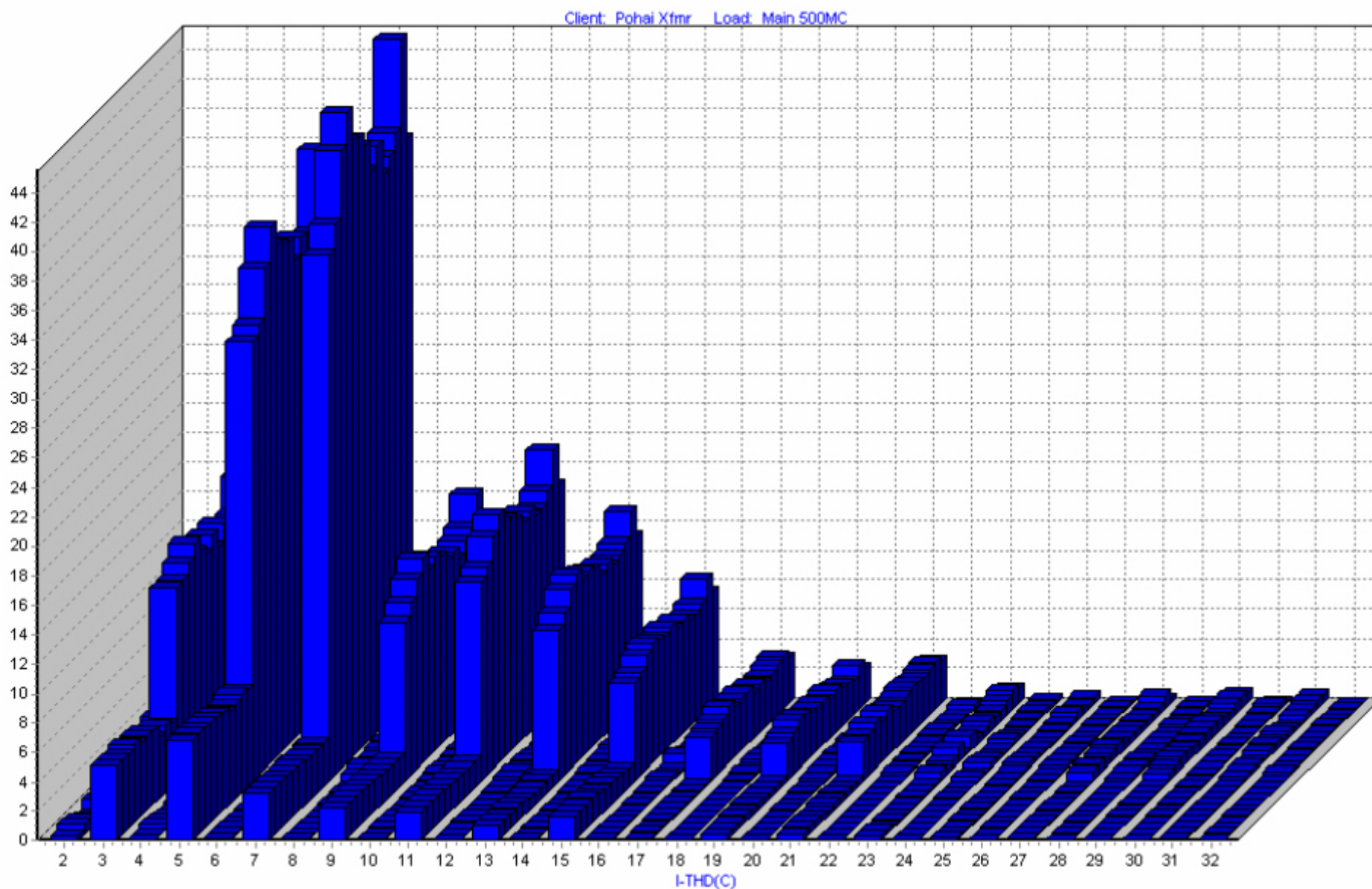
Graphical representation of increase in C Phase harmonics upon disabling ElectroFlow™ equipment. Low bars in the foreground are low harmonics with ElectroFlow™ active; significantly increased harmonic distortion is seen when ElectroFlow™ is disabled.

Appendix III

HECO Bill – December 2004

The HECO bill for Pohai Nani for service 16 November 2004 through 14 December 2004. Items called to attention:

1. Note downward trend in consumption of electricity since ElectroFlow™ installation in July 2004. While decreased usage of electricity is expected in winter months, the reduction of kWh demand during the July-October timeframe is remarkable.
2. Note power factor of .98 – accomplished without the presence of capacitors on the property. HECO recorded a power factor of <u>unity</u> (1.00) for the months of August, September, and November. Prior to the installation of ElectroFlow™, typical power factor for Pohai Nani averaged .70.
3. Note significant reduction in kVAR as shown at page 2; the reduction accomplished by the installation of ElectroFlow™ in July 2004 is remarkable.

Hawaiian Electric Co., Inc.
PO Box 3978
Honolulu, HI 96812-3978

Need to change a light bulb?
Install a Compact Fluorescent Light -
CFLs last longer and use less energy!

| ACCOUNT NUMBER | | SERVICE ADDRESS | PAGE 1 OF 2 |

| 8809-3824-077 | POHAI NANI | RECEIVED | 45090 NAMOKU ST |

A M O U N T S

	BALANCE FROM PREVIOUS BILLING	$12,358.97
11/30/04	PAYMENT - THANK YOU	12,358.97-
	BALANCE PRIOR TO BILLING	$0.00
	CURRENT ELECTRIC SERVICE DUE 01/03/05	11,530.70
	TOTAL AMOUNT DUE	$11,530.70

DEC 16 2004

POHAI NANI ACCTS PAYABLE

POSTED

DEC 20 2004

INVOICE CANCELLATION
Inv. Approved by _____
Math Checked by _____
Date Paid 12/21/04
Check No. _____
Voucher No. 32/20/9
Codes _____

B I L L P E R I O D

```
J3  GEN. SERVICE DEMAND  DP
FROM 11/16/04 TO 12/14/04  28 DAYS

MTR# PX000473512      KILOWATT HOURS
   CURRENT READING          29286
   PREVIOUS READING         28847
   DIFFERENCE                 439
   MULTIPLIER                 180
   USAGE                   79,020

                         KILOWATTS
   DEMAND READING           1.430
   MULTIPLIER                 180
   MEASURED DEMAND          257.4
   BILLING DEMAND           257.4
```
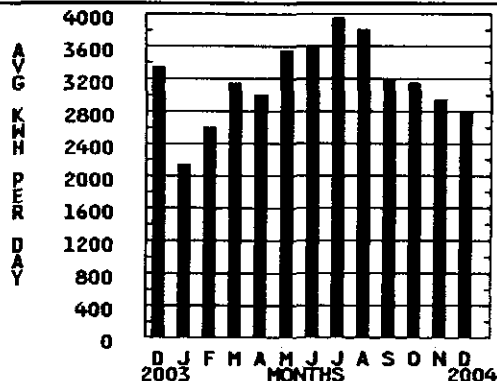
B I L L D E T A I L

CUSTOMER CHARGE	$60.00
DEMAND CHARGE	1,480.05
ENERGY CHARGE	6,550.65
POWER FACTOR (98)	104.40-
1.9% DP DISC	152.58-
TEMP RATE ADJUSTMENT	29.92-
ENERGY COST ADJUSTMENT	3,538.91
IRP COST RECOVERY	187.99
TOTAL FOR SERVICE	$11,530.70

cc: Chris

U S A G E P R O F I L E

ELECTRIC USAGE PROFILE FOR METER PX00473512

DATE	KWH	AMOUNT	DAYS	KWH/DAY	$/DAY
12/14/04	79020	$11,530.70	28	2,822.1	411.81
11/16/04	88560	12,358.97	31	2,856.8	398.68
10/16/04	96840	13,066.91	31	3,123.9	421.51
09/15/04	107100	13,670.34	33	3,245.5	414.25
08/13/04	111600	13,910.89	29	3,848.3	479.69
07/15/04	118440	14,840.35	30	3,948.0	494.68
06/15/04	115380	14,636.51	32	3,605.6	457.39
05/14/04	100800	13,143.89	29	3,475.9	453.24
04/15/04	89280	11,711.72	30	2,976.0	390.39
03/16/04	99720	12,742.29	32	3,116.3	398.20
02/13/04	77580	10,609.48	30	2,586.0	353.65
01/14/04	69840	9,622.52	33	2,116.4	291.59
12/12/03	93780	11,947.42	28	3,349.3	426.69

Chart: AVG KWH PER DAY (4000 to 0) by MONTHS D J F M A M J J A S O N D 2003–2004

WHEN PAYING IN PERSON, PLEASE PRESENT BOTH PORTIONS

121504 05925 P1 G

Hawaiian Electric Co., Inc.
PO Box 3978
Honolulu, HI 96812-3978
Telephone (808) 548-7311

ACCOUNT NUMBER	TOTAL AMOUNT DUE
8809-3824-077	SEE PAGE 1
	AMOUNT ENCLOSED

DATE DUE
JAN 03, 2005

PLEASE MAKE CHECKS
PAYABLE TO:

HECO
PO Box 3978
Honolulu, HI 96812-3978

POHAI NANI
45090 NAMOKU ST
KANEOHE   HI 96744-5305

Hawaiian Electric Co., Inc.
PO Box 3978
Honolulu, HI 96812-3978

Need to change a light bulb?
Install a Compact Fluorescent Light -
CFLs last longer and use less energy!

ACCOUNT NUMBER	SERVICE ADDRESS	PAGE 2 OF 2
8809-3824-077 POHAI NANI	45090 NAMOKU ST	

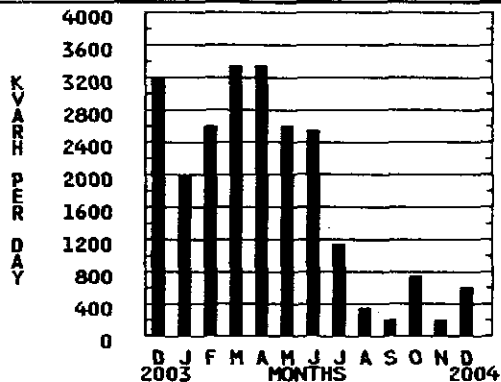**A M O U N T S**

SEE PAGE 1

BILL PERIOD

VAR KVARH
FROM 11/16/04 TO 12/14/04   28 DAYS

MTR# PV000473512   KILOVAR HOURS
  CURRENT READING   14750
  PREVIOUS READING   14656
  DIFFERENCE   94
  MULTIPLIER   180
  USAGE   16,920

BILL DETAIL

USAGE PROFILE

ELECTRIC USAGE PROFILE FOR METER PV00473512

DATE	KVARH	AMOUNT	DAYS	KVARH/DAY	$/DAY
12/14/04	16920	$.00	28	604.3	.00
11/16/04	7560	.00	31	243.9	.00
10/16/04	21240	.00	31	685.2	.00
09/15/04	7560	.00	33	229.1	.00
08/13/04	9720	.00	29	335.2	.00
07/15/04	33120	.00	30	1,104.0	.00
06/15/04	80280	.00	32	2,508.8	.00
05/14/04	75780	.00	29	2,613.1	.00
04/15/04	97560	.00	30	3,252.0	.00
03/16/04	104580	.00	32	3,268.1	.00
02/13/04	78120	.00	30	2,604.0	.00
01/14/04	67500	.00	33	2,045.5	.00
12/12/03	89280	.00	28	3,188.6	.00

121504 05925 P1 G

- -

Hawaiian Electric Co., Inc.
PO Box 3978
Honolulu, HI 96812-3978
Telephone (808) 548-7311

ACCOUNT NUMBER

8809-3824-077

DATE DUE

JAN 03, 2005

TOTAL AMOUNT DUE

SEE PAGE 1

AMOUNT ENCLOSED

PLEASE MAKE CHECKS
PAYABLE TO:

HECO
PO Box 3978
Honolulu, HI 96812-3978

POHAI NANI
45090 NAMOKU ST
KANEOHE   HI 96744-5305