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March 16, 2012

VIA HAND DELIVERY

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

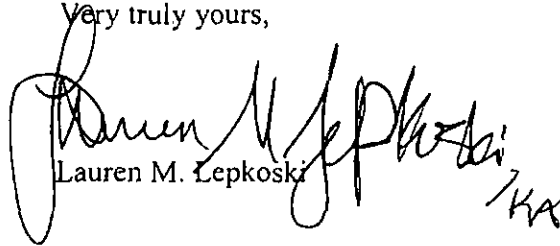
Re: Joey Maluchnik v. Pennsylvania Electric Company
Docket No. C-2011-2245451

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Dear Secretary Chiavetta:

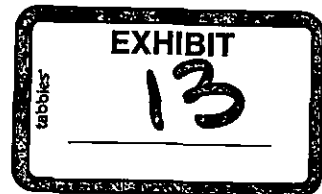
On behalf of Pennsylvania Electric Company ("Penelec"), I have enclosed for filing the original and three (3) copies of correspondence to Administrative Law Judge Katrina Dunderdale and the March 16, 2012 Report Prepared by Penelec in accordance with the Third Interim Order dated March 6, 2012 in the above-captioned matter. Copies have been served on all parties as indicated in the attached certificate of service.

Very truly yours,


Lauren M. Lepkoski

LML/kra
Enclosure

cc: The Honorable Katrina Dunderdale (via E-Mail and UPS Overnight Delivery)
Certificate of Service



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March 16, 2012

VIA EMAIL AND UPS OVERNIGHT DELIVERY

The Honorable Katrina L. Dunderdale
Office of Administrative Law Judge
Pennsylvania Public Utility Commission
Piatt Place, Suite 220
301 5th Avenue
Pittsburgh, Pennsylvania 15222

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SECRETARY'S BUREAU

Re: Joey Maluchnik v. Pennsylvania Electric Company
Docket No. C-2011-2245451

Dear Judge Dunderdale:

Please find enclosed the March 16, 2012 Report prepared by Pennsylvania Electric Company ("Penelec") in accordance with the Third Interim Order dated March 5, 2012. The Company is not submitting an Affidavit or Verification with the March 16, 2012 Report. However, the Company will be authenticating the Report at the hearing scheduled for March 29, 2012 before Your Honor.

Copies have been served on all parties as indicated in the attached certificate of service.

Very truly yours,


Lauren M. Lepkoski

LML/kra
Enclosure
cc: Certificate of Service

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I. Introduction

On May 23, 2011, Joey Maluchnik ("Complainant") filed a Formal complaint against Pennsylvania Electric Company ("Penelec") alleging high bills at 185 Sportmans Road, Boswell, Pennsylvania 15531 at Account No. 100064194499 ("Service Location").

On June 28, 2011, Penelec filed an Answer and New Matter to the Formal Complaint denying the material allegations therein.

On November 9, 2011, Administrative Law Judge Katrina L. Dunderdale ("ALJ") issued a telephonic hearing notice.

On November 10, 2011, the ALJ issued a Prehearing Order.

A telephonic hearing was held on *December 5, 2011*.

On January 6, 2012, the ALJ issued an Interim Order closing the hearing record, and on February 7, 2012, issued a second Interim Order ("Second Interim Order") to reopen the hearing record to admit late file reports and to provide an opportunity to allow either the Complainant or the Company to object. Among other things, the Second Interim Order: (i) directed Penelec to complete a grounds/foreign load check and an appliance/equipment consumption analysis at the Service consistent with the business standards and protocols available through EPRI; (ii) directed Penelec to file with the Commission, ALJ and the Complainant, documentation evidencing the results of its grounds/foreign load check and the appliance/equipment consumption analysis (collectively, "Reports"); and (iii) setting a further evidentiary for March 29, 20102 at 10:00 a.m. to admit the Reports into the record, admit any additional testimony into the record relating to the Reports, and to give the parties an opportunity to argue the validity of the results of the Reports when deciding the issues in this proceeding.

On February 29, 2012, Penelec filed a *Petition for Clarification* ("Petition"), requesting additional direction or clarification about the specific information and tests the ALJ desired the Company to conduct and include in the Reports. Penelec also sought additional time in which to complete the necessary work and issue the Reports.

In an order dated March 5, 2012, the ALJ granted the Petition and directed Penelec to conduct the following tests:

1. A grounds check to be completed at the Service Location using a Neutral to Earth Voltage test with all the equipment running and again with none of the equipment running;

2. A foreign load check to be completed at the Service Location by turning off all breakers and verifying that the meter does not continue to register usage; and

3. An equipment and appliance analysis to be completed at the Service Location that should include, at a minimum, the following actions:

- a. A visual inspection of the thermostats to verify if the thermostat is stuck.

The report shall list the thermostats inspected or checked and the results of the inspection.

- b. A visual inspection of the entire property, including out-buildings and electrical equipment on the property but not directly attached to the residential structure, to check for wires exiting the residence, heat tape, a well pump, lighting which is on at the wrong time of day, insulation quality, infiltration approximation and appliances. The report shall list all the items checked and/or inspected.

- c. An itemized and tabulated report listing the approximate consumption of appliances based on an appliance consumption data standard accepted as a norm within the electrical industry. The report shall clearly state the data standard utilized, attach a copy of any relevant portions of such standard as appropriate, the electrical nameplate of all appliances found

within the residence, and state an appropriate consumption value for updated appliances. The report shall also tabulate the kilowatt, kilowatt hour, the standard minimum and maximum range of consumption (if available), and the approximate monthly cost for each appliance found within the residence.

The ALJ directed Penelec to file the Reports on or before 4:00 p.m. Friday March 16, 2012.

On March 13, 2012, at 4:00 p.m. Dennis Platt ("Platt"), Penelec's Manager of External Affairs and Edward Brandau III ("Brandau"), Penelec's Manager of Customer Support, visited the Service Location to conduct the above ordered tests.

In accordance with the March 5, 2012 order, Penelec submits the following written report.¹

II. General Description of the Service Location

The Service Location is a 1,300 square foot residence located in the woods at the base of a mountain. The residence appears to be a cottage that was constructed in stages, with some of the original outside wall and flood lights still being visible. The Complainant stated to Brandau that he moved the wood burner from a central location of the residence to a room at one end of the residence. The wood burner at the residence is a small wood burner. The Complainant advised that several fans are used to circulate heat throughout the structure. The wood burner's heat travels through a door and down a hall to heat the majority of the house. The wood burner is isolated from the house since the burner room was formerly outside. A small wood stack is located at the property. The residence also has a detached garage and an outdoor hot tub. *See Penelec Exhibits A1, A2, and A3 (Photographs of the Service Location).*

¹ All Exhibits attached to and referenced in this document shall be deemed to be an integral part hereof.

III. Grounds Check

A "grounds check" is conducted for customers when some type of "shocking" (i.e., voltage sensation between two objects) hazard has been observed on the customer's property. A "grounds check" is completed at a residence by implementing a Neutral to Earth Voltage Test. Specifically, a Neutral to Earth Voltage Test involves:

Establish a remote (isolated) ground by installing a ground probe a sufficient depth into undisturbed soil, 20 feet (or more) from the problem location. Try to avoid placement near any other underground conductors, such as water pipes. Investigator should measure and record the AC voltages between the remote ground and 1) the service entrance grounding conductor and 2) conductive objects in the area where the point of contact was first reported using a sharp probe. This test should be done several times at 15 minute or more intervals with all of the customer's equipment running. All other conditions under which the problem was evident should be simulated as closely as possible (i.e., motor and pumps running).

See Exhibit B (First Energy's Neutral to Earth Voltage Procedure).

Brandau and Platt completed a grounds check at the Service Location using a Neutral to Earth Voltage Test with the appliances on and again with the breaker off. Specifically, they measured the stray voltage from the Complainant's main service grounding conductor to a driven ground rod 20 feet away in accordance with the Company's procedure specified in Exhibit B. Voltage was measured at 0.438 volts at full load and 0.526 volts at no load, breaker off, but did vary to lower readings before the heat was turned off. Under Penelec's engineering practices, Neutral to Earth Voltage of 4 volts or less at a residence is acceptable. *See Exhibit B.*

IV. Foreign Load Check

A "foreign load check" is completed at a residence or other electric consuming building to determine if there is shared metering. "Shared metering" occurs if a customer's electric meter

is registering foreign load.² Shared metering situations occur most often in apartment and other multiple-dwelling applications. A "foreign load check" is completed at a residence by turning off the breakers and verifying the meter comes to a complete stop.

During this test, Brandau and Platt showed the Complainant that the meter at the Service Location was spinning normally when the Complainant arrived at the Service Location. When Brandau and Platt turned the lights and the heat on at the Service Location, they again showed the Complainant the meter speed. When Brandau and Platt turned the main breaker at the Service Location off, the Complainant verified the meter came to a stop, and further acknowledged no foreign load registered on the electric meter.

V. **Equipment and Appliance Test**

Brandau conducted the Equipment and Appliance Test at the Service Location (*See* Exhibit C) by utilizing an Electric Appliance Operating Cost List published by Duke Energy to obtain the monthly electric energy (measured in kilowatt hours of "kWh") estimate and monthly cost estimate of the appliances and other electric consuming equipment located at the Service Location. *See* Exhibit D. Brandau used Allegheny Energy Cost of Operating's Appliances schedule to obtain the monthly kWh estimate and monthly cost estimate of the Complainant's air conditioning unit located at the Service Location. *See* Exhibit E.

All appliances and other electric consuming devices Brandau located at the Service Location are specified on Exhibit C. Exhibit C identifies the approximate kWh and hours of use of all appliances, and develops a total cost and percentage for each appliance/device. Brandau accepted the Complainant's representation that certain appliances/devices were not being used and reflected such items on Exhibit C with zero hours usage. Among the items allegedly not

² Foreign load is usage for electricity provided to another person for use in a common area shared by others. Examples of foreign load may include hallway lighting, shared furnace fans, shared laundry room appliances, shared hot water heater, and well pump.

being used were a hot tub, two space heaters in the garage, a garage floodlight, and two small wine coolers.

Brandau and Platt could not verify what the breakers fed since the building wire is hidden behind walls. Markings were irregular, modified, and inconsistent on the breaker box, so Brandau and Platt could not and therefore did not rely on the panel. Instead, they attempted visual analyses, when and if able to do so.

The 200 Amp panel at the Service Location was completely full, and all single position breakers had been replaced with half-height double breakers, thereby allowing many more breaker circuits than the panel was originally designed to serve. In addition, there was a small sub-panel with two 15 Amp breakers connected together as double pole, possibly as the sub-panel's main breaker, as well as two single 15 Amp breakers. The main panel also had two breakers connected together as double pole that may feed this panel. As a result, the sub-panel fed something that Brandau and Platt could not verify. The Complainant believes the sub-panel was feeding the two rooms in one of his additions.

During the visual inspection, Brandau and Platt did not find that any of the Complainant's thermostats were stuck. No heaters seemed to be on at the time of the visual inspection, which may be due to the exceptionally warm and sunny day. After the foreign load test when the thermostats were turned back down, the meter slowed to a crawl and was witnessed by the Complainant.

Platt conducted the heat loss measurements and assumptions utilizing standard Air Conditioning Contractors of America (ACCA) Manual J guidelines. See Exhibit F. This calculation is done in a Heat Loss spreadsheet that calculates total annual kWh for heating purposes. The residence has four recessed ceiling lights in the rear foyer that are not sealed.

These allow the heat to escape to the roof line since there is minimal insulation in the ceiling. This area is where the Complainant states his snow melts from the roof the most. The residence also has a ceiling vent fan to the roof that appears to vent to the outside. The Complainant stated that this fan is used to circulate heat throughout the structure. However, Brandau and Platt could not verify where the fan blows the heat. Platt could not see the entire ceiling area since most of it is a shallow cathedral ceiling. Platt also could not access about 3/4 of the crawl space since it was behind two dead bolted doors. The crawl space had some insulation falling out of the joists.

The results from the Audit and Heat Loss spreadsheets were then placed into the Heat Bill spreadsheet by Brandau to obtain a composite monthly billing analysis. The Heat Bill spreadsheet uses standard formulas to spread the heating and air conditioning kWh across each month, and graph the resulting monthly cost for heating, air conditioning, and lighting in a stacked bar chart format. *See Exhibit G.*

VI. Additional Test

In addition to the requested tests, Brandau and Platt utilized a ground resistance meter to verify there is no detectable current on the residence's service grounding electrode (ground rod). Brandau and Platt also measured the residence's grounding electrode resistance at 600 or 700 Ohms, depending upon movement of the grounding conductor. The National Electric Code (NEC) Article 250-84 indicates additional grounding measures if this resistance is over 25. As a result, Brandau recommended the Complainant dig up the connection to the ground rod and verify it is connected properly. The grounding electrode is not relevant to the high bill complaint, but was performed since the Company was performing a Neutral to Earth test at the same wire. The Complainant was informed that this higher reading may impair protection from lightening and that any revisions to the grounding in these areas are the responsibility of the

Complainant. Penelec facilities stop at the weatherhead above the meter; meaning grounding electrode and grounding electrode conductor work are owned by the Complainant.

VII. Conclusion

The Heat Bill Spreadsheet estimates that the Complainant's electric bills at the Service Location should total \$4,679.00 for a 12-month period, which averages about \$390.00/month. The Complainant's total cost of electricity at the Service Location for 2011, based on electric bills provided by the Company, was \$3,138.07, which averages to \$261.50 a month..

According to Heat Bill Spreadsheet, the Complainant's electric bills at the Service Location are below the potential electric consumption at the Service Location based on those appliances and other electric consuming devices the Complainant claims to be using. If any of the appliances and electric consuming devices (such as the hot tub, two space heaters in the garage, a garage floodlight, and two small wine coolers) were actually operating at any time relevant to the Formal Complaint, the "potential" kWh consumption at the Service Location would have been higher. In addition, any utilization of appliances at hours higher than indicated will result in additional consumption.

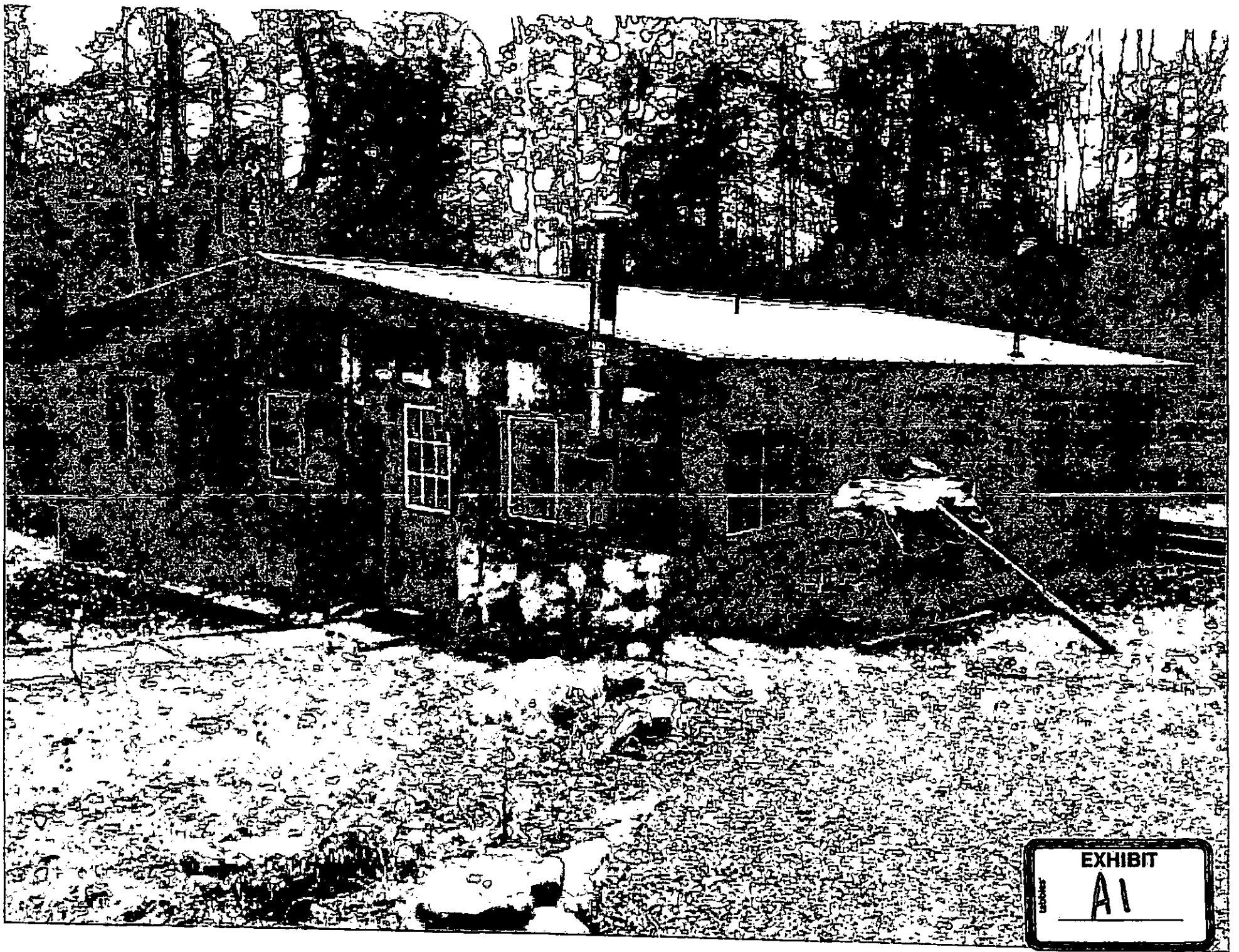
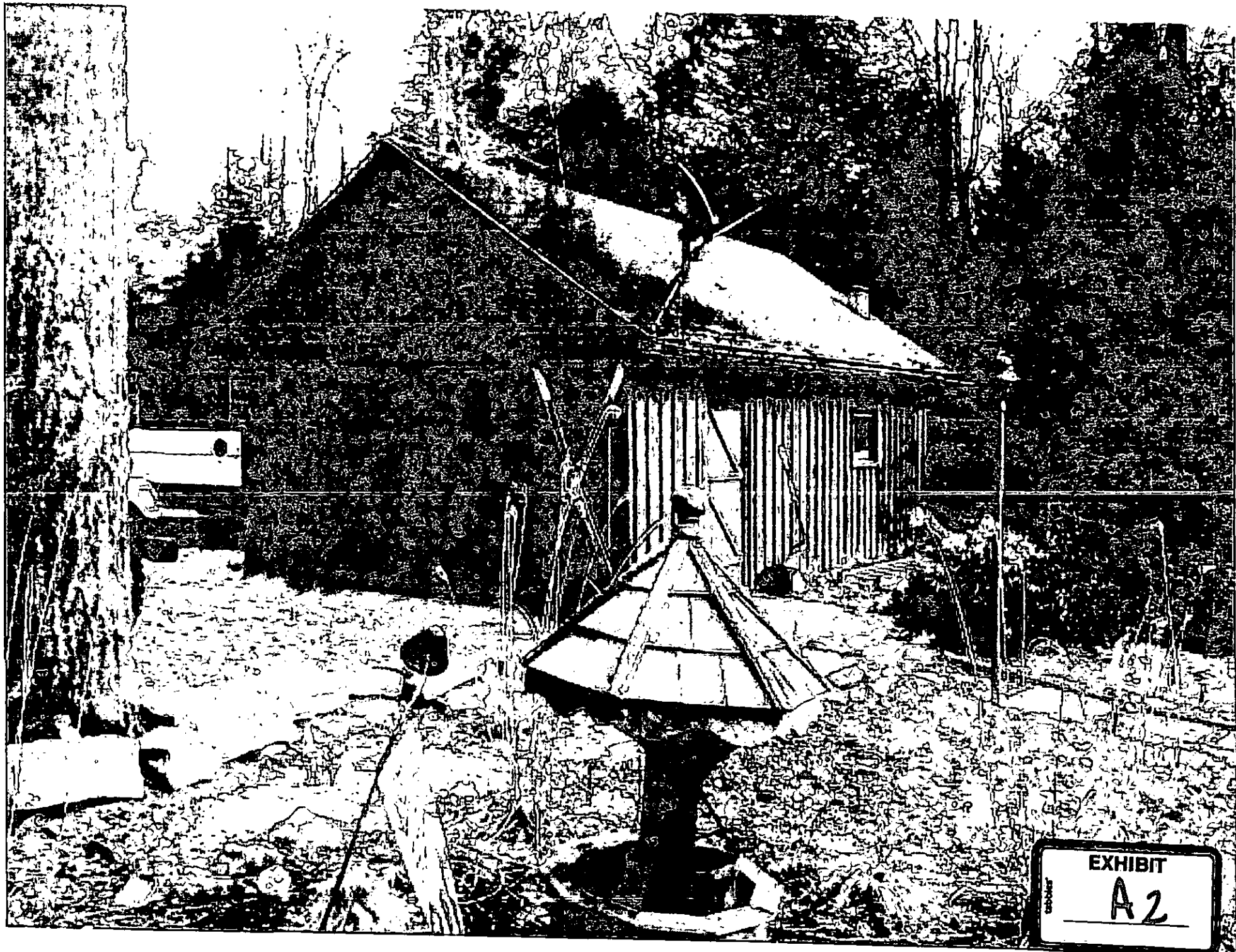


EXHIBIT
A1



EXHIBIT

A2

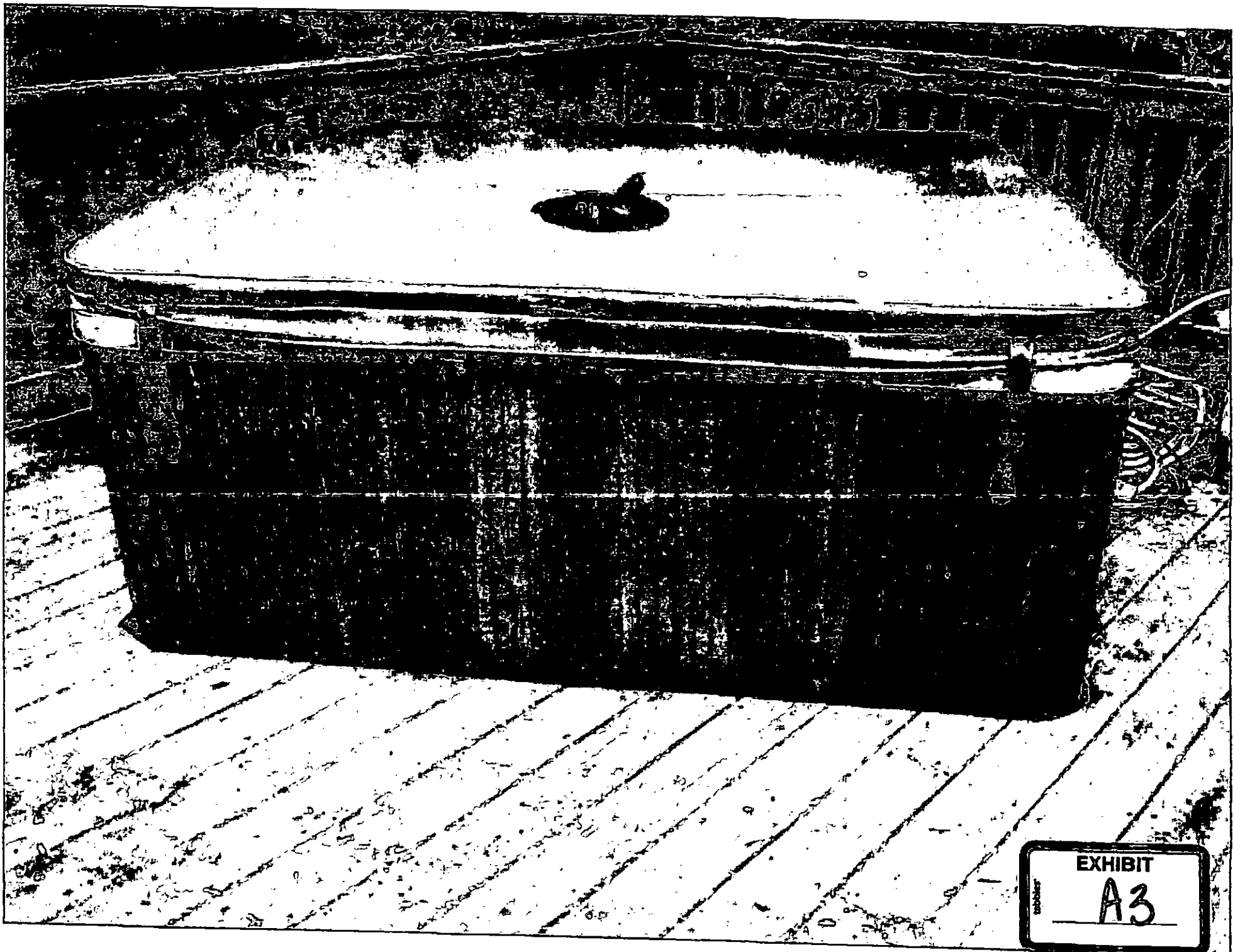


EXHIBIT
A3

DISTRIBUTION ENGINEERING PRACTICES

FE NEUTRAL-TO-EARTH VOLTAGE (NEV)
COMPLAINT PROCEDURE

EP# 01-025
PAGE 4 of 34
DATE 12/11/06

4.1 Verification of NEV at the Reported Point Of Contact

Establish a remote (isolated) ground by installing a ground probe a sufficient depth into undisturbed soil, 20 feet (or more) from the problem location. Try to avoid placement near any other underground conductors, such as water pipes. Investigator should measure and record the AC voltages between the remote ground and 1) the service entrance grounding conductor and 2) conductive objects in the area where the point of contact was first reported using a sharp probe. (See *Appendix D* for a diagram of testing the meter at the house or at a central metering pole.) This test should be done several times at 15 minute or more intervals with all of the customer's equipment running. All other conditions under which the problem was evident should be simulated as closely as possible (i.e., motor and pumps running). If unable to recreate the same circumstances, document in the investigator's notes.

If the measured neutral-to-earth voltages do not exceed the FE established threshold voltage limits (refer to sections 2.2 for humans and 2.3 for livestock), no further testing is required. The customer should be advised that NEV is a natural phenomenon and the measured neutral-to-earth voltages were at or below the acceptable level. If neutral-to-earth voltages greater than the established threshold voltage are measured, then proceed to section 4.2.

01-025.jah



DISTRIBUTION ENGINEERING PRACTICES

FE NEUTRAL-TO-EARTH VOLTAGE (NEV)
COMPLAINT PROCEDURE

EP# 01-025
PAGE 2 of 34
DATE 12/11/06

- 2.2 A number of studies have been undertaken to determine when neutral-to-earth voltages become objectionable to humans. The results of these studies vary and are inconclusive. Furthermore, the states where FirstEnergy (FE) operates have not promulgated standards, which specify an acceptable NEV level. In consideration of the above, FE will use a NEV level of 4.0 volts at the point of contact at a residence, as the level at which a case should be further investigated and appropriate mitigative actions taken.



Potential Use without HVAC and broken or not used equipment per customer.

Estimated Energy Use

Joey Maluchnik
185 Sportsman Rd, Boswell, PA

03/15/12 03:37 PM

Item	Volts	Amps	Phases	Watts	Quan.	Connected	Diversified	Hours /Day	Days/ Week	kWh/ Month	\$/Month	% of Bill	
						Total kW	kW Demand						
Outside													
Driveway post lite - CFL	0	0.0	1	27	1	0.027	90%	0.024	12	7	9	\$1.14	0.7%
Motion - CFL double	0	0.0	1	27	2	0.054	90%	0.049	2	7	3	\$0.38	0.2%
CFL	0	0.0	1	13	1	0.013	90%	0.012	2	5	1	\$0.07	0.0%
Incandescents	0	0.0	1	80	3	0.180	90%	0.162	2	5	7	\$0.90	0.6%
Spot light - Incandescent	0	0.0	1	75	2	0.150	90%	0.135	2	5	6	\$0.75	0.5%
Rope lights	0	0.0	1	100	4	0.400	90%	0.360	2	2	6	\$0.80	0.5%
Hot tub	240	40.0	1	9,600	1	9,600	15%	1.440	0	0	0	\$0.00	0.0%
Front Room													
Full size fan	0	0.0	1	180	1	0.180	90%	0.162	12	7	59	\$7.57	4.9%
Dehumidifier	0	0.0	1	400	1	0.400	50%	0.200	24	7	144	\$18.69	12.1%
Ceiling fan	0	0.0	1	100	1	0.100	90%	0.090	2	7	5	\$0.70	0.5%
Ceiling fan lights	0	0.0	1	13	4	0.052	90%	0.047	2	7	3	\$0.36	0.2%
Water heater	0	0.0	1	4,500	1	4,500	5%	0.225	24	7	163	\$21.03	13.6%
Well pump	0	0.0	1	500	1	0.500	90%	0.450	1	7	14	\$1.75	1.1%
Baseboard by well - 30"	0	0.0	1	250	2.5	0.625	80%	0.500	0	0	0	\$0.00	0.0%
Candellabra lights	0	0.0	1	40	3	0.120	90%	0.108	2	5	5	\$0.60	0.4%
Direct TV tuner	0	0.0	1	35	1	0.035	90%	0.032	1	7	1	\$0.12	0.1%
37" Vizio LCD TV	0	0.0	1	150	1	0.150	90%	0.135	2	5	6	\$0.75	0.5%
TV standby power	0	0.0	1	20	1	0.020	100%	0.020	24	7	14	\$1.87	1.2%
Wine cooler - 24"x30"	0	0.0	1	200	1	0.200	50%	0.100	24	7	72	\$9.35	6.0%
Beer cooler - 24"x30"	0	0.0	1	200	1	0.200	30%	0.060	24	7	43	\$5.61	3.6%
Wine cooler - broken?	0	0.0	1	135	1	0.135	90%	0.122	0	0	0	\$0.00	0.0%
Spot light - Incandescent	0	0.0	1	100	2	0.200	90%	0.180	2	7	11	\$1.40	0.9%
Christmas lights	0	0.0	1	7	5	0.035	90%	0.032	2	7	2	\$0.25	0.2%
Side Room													
Baseboard	0	0.0	1	250	12	3.000	80%	2.400	0	0	0	\$0.00	0.0%
Candellabra lights	0	0.0	1	40	4	0.160	90%	0.144	1	5	3	\$0.40	0.3%
All In One printer	0	0.0	1	35	1	0.035	100%	0.035	24	7	25	\$3.27	2.1%
Closest light	0	0.0	1	60	1	0.060	90%	0.054	0	0	0	\$0.00	0.0%
1/2 Bath													
Light	0	0.0	1	60	1	0.060	90%	0.054	0.2	7	0	\$0.04	0.0%
Living Room													
Halogen Lights	0	0.0	1	50	3	0.150	90%	0.135	5	7	20	\$2.63	1.7%
Candellabra sconces	0	0.0	1	40	3	0.120	90%	0.108	5	7	16	\$2.10	1.4%
~42" Samsung Plasma	0	0.0	1	350	1	0.350	90%	0.315	5	7	47	\$6.13	4.0%
TV standby power	0	0.0	1	20	1	0.020	100%	0.020	24	7	14	\$1.87	1.2%
Direct TV DVR	0	0.0	1	35	1	0.035	90%	0.032	5	7	5	\$0.61	0.4%
5 disc CD player/stereo	0	0.0	1	200	1	0.200	90%	0.180	5	7	27	\$3.50	2.3%
Ceiling vent fan	0	0.0	1	60	1	0.060	90%	0.054	12	7	20	\$2.52	1.6%
Lights	0	0.0	1	60	2	0.120	90%	0.108	5	7	16	\$2.10	1.4%
Baseboard	0	0.0	1	250	12	3.000	80%	2.400	0	0	0	\$0.00	0.0%
Rear Foyer													
Baseboard	0	0.0	1	250	6	1.500	80%	1.200	0	0	0	\$0.00	0.0%
Recessed lights	0	0.0	1	40	4	0.160	90%	0.144	2	7	9	\$1.12	0.7%
Dining Room													
Candellabra ceiling light	0	0.0	1	40	6	0.240	90%	0.216	2	7	13	\$1.68	1.1%
Baseboard	0	0.0	1	250	6	1.500	80%	1.200	0	0	0	\$0.00	0.0%
Kitchen													
Triple crockpot	0	0.0	1	150	1	0.150	80%	0.120	0	0	0	\$0.00	0.0%
Hot plate	0	0.0	1	1,250	1	1,250	80%	1.000	0	0	0	\$0.00	0.0%
Refrigerator - 18 cf - new	0	0.0	1	300	1	0.300	30%	0.090	24	7	65	\$8.41	5.4%
Fluorescent light - 30"	0	0.0	1	24	2	0.048	90%	0.043	2	7	3	\$0.34	0.2%
Microwave - small	0	0.0	1	800	1	0.800	90%	0.720	0.3	7	7	\$0.84	0.5%
Fluorescent light - 14"	0	0.0	1	10	1	0.010	90%	0.009	2	7	1	\$0.07	0.0%



Electric Appliance Operating Cost List

Electric Appliance Operating Cost List

Here is an extensive list of electric appliances and an estimate of how much electricity each may use in an average home with average usage patterns. Note the assumptions that were made for each appliance, especially how much electricity the appliance draws (watts) and how often the appliance might be used in a typical household. These two factors along with the age of the appliance are the most important variables that determine operating costs.

The assumptions listed for each appliance determine the "Monthly Cost Estimate." The assumptions examples. These references allow you to compare your appliance and your personal usage patterns with the estimate shown below. Your exact usage will likely vary from these examples, but a list like this is still very helpful to learn which appliances affect your electric bill the most.

Cost per kilowatt hour

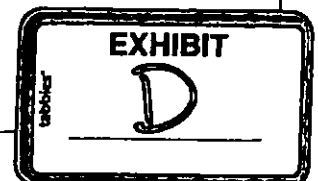
One of the most important factors in determining the cost to operate your appliances is your cost of electricity. This is usually stated as a "cost per kilowatt hour" (kWh). Your personal cost per kWh can be calculated by dividing your most recent electric bill's dollar amount by the number of kWhs on that bill. For example, a monthly bill of \$90.00 that used 1100 kWhs would have an average cost per kWh of $\$90.00 \div 1100$ or about \$.082 (8.2 cents) per kWh.

If your personal cost per kWh is significantly different from this, you can still use this table to estimate your appliance costs. Multiply the "Monthly kWh Estimate" shown for each appliance by your personal cost per kWh to determine a more accurate estimate for the appliances in your home.

The estimated costs below have been calculated with a cost of: \$.082 per kWh

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Air compressor	1000 watts, 3 uses per week, 1 HP, 2 hours per use	8.5	\$0.70
Air purifier, portable for one room	100 watts, 24 hours per day, fan and filter type (wattage varies widely)	72.0	\$5.90
Air purifier, portable for one room	40 watts, 24 hours per day, ultraviolet light(s) always on	28.8	\$2.36
Air purifier, UV in furnace	70 watts, 24 hours per day, ultraviolet light(s) always on	50.4	\$4.13
Appliance power adaptor	6 watts, 24 hours per day, plug-in transformer converting AC power to DC (wattage varies widely)	4.3	\$0.35
Aquarium air pump	5 watts, 24 hours per day, always on	3.6	\$0.30
Automobile battery charger	235 watts, 1 use per week, 2 hours per use	2.0	\$0.17
Automobile engine heater	1000 watts, 12 hours per day, winter months, coolant flow heater	360.0	\$29.52
Automobile engine heater	300 watts, 12 hours per day, winter months, block heater	108.0	\$8.86

Please read notes on the first page and the disclaimer on the last page.



Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Battery recharger for cordless appliance	6 watts, 24 hours per day, always on (wattage varies widely)	4.3	\$0.35
Blanket, electric	150 watts, 8 hours per day, 50% cycle time	18.0	\$1.48
Blender	330 watts, 2 uses per week, 3 minutes per use	0.1	\$0.01
Bread maker	650 watts, 1 use per week, 2 hours per use, cycles off & on	2.8	\$0.23
Broiler	1350 watts, 1 use per week, 1 hour per use, cycles off & on	2.9	\$0.24
Bug killer light	40 watts, 2 hours per day, used each evening	2.4	\$0.20
Can opener	220 watts, 20 uses per week, 30 seconds each	0.2	\$0.01
Carving knife	100 watts, 2 uses per week, 5 minutes per use	0.1	\$0.01
Christmas/holiday light strands	600 watts, 5 hours per day, older bulbs, 6 watts@, per strand of 100	90.0	\$7.38
Christmas/holiday light strands	40 watts, 5 hours per day, typical mini lights, .4 watts@, per strand of 100	6.0	\$0.49
Christmas/holiday light strands	8 watts, 5 hours per day, New LED lights, .08 watts@, per strand of 100	1.2	\$0.10
Clocks	2 watts, 24 hours per day, plug in, not battery	1.4	\$0.12
Clock radio	10 watts, 6 hours per day, older model with radio on	1.8	\$0.15
Coffee maker	350 watts, 1 hour per day, brew & keep warm	10.5	\$0.86
Coffee maker	1500 watts, 10 minutes per day, brew & turn off	7.5	\$0.62
Coffee percolator	660 watts, 15 minutes per day, percolate and then turn off	5.0	\$0.41
Compact disc player	50 watts, 4 hours per day	6.0	\$0.49
Computer, desktop	65 watts, 2 hours per day, actual wattage varies with different work loads	3.9	\$0.32
Computer, desktop in sleep mode	15 watts, 24 hours per day, wattage varies with different units	10.8	\$0.89
Computer, laptop	15 watts, 2 hours per day, wattage varies with different work loads	0.9	\$0.07
Computer monitor, 15" CRT	35 watts, 2 hours per day, wattage varies with different units	2.1	\$0.17

Please read notes on the first page and the disclaimer on the last page.



Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Computer monitor, 17" CRT	80 watts, 2 hours per day, wattage varies with different units	4.8	\$0.39
Computer monitor, 17" LCD	35 watts, 2 hours per day, wattage varies with different units	2.1	\$0.17
Computer system left on	150 watts, 24 hours per day, PC, monitor, printer all left on with no sleep mode	108.0	\$8.86
Convection oven	1500 watts, 2 uses per week, bake 60 minutes per use	6.5	\$0.53
Crock cooker	150 watts, 1 use per week, on high power, cycling 4 hours	1.3	\$0.11
Crock cooker	70 watts, 1 use per week, on low power, cycling 8 hours	1.2	\$0.10
Deep fryer	1400 watts, 1 use per week, 1 hour per use	3.0	\$0.25
Dehumidifier, runs constantly	400 watts, 24 hours per day, In "always-moist" location	288.0	\$23.62
Dehumidifier, cycles 50% of time	400 watts, 24 hours per day, normal application, cycling 50%	144.0	\$11.81
Dishwasher and heater	1200 watts, 4 uses per week, using heater to dry	10.3	\$0.85
Dishwasher	300 watts, 4 uses per week, wash cycle only	4.1	\$0.34
Disposer	400 watts, 2 minutes per day, 4) 30 second uses	0.4	\$0.03
Dryer, clothes	5500 watts, 6 uses per week, average family of 4, 45 minutes per load	83.0	\$6.81
Dryer - clothes, portable	1200 watts, 10 uses per week, one hour cycles	51.6	\$4.23
Electronic air filter - on central HVAC system	40 watts, 24 hours per day, always on, (see furnace fan for additional)	28.8	\$2.36
Evaporative cooler	325 watts, 24 hours per day, always on	234.0	\$19.19
Exercise, treadmill	1500 watts, 5 uses per week, 2 HP treadmill, 30 minutes per use	16.1	\$1.32
Fan, attic fan	400 watts, 12 hours per day, in home ceiling, exhaust to attic	144.0	\$11.81
Fan, furnace fan	500 watts, 24 hours per day, ½ HP, always on	360.0	\$29.52
Fan, ceiling fan	65 watts, 12 hours per day, high efficiency, Energy Star ceiling fan on high speed	23.4	\$1.92

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Fan, ceiling fan	8 watts, 12 hours per day, high efficiency, Energy Star ceiling fan on low speed	2.9	\$0.24
Fan	60 watts, 12 hours per day, portable - 12"	21.6	\$1.77
Fan	180 watts, 12 hours per day, portable - 20"	64.8	\$5.31
Fax machine	10 watts, 24 hours per day, newer, Energy Star model, always on	7.2	\$0.59
Fax machine	43 watts, 24 hours per day, older model, always on	31.0	\$2.54
Floor polisher	400 watts, 1 use per week, 15 minutes per use	0.4	\$0.04
Food processor	400 watts, 1 use per week, 5 minutes per use	0.1	\$0.01
Freezer, new	335 watts, 24 hours per day, medium size	60.3	\$4.94
Freezer, old	450 watts, 24 hours per day, medium size	97.2	\$7.97
Gaming, electronic	50 watts, 1 hours per day, Playstation 2	1.5	\$0.12
Gaming, electronic	74 watts, 1 hours per day, X-box original	2.2	\$0.18
Gaming, electronic	160 watts, 1 hours per day, X-box 360	4.8	\$0.39
Garage door opener, small size, (with light)	250 watts, 2 minutes per day, 1/4 HP, 4 cycles per day	0.3	\$0.02
Garage door opener, medium size, (with light)	500 watts, 2 minutes per day, 1/2 HP, 4 cycles per day	0.5	\$0.04
Grill, outdoor electric	1500 watts, 2 uses per week, 40 minutes per use	8.6	\$0.71
Grill - sandwich	1200 watts, 2 uses per week, 10 minutes per use	1.0	\$0.08
Hair curling iron	100 watts, 15 minutes per day	0.8	\$0.06
Hair dryer	1200 watts, 14 uses per week, 5 minutes per use	6.0	\$0.49
Hair rollers	400 watts, 3 uses per week, 15 minutes per use	1.3	\$0.11
Heater, high heat setting	1500 watts, 3 uses per week, portable heater, cycling 50%, 12 Hrs per use	116.1	\$9.52
Heater, low heat setting	750 watts, 3 uses per week, portable heater, cycling 50%, 12 Hrs per use	58.1	\$4.76

Please read notes on the first page and the disclaimer on the last page.



Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Heater, constant use in warm space	1000 watts, 24 hours per day, portable heater, cycling 50% in warm living space	360.0	\$29.52
Heater, constant use in cold space	1500 watts, 24 hours per day, portable heater, maximum heat in cold space	1080.0	\$88.56
Heating pad	60 watts, 3 uses per week, 30 minutes per use	0.4	\$0.03
Heating cable, roof overhang	600 watts, 24 hours per day, always on, 6 watts/foot, cost per 100 ft	432.0	\$35.42
Heating mat, sidewalk	5000 watts, 24 hours per day, average 50 watts/sq ft, 100 sq ft, cycles off & on 50%	1800.0	\$147.60
Heating tape, water line	150 watts, 24 hours per day, average 6 watts/foot, 25 ft, cycles off & on 50%	54.0	\$4.43
Heat lamp	250 watts, 24 hours per day, always on, in a cold location	180.0	\$14.76
Hedge clipper	300 watts, 0.25 uses per week, 1 hour per use	0.3	\$0.03
Hot tub heater, electric	5500 watts, 3 uses per week, 2 hours per use, heating only when tub is used	141.9	\$11.64
Hot tub heater, electric	5500 watts, 24 hours per day, heater left on, insulated tub and covered, heat cycles 15%	594.0	\$48.71
Hot tub heater, electric	5500 watts, 24 hours per day, heater left on, poorly insulated tub and/or no cover, heat cycles 50%	1980.0	\$162.36
Hot tub pump	1800 watts, 3 uses per week, jets, 1½ HP, 2 hours per use	46.4	\$3.81
Hot tub pump	300 watts, 24 hours per day, low speed, circulation pump	216.0	\$17.71
Humidifier, tabletop warm mist	300 watts, 24 hours per day, always on	216.0	\$17.71
Humidifier, tabletop cool mist	90 watts, 24 hours per day, always on	64.8	\$5.31
Humidifier, console cool mist	170 watts, 24 hours per day, always on	122.4	\$10.04
Humidifier, on furnace	25 watts, 24 hours per day, fan powered model, always on	18.0	\$1.48

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Ice cream maker	140 watts, 0.25 uses per week, 1 hour per use	0.2	\$0.01
Iron	1100 watts, 4 uses per week, 30 minutes per use	6.6	\$0.54
Jacuzzi (see hot tub)			
Kiln, small	1000 watts, 1 use per week, 8 hours per use	34.4	\$2.82
Kiln, large	10,000 watts, 1 use per week, 8 hours per use, cycling 50% of time	172.0	\$14.10
Lawn edger	600 watts, 1 use per week, 30 minutes per use	1.3	\$0.11
Lawn mower	1200 watts, 1 use per week, 60 minutes per use	5.2	\$0.42
Lawn trimmer	460 watts, 1 use per week, 30 minutes per use	1.0	\$0.08
Lighting, by the hour, compact fluorescent	25 watts, 1 hour per day, equivalent light of a 100 watt incandescent	0.8	\$0.06
Lighting, by the hour, incandescent	100 watts, 1 hour per day, bulb or spot light	3.0	\$0.25
Lighting, indoors, small home	600 watts, 5 hours per day, for average family of four, 8) 75 wt bulbs	90.0	\$7.38
Lighting, indoors, small home, 5 most used lights are CFLs	325 watts, 5 hours per day, 5) 20 wt compact fluorescent lights & 3) 75 wt bulbs	48.8	\$4.00
Lighting, indoors, well lit larger home	1875 watts, 8 hours per day, 25) 75 wt bulbs, many ceiling can lights or home office well lit	450.0	\$36.90
Lighting, shop light	80 watts, 1 hours per day, 2, four foot fluorescent bulbs	2.4	\$0.20
Lighting, outdoors	50 watts, 12 hours per day, small mercury vapor	18.0	\$1.48
Lighting, outdoor, quartz	150 watts, 12 hours per day, quartz light	54.0	\$4.43
Lighting, outdoor pole light with photocell	175 watts, 12 hours per day, mercury vapor security light	63.0	\$5.17
Lighting, outdoor pole light with photocell	100 watts, 12 hours per day, high pressure sodium, security light	36.0	\$2.95
Lighting, outdoor with photocell	100 watts, 12 hours per day, typical incandescent yard light	36.0	\$2.95
Medical, Nebulizer	100 watts, 30 minutes per day, average size	1.5	\$0.12

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Medical, Oxygen Concentrator	400 watts, 12 hours per day, average size & output	144.0	\$11.81
Microwave oven	800 watts, 30 minutes per day, average usage	12.0	\$0.98
Mixer, portable	100 watts, 2 uses per week, 5 min per use	0.1	\$0.01
Mixer, standard	350 watts, 2 uses per week, 5 min per use	0.3	\$0.02
Oven, electric	3500 watts, 3 uses per week, single oven, one hour per use, cycling	15.0	\$1.23
Oven, electric, cleaning	3500 watts, 0.25 uses per week, self clean cycle, 3 hrs	5.6	\$0.46
Popcorn popper	500 watts, 2 uses per week, small, 5 minutes per use	0.4	\$0.03
Popcorn popper	1400 watts, 2 uses per week, large, 5 minutes per use	1.0	\$0.08
Tool, grinder	370 watts, 1 use per week, 5 minutes per use	0.1	\$0.01
Tool, electric chain saw	1200 watts, 1 use per week, 30 minutes per use	2.6	\$0.21
Tool, circular saw	1320 watts, 1 use per week, 10 minutes per use	0.9	\$0.08
Tool, cordless tool battery charger	6 watts, 24 hours per day, Always charging	4.3	\$0.35
Tool, drill	360 watts, 1 use per week, 15 minutes per use	0.4	\$0.03
Tool, belt sander	900 watts, 1 use per week, 15 minutes per use	1.0	\$0.08
Tool, pad sander	360 watts, 1 use per week, 15 minutes per use	0.4	\$0.03
Tool, scroll saw	420 watts, 1 use per week, 15 minutes per use	0.5	\$0.04
Tool, soldering gun	600 watts, 1 use per week, 15 minutes per use	0.6	\$0.05
Radio	15 watts, 6 hours per day, small desk radio	2.7	\$0.22
Range/stove top	1600 watts, 5 uses per week, small surface unit, 20 minutes per use	5.7	\$0.47
Range/stove top	2700 watts, 3 uses per week, large surface unit, 20 minutes per use	3.8	\$0.31
Refrigerator, new, medium size	300 watts, 24 hours per day, rough estimate based on 4 in family	71.9	\$5.90

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Refrigerator, over 10 years old, medium size	600 watts, 24 hours per day, rough estimate based on 4 in family	143.9	\$11.80
Septic tank aerator	300 watts, 24 hours per day, always on	216.0	\$17.71
Sewing machine	120 watts, 1 use per week, 60 minutes per use	0.3	\$0.02
Shaver	15 watts, 10 minutes per day, plug in, not battery	0.1	\$0.01
Shoe buffer	175 watts, 2 minutes per day, once each day	0.2	\$0.01
Skillet	1250 watts, 3 uses per week, 30 minutes per use	4.0	\$0.33
Smoke detector	2 watts, 24 hours per day, always on	1.4	\$0.12
Sound equipment	5 watts, 3 hours per day, single audio appliance using plug instead of batteries	0.5	\$0.04
Sound equipment	50 watts, 3 hours per day, single, older audio appliance using 120 AC volts	4.5	\$0.37
Sound equipment	300 watts, 3 hours per day, 4 to 5 components in system	27.0	\$2.21
Sun lamp, single bulb	60 watts, 3 uses per week, 15 minutes per use	0.2	\$0.02
Sun lamp, tanning device	800 watts, 3 uses per week, 15 minutes per use	2.6	\$0.21
Swimming pool filter pump	700 watts, 24 hours per day, ½ horse power	504.0	\$41.33
Swimming pool filter pump	1400 watts, 24 hours per day, 1 horse power	1008.0	\$82.66
Swimming pool filter pump	2100 watts, 24 hours per day, 1.5 horse power	1512.0	\$123.98
Swimming pool sweep pump	900 watts, 15 minutes per day, ¼ horse power	6.8	\$0.55
Telephone, charger & answering machine	6 watts, 24 hours per day, always on	4.3	\$0.35
Television, standard	100 watts, 6 hours per day, CRT tube, small	18.0	\$1.48
Television, standard	150 watts, 6 hours per day, CRT tube, large	27.0	\$2.21
Television, projection	220 watts, 6 hours per day, rear projection, average size and wattage	39.6	\$3.25
Television, LCD	150 watts, 6 hours per day, 32 inch LCD screen average size and wattage	27.0	\$2.21

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Television, plasma	350 watts, 6 hours per day, plasma, average size and wattage	63.0	\$5.17
Television, standby electric use	20 watts, 24 hours per day, power use when TV is off, (usage varies widely)	14.4	\$1.18
Toaster	1100 watts, 10 uses per week, 2 minutes per use	1.6	\$0.13
Toaster - broiler oven	1500 watts, 3 uses per week, 10 minutes per use	3.2	\$0.26
Trash compactor	750 watts, 2 minutes per day, once each day	0.8	\$0.06
Vacuum cleaner	740 watts, 1 use per week, 30 minutes per use	1.6	\$0.13
Vaporizer	30 watts, 1 use per week, mini, 4 hour capacity	0.5	\$0.04
Video, DVD	25 watts, 3 uses per week, 2 hours per use	0.6	\$0.05
Video, VCR	35 watts, 3 uses per week, 2 hours per use	0.9	\$0.07
Waffle iron	1400 watts, 1 use per week, 30 minutes per use	1.5	\$0.12
Washing machine	665 watts, 8 uses per week, average for family of four, 45 min cycles (Does not include hot water usage)	12.0	\$0.98
Water bed heater	400 watts, 24 hours per day, cycling 33% on time	95.9	\$7.86
Water heater, electric, general use	4500 watts, 24 hours per day, cycles on 8%, average for family of four. heater located in warm space	259.2	\$21.25
Water heater (this is additional use if clothes washer uses hot wash)	4500 watts, 8 uses per week, average for family of four, hot wash, cold rinse (40 minutes recovery time)	103.2	\$8.46
Water, well pump	1100 watts, 24 hours per day, ¼ HP, run time totals 15 min/day for family of four	15.8	\$1.30
Water, well pump used for irrigation	1600 watts, 4 hours per day, 1 HP	192.0	\$15.74
Wok	1000 watts, 1 use per week, 20 minutes per use	0.7	\$0.06

Due to the number of factors beyond Duke Energy's control, Duke Energy in no way represents or warrants that your electric costs will correspond with these estimates. Duke Energy disclaims any obligation to update or revise the estimates and expressly disclaims any and all liability for any damages of any nature (including direct, indirect, incidental and consequential) arising in connection with the use of the estimates.

Please read notes on the first page.





Fact Sheet



The Cost of Operating Appliances

How much does it cost to operate all of your electrical appliances?

The answer depends on many factors, including: the number and kinds of appliances you use; the way you use them; how long you use them; the number of people in your household; and, the price you pay for electricity.

There are also seasonal factors. For example, in the summer, you may cook less, use your lighting for shorter periods of time and use air conditioners or fans. In the winter, your heating and cooking costs are probably higher, and your lighting will be used for more hours during the day.

The addition of new appliances—or new family members—can also increase your electricity use.

The appliances that cost the most to operate are the ones that require the greatest amount of electricity to generate heat, such as your furnace, water heater or range, or to cool, such as your air conditioning system. The cost of operating an electrical appliance is calculated using these three factors:

1. The number of watts the appliance uses.
2. The number of hours the appliance is used.
3. The cost you pay for one kilowatt-hour (kWh) of electricity. (A kilowatt-hour is 1,000 watts of electricity used for one hour.)

To calculate the cost of operating an appliance, multiply the wattage of the appliance by the approximate number of hours you operate the appliance (the wattage of an appliance is usually listed on the appliance). Next, divide by 1,000 – this will give you the number of kWhs the appliance uses. Finally, multiply the kWh use by your cost per kWh as shown on your electric bill.

Example: A television set is rated at 300 watts and operated for seven hours a day.

1. Multiply 300 watts by seven hours (300 x 7 = 2,100 watt-hours)
2. Divide by 1,000 (2,100 ÷ 1,000 = 2.1 kWh)
3. Multiply the kilowatt-hours by the price of electricity.
Let's use 7 cents per kWh: (2.1 kWh x 7 cents = 14.7 cents)
The TV set costs approximately 15 cents a day to operate.

Typical Operating Costs of Various Appliances

Average Use	Estimated Typical Wattage	Avg. Op. Time (Hrs/mo.)	Use (\$/mo.)
Air Conditioner (5,000 BTUH room unit)*	900	200	\$9.45
Air Conditioner (12,000 BTUH room unit)*	1,500	200	\$15.75
Aquarium (air pump & heater)	150	720	\$7.56
Attic Fan	350	60	\$1.47
Blanket (electric)	170	240	\$2.86
Ceiling Fan	90	180	\$1.14
Clothes Dryer (24-32 loads)	5,000	24	\$8.40
Clothes Washer (24-32 loads)	550	16	\$0.62
Computer (desktop)	750	120	\$6.30
Computer (laptop)	75	90	\$.48
Dehumidifier (continuous)	350	720	\$17.64
Dishwasher	1,200	20	\$1.68
Freezer*	400	720	\$8.07
Furnace Fan*	450	360	\$5.67
Humidifier	80	200	\$1.12
Lighting (7 rooms @ 60W)	720	100	\$5.04
CFL Lighting (7 rooms @ 13W)	156	100	\$1.10
Microwave	875	10	\$0.62
Oxygen Concentrator	250	720	\$12.60
Pool Pump*	875	360	\$11.03
Room Heater	1,200	75	\$6.30
Range	12,000	10	\$8.40
Refrigerator*	500	720	\$10.15
Hot Tub (indoors)*	1,500	720	\$11.34
Hot Tub (outdoors)*	1,500	720	\$41.58
Television (conventional 32")	130	120	\$1.10
LCD (42")	216	120	\$1.82
Plasma (42")	286	120	\$2.41
Toaster	1,200	3	\$0.26
Vacuum Cleaner	1,050	5	\$0.37
Water Bed	300	720	\$15.12
Well Pump	1,200	15	\$1.26
Water Heater (30 gal. /1 person)*	3,500	300	\$22.05
Water Heater (40-50 gal. /1 person)*	4,500	300	\$28.35

Calculations are based on a rate of 7 cents per kilowatt-hour. Your actual rate may be different depending on where you live and the company that supplies your electricity.

* These appliances do not run continuously. The monthly costs are based on the percentage of time the appliances are fully operational. These percentages may vary depending on your usage habits.





Fact Sheet



Energy Efficiency Tips to Make Your Home More Comfortable this Winter

Keep the Cold Out

According to the U.S. Department of Energy (DOE), the most common places where air escapes in homes are:

- › Floors, walls, ceilings31 percent
- › Ducts..... 15 percent
- › Fireplace..... 14 percent
- › Plumbing 13 percent
- › Doors 11 percent
- › Windows 10 percent
- › Fans and vents 4 percent
- › Electric outlets 2 percent

Sealing leaks around doors, windows and other openings – such as pipes or ducts – with caulk or weather-stripping could cut as much as 10 percent from an average household's monthly energy bill.

Be a Watt Watcher

The Watt Watchers: Use Energy Wisely Campaign is our commitment to demonstrating the very real and positive impact that energy efficiency initiatives can have on your home. As a part of this program, we're developing a number of new energy conservation initiatives. For more information and helpful links, visit www.alleghenypower.com and click on the "Watt Watchers" logo. These sites include a convenient way to search for ENERGY STAR® energy-efficient appliances, educational material for children and much more.



Use Energy Wisely

- Set your thermostat between 65 and 70 degrees during the winter and lower it to 58 degrees when away from the house for more than a few hours. Bear in mind that warmer temperatures are recommended for homes with ill or elderly persons or infants.
- Turn down thermostats automatically without sacrificing comfort by installing an automatic setback or programmable thermostat.

\$ BE A WATT WATCHER: Cut your annual heating bill by as much as 10 percent per year by turning your thermostat back 10 to 15 percent for eight hours per day.

- Change or clean furnace filters once a month during the heating season. Furnaces consume less energy when they can "breathe" more easily.
- Lower the thermostat on the water heater to 120 degrees to cut water heating bills without sacrificing comfort.

\$ BE A WATT WATCHER: Since water-heating is a typical family's third-largest energy expense – accounting for about 14 percent of the utility bill – turning down the unit's thermostat to 120 degrees can help you save money.

- If radiators are located near cold walls, place a sheet of aluminum foil between the radiator and the wall to reflect heat back into the room.
- Run your washing machine and clothes dryer with a full load.
- Open draperies and blinds on sunny winter days to take advantage of free solar heat. Close draperies at night to insulate against cold air outside.

Heat Loss Factors from Manual J - Air Conditioning Contractors of America (ACCA)

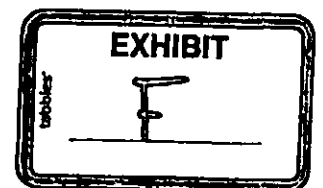
Baseboard Heat

Assumptions: 2x4 Wall Construction R-11 Insulation

Ceiling 2x8 Construction - R-11 Insulation

Floor - Partially accessible Crawl Space R-11 Insulation

	House		
Dimensions	32.5 X 40		
Ceiling Height (avg)	8		
Lineal Feet Exposed Wall	145		
	Factor (watts per sq ft)	Area or Volume	Watts Loss
Gross Wall		1160	
Windows			
Thermopane	8	42.5	340
Single with Storm - Wood	11.1	68.25	757.575
Single without Storm - Wood	23.2	40.25	933.8
Glass Block	15.2	3	45.6
Doors			
Thermopane - Sliding Glass	14.3	42	600.6
Steel Insulated	11	25	275
Net Walls - R-11	2.1	939	1971.9
Floor R-11 Closed Crawl space	0.94	1300	1222
Ceiling R-11 Roof - Ceiling Combination	1.7	1300	2210
Infiltration 1 AC/Hr	0.42	10400	4368
Building Total Heat Loss			12724.475
Annual KWH Consumption	12724 X 7000 X 18.5/80	20,597 KWH	
Avg Cost per Killowatthour		\$.13/kwh	
Annual Heating Operating Cost			\$2,678.00



BILLING ESTIMATE

Customer: **Joey Maluchnik**

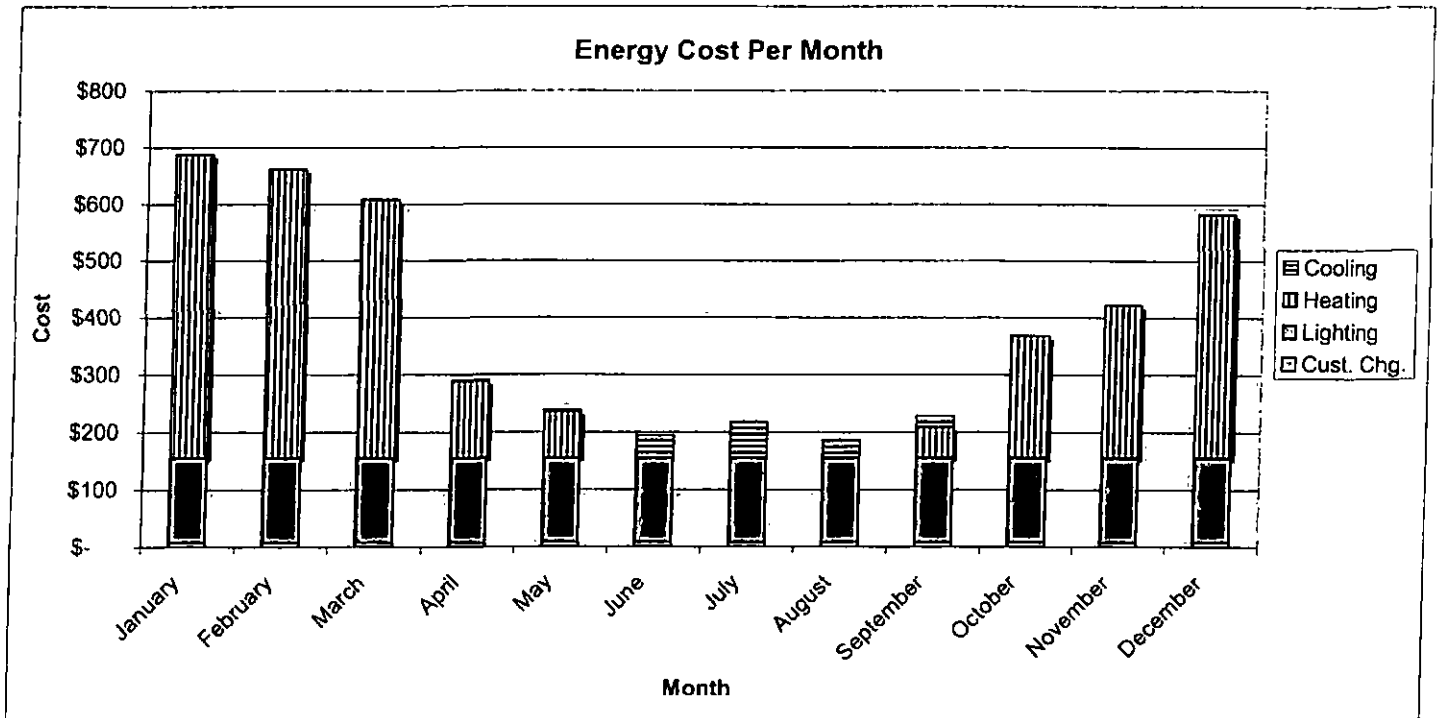
Customer Charge 7.98
 Total Energy Charge 0.12936
 Tax % 0%

Energy
kWh/Year
 Heating 20597
 AC 1200
 Lighting 13632

Month	Demand kW				Energy kWh				Cost			Estimated Bill		
	Heating	Cooling	Lighting	Total	Heating	Cooling	Lighting	Total	Heating	Cooling	Lighting		Cust. Chg.	
January	0	0	0	0	4,119	0	1,136	5,255	\$ 533	\$ -	\$ 147	\$ 8	\$ 688	
February	0	0	0	0	3,913	0	1,136	5,049	\$ 506	\$ -	\$ 147	\$ 8	\$ 661	
March	0	0	0	0	3,501	0	1,136	4,637	\$ 453	\$ -	\$ 147	\$ 8	\$ 608	
April	0	0	0	0	1,030	12	1,136	2,178	\$ 133	\$ 2	\$ 147	\$ 8	\$ 290	
May	0	0	0	0	618	24	1,136	1,778	\$ 80	\$ 3	\$ 147	\$ 8	\$ 238	
June	0	0	0	0	0	300	1,136	1,436	\$ -	\$ 39	\$ 147	\$ 8	\$ 194	
July	0	0	0	0	0	480	1,136	1,616	\$ -	\$ 62	\$ 147	\$ 8	\$ 217	
August	0	0	0	0	0	240	1,136	1,376	\$ -	\$ 31	\$ 147	\$ 8	\$ 186	
September	0	0	0	0	412	144	1,136	1,692	\$ 53	\$ 19	\$ 147	\$ 8	\$ 227	
October	0	0	0	0	1,648	0	1,136	2,784	\$ 213	\$ -	\$ 147	\$ 8	\$ 368	
November	0	0	0	0	2,060	0	1,136	3,196	\$ 266	\$ -	\$ 147	\$ 8	\$ 421	
December	0	0	0	0	3,296	0	1,136	4,432	\$ 426	\$ -	\$ 147	\$ 8	\$ 581	
Totals/Year =====>				0					35,429	\$ 2,664	\$ 155	\$ 1,763	96	\$ 4,679

03/15/12 03:38 PM

Average \$ 390



**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

JOEY MALUCHNIK

v.

PENNSYLVANIA ELECTRIC COMPANY

:
:
:
:
:
:
:

Docket No. C-2011-2245451

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing document upon the parties, listed below, in accordance with the requirements of § 1.54 (relating to service by a party).

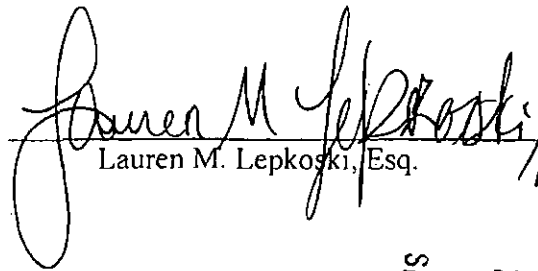
Via Electronic and UPS Overnight Delivery

Joey Maluchnik
185 Sportsmans Road
Boswell, PA 15530

Joey Maluchnik
P.O. Box 413
Jennerstown, PA 15547

jmaluchnik@wiu.k12.pa.us

Dated this 16th day of March, 2012.


Lauren M. Lepkoski, Esq. *KA*

RECEIVED
2012 MAR 16 PM 3:14
SECRETARY'S BUREAU

Buchanan Ingersoll & Rooney PC
Attorneys & Government Relations Professionals

2012 APR 27 AM 9:45

P.A.U.C.
SECRETARY'S BUREAU

Lauren M. Lepkoski
717.237.4841
lauren.lepkoski@bipc.com

17 North Second Street, 15th Floor
Harrisburg, PA 17101-1503
T 717 237 4800
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www.buchananingersoll.com

March 16, 2012

VIA HAND DELIVERY

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

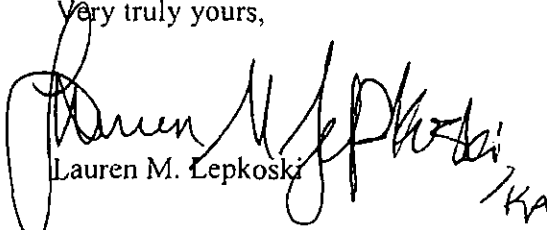
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2012 MAR 16 PM 3:14
PA P.U.C.
SECRETARY'S BUREAU

Re: Joey Maluchnik v. Pennsylvania Electric Company
Docket No. C-2011-2245451

Dear Secretary Chiavetta:

On behalf of Pennsylvania Electric Company ("Penelec"), I have enclosed for filing the original and three (3) copies of correspondence to Administrative Law Judge Katrina Dunderdale and the March 16, 2012 Report Prepared by Penelec in accordance with the Third Interim Order dated March 6, 2012 in the above-captioned matter. Copies have been served on all parties as indicated in the attached certificate of service.

Very truly yours,


Lauren M. Lepkoski

LML/kra

Enclosure

cc: The Honorable Katrina Dunderdale (via E-Mail and UPS Overnight Delivery)
Certificate of Service



Buchanan Ingersoll & Rooney PC
Attorneys & Government Relations Professionals

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March 16, 2012

VIA EMAIL AND UPS OVERNIGHT DELIVERY

The Honorable Katrina L. Dunderdale
Office of Administrative Law Judge
Pennsylvania Public Utility Commission
Piatt Place, Suite 220
301 5th Avenue
Pittsburgh, Pennsylvania 15222

RECEIVED
2012 MAR 16 PM 3:14
PA FILE
SECRETARY'S BUREAU

Re: Joey Maluchnik v. Pennsylvania Electric Company
Docket No. C-2011-2245451

Dear Judge Dunderdale:

Please find enclosed the March 16, 2012 Report prepared by Pennsylvania Electric Company ("Penelec") in accordance with the Third Interim Order dated March 5, 2012. The Company is not submitting an Affidavit or Verification with the March 16, 2012 Report. However, the Company will be authenticating the Report at the hearing scheduled for March 29, 2012 before Your Honor.

Copies have been served on all parties as indicated in the attached certificate of service.

Very truly yours,


Lauren M. Lepkoski

LML/kra
Enclosure

cc: Certificate of Service

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

JOEY MALUCHNIK

v.

PENNSYLVANIA ELECTRIC COMPANY

:
:
:
:
:

Docket No. C-2011-2245451

GROUND CHECK, FOREIGN LOAD CHECK, AND
EQUIPMENT AND APPLIANCE ANALYSIS
PERFORMED AT
185 SPORTSMAN ROAD, BOSWELL, PENNSYLVANIA 15530
BY PENNSYLVANIA ELECTRIC COMPANY
ON MARCH 13, 2012

BUCHANAN INGERSOLL & ROONEY, P.C.

Lauren M. Lepkoski, Esquire
Alan M. Seltzer, Esquire
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Attorneys for Pennsylvania Electric Company

Dated: March 16, 2012

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VII. **Conclusion**.....8

I. **Introduction**

On May 23, 2011, Joey Maluchnik ("Complainant") filed a Formal complaint against Pennsylvania Electric Company ("Penelec") alleging high bills at 185 Sportmans Road, Boswell, Pennsylvania 15531 at Account No. 100064194499 ("Service Location").

On June 28, 2011, Penelec filed an Answer and New Matter to the Formal Complaint denying the material allegations therein.

On November 9, 2011, Administrative Law Judge Katrina L. Dunderdale ("ALJ") issued a telephonic hearing notice.

On November 10, 2011, the ALJ issued a Prehearing Order.

A telephonic hearing was held on December 5, 2011.

On January 6, 2012, the ALJ issued an Interim Order closing the hearing record, and on February 7, 2012, issued a second Interim Order ("Second Interim Order") to reopen the hearing record to admit late file reports and to provide an opportunity to allow either the Complainant or the Company to object. Among other things, the Second Interim Order: (i) directed Penelec to complete a grounds/foreign load check and an appliance/equipment consumption analysis at the Service consistent with the business standards and protocols available through EPRI; (ii) directed Penelec to file with the Commission, ALJ and the Complainant, documentation evidencing the results of its grounds/foreign load check and the appliance/equipment consumption analysis (collectively, "Reports"); and (iii) setting a further evidentiary for March 29, 20102 at 10:00 a.m. to admit the Reports into the record, admit any additional testimony into the record relating to the Reports, and to give the parties an opportunity to argue the validity of the results of the Reports when deciding the issues in this proceeding.

On February 29, 2012, Penelec filed a Petition for Clarification ("Petition"), requesting additional direction or clarification about the specific information and tests the ALJ desired the Company to conduct *and include* in the Reports. Penelec also sought additional time in which to complete the necessary work and issue the Reports.

In an order dated March 5, 2012, the ALJ granted the Petition and directed Penelec to conduct the following tests:

1. A grounds check to be completed at the Service Location using a Neutral to Earth Voltage test with all the equipment running and again with none of the equipment running;
2. A foreign load check to be completed at the Service Location by turning off all breakers and verifying that the meter does not continue to register usage; and
3. An equipment and appliance analysis to be completed at the Service Location that should include, at a minimum, the following actions:

- a. A visual inspection of the thermostats to verify if the thermostat is stuck. The report shall list the thermostats inspected or checked and the results of the inspection.

- b. A visual inspection of the entire property, including out-buildings and electrical equipment on the property but not directly attached to the residential structure, to check for wires exiting the residence, heat tape, a well pump, lighting which is on at the wrong time of day, insulation quality, infiltration approximation and appliances. The report shall list all the items checked and/or inspected.

- c. An itemized and tabulated report listing the approximate consumption of appliances based on an appliance consumption data standard accepted as a norm within the electrical industry. The report shall clearly state the data standard utilized, attach a copy of any relevant portions of such standard as appropriate, the electrical nameplate of all appliances found

within the residence, and state an appropriate consumption value for updated appliances. The report shall also tabulate the kilowatt, kilowatt hour, the standard minimum and maximum range of consumption (if available), and the approximate monthly cost for each appliance found within the residence.

The ALJ directed Penelec to file the Reports on or before 4:00 p.m. Friday March 16, 2012.

On March 13, 2012, at 4:00 p.m. Dennis Platt ("Platt"), Penelec's Manager of External Affairs and Edward Brandau III ("Brandau"), Penelec's Manager of Customer Support, visited the Service Location to conduct the above ordered tests.

In accordance with the March 5, 2012 order, Penelec submits the following written report.¹

II. General Description of the Service Location

The Service Location is a 1,300 square foot residence located in the woods at the base of a mountain. The residence appears to be a cottage that was constructed in stages, with some of the original outside wall and flood lights still being visible. The Complainant stated to Brandau that he moved the wood burner from a central location of the residence to a room at one end of the residence. The wood burner at the residence is a small wood burner. The Complainant advised that several fans are used to circulate heat throughout the structure. The wood burner's heat travels through a door and down a hall to heat the majority of the house. The wood burner is isolated from the house since the burner room was formerly outside. A small wood stack is located at the property. The residence also has a detached garage and an outdoor hot tub. See Penelec Exhibits A1, A2, and A3 (Photographs of the Service Location).

¹ All Exhibits attached to and referenced in this document shall be deemed to be an integral part hereof.

III. Grounds Check

A "grounds check" is conducted for customers when some type of "shocking" (i.e., voltage sensation between two objects) hazard has been observed on the customer's property. A "grounds check" is completed at a residence by implementing a Neutral to Earth Voltage Test. Specifically, a Neutral to Earth Voltage Test involves:

Establish a remote (isolated) ground by installing a ground probe a sufficient depth into undisturbed soil, 20 feet (or more) from the problem location. Try to avoid placement near any other underground conductors, such as water pipes. Investigator should measure and record the AC voltages between the remote ground and 1) the service entrance grounding conductor and 2) conductive objects in the area where the point of contact was first reported using a sharp probe. This test should be done several times at 15 minute or more intervals with all of the customer's equipment running. All other conditions under which the problem was evident should be simulated as closely as possible (i.e., motor and pumps running).

See Exhibit B (First Energy's Neutral to Earth Voltage Procedure).

Brandau and Platt completed a grounds check at the Service Location using a Neutral to Earth Voltage Test with the appliances on and again with the breaker off. Specifically, they measured the stray voltage from the Complainant's main service grounding conductor to a driven ground rod 20 feet away in accordance with the Company's procedure specified in Exhibit B. Voltage was measured at 0.438 volts at full load and 0.526 volts at no load, breaker off, but did vary to lower readings before the heat was turned off. Under Penelec's engineering practices, Neutral to Earth Voltage of 4 volts or less at a residence is acceptable. *See Exhibit B.*

IV. Foreign Load Check

A "foreign load check" is completed at a residence or other electric consuming building to determine if there is shared metering. "Shared metering" occurs if a customer's electric meter

is registering foreign load.² Shared metering situations occur most often in apartment and other multiple-dwelling applications. A "foreign load check" is completed at a residence by turning off the breakers and verifying the meter comes to a complete stop.

During this test, Brandau and Platt showed the Complainant that the meter at the Service Location was spinning normally when the Complainant arrived at the Service Location. When Brandau and Platt turned the lights and the heat on at the Service Location, they again showed the Complainant the meter speed. When Brandau and Platt turned the main breaker at the Service Location off, the Complainant verified the meter came to a stop, and further acknowledged no foreign load registered on the electric meter.

V. **Equipment and Appliance Test**

Brandau conducted the Equipment and Appliance Test at the Service Location (*See* Exhibit C) by utilizing an Electric Appliance Operating Cost List published by Duke Energy to obtain the monthly electric energy (measured in kilowatt hours of "kWh") estimate and monthly cost estimate of the appliances and other electric consuming equipment located at the Service Location. *See* Exhibit D. Brandau used Allegheny Energy Cost of Operating's Appliances schedule to obtain the monthly kWh estimate and monthly cost estimate of the Complainant's air conditioning unit located at the Service Location. *See* Exhibit E.

All appliances and other electric consuming devices Brandau located at the Service Location are specified on Exhibit C. Exhibit C identifies the approximate kWh and hours of use of all appliances, and develops a total cost and percentage for each appliance/device. Brandau accepted the Complainant's representation that certain appliances/devices were not being used and reflected such items on Exhibit C with zero hours usage. Among the items allegedly not

² Foreign load is usage for electricity provided to another person for use in a common area shared by others. Examples of foreign load may include hallway lighting, shared furnace fans, shared laundry room appliances, shared hot water heater, and well pump.

being used were a hot tub, two space heaters in the garage, a garage floodlight, and two small wine coolers.

Brandau and Platt could not verify what the breakers fed since the building wire is hidden behind walls. Markings were irregular, modified, and inconsistent on the breaker box, so Brandau and Platt could not and therefore did not rely on the panel. Instead, they attempted visual analyses, when and if able to do so.

The 200 Amp panel at the Service Location was completely full, and all single position breakers had been replaced with half-height double breakers, thereby allowing many more breaker circuits than the panel was originally designed to serve. In addition, there was a small sub-panel with two 15 Amp breakers connected together as double pole, possibly as the sub-panel's main breaker, as well as two single 15 Amp breakers. The main panel also had two breakers connected together as double pole that may feed this panel. As a result, the sub-panel fed something that Brandau and Platt could not verify. The Complainant believes the sub-panel was feeding the two rooms in one of his additions.

During the visual inspection, Brandau and Platt did not find that any of the Complainant's thermostats were stuck. No heaters seemed to be on at the time of the visual inspection, which may be due to the exceptionally warm and sunny day. After the foreign load test when the thermostats were turned back down, the meter slowed to a crawl and was witnessed by the Complainant.

Platt conducted the heat loss measurements and assumptions utilizing standard Air Conditioning Contractors of America (ACCA) Manual J guidelines. See Exhibit F. This calculation is done in a Heat Loss spreadsheet that calculates total annual kWh for heating purposes. The residence has four recessed ceiling lights in the rear foyer that are not sealed.

These allow the heat to escape to the roof line since there is minimal insulation in the ceiling. This area is where the Complainant states his snow melts from the roof the most. The residence also has a ceiling vent fan to the roof that appears to vent to the outside. The Complainant stated that this fan is used to circulate heat throughout the structure. However, Brandau and Platt could not verify where the fan blows the heat. Platt could not see the entire ceiling area since most of it is a shallow cathedral ceiling. Platt also could not access about 3/4 of the crawl space since it was behind two dead bolted doors. The crawl space had some insulation falling out of the joists.

The results from the Audit and Heat Loss spreadsheets were then placed into the Heat Bill spreadsheet by Brandau to obtain a composite monthly billing analysis. The Heat Bill spreadsheet uses standard formulas to spread the heating and air conditioning kWh across each month, and graph the resulting monthly cost for heating, air conditioning, and lighting in a stacked bar chart format. *See Exhibit G.*

VI. Additional Test

In addition to the requested tests, Brandau and Platt utilized a ground resistance meter to verify there is no detectable current on the residence's service grounding electrode (ground rod). Brandau and Platt also measured the residence's grounding electrode resistance at 600 or 700 Ohms, depending upon movement of the grounding conductor. The National Electric Code (NEC) Article 250-84 indicates additional grounding measures if this resistance is over 25. As a result, Brandau recommended the Complainant dig up the connection to the ground rod and verify it is connected properly. The grounding electrode is not relevant to the high bill complaint, but was performed since the Company was performing a Neutral to Earth test at the same wire. The Complainant was informed that this higher reading may impair protection from lightning and that any revisions to the grounding in these areas are the responsibility of the

Complainant. Penelec facilities stop at the weatherhead above the meter; meaning grounding electrode and grounding electrode conductor work are owned by the Complainant.

VII. Conclusion

The Heat Bill Spreadsheet estimates that the Complainant's electric bills at the Service Location should total \$4,679.00 for a 12-month period, which averages about \$390.00/month. The Complainant's total cost of electricity at the Service Location for 2011, based on electric bills provided by the Company, was \$3,138.07, which averages to \$261.50 a month..

According to Heat Bill Spreadsheet, the Complainant's electric bills at the Service Location are below the potential electric consumption at the Service Location based on those appliances and other electric consuming devices the Complainant claims to be using. If any of the appliances and electric consuming devices (such as the hot tub, two space heaters in the garage, a garage floodlight, and two small wine coolers) were actually operating at any time relevant to the Formal Complaint, the "potential" kWh consumption at the Service Location would have been higher. In addition, any utilization of appliances at hours higher than indicated will result in additional consumption.

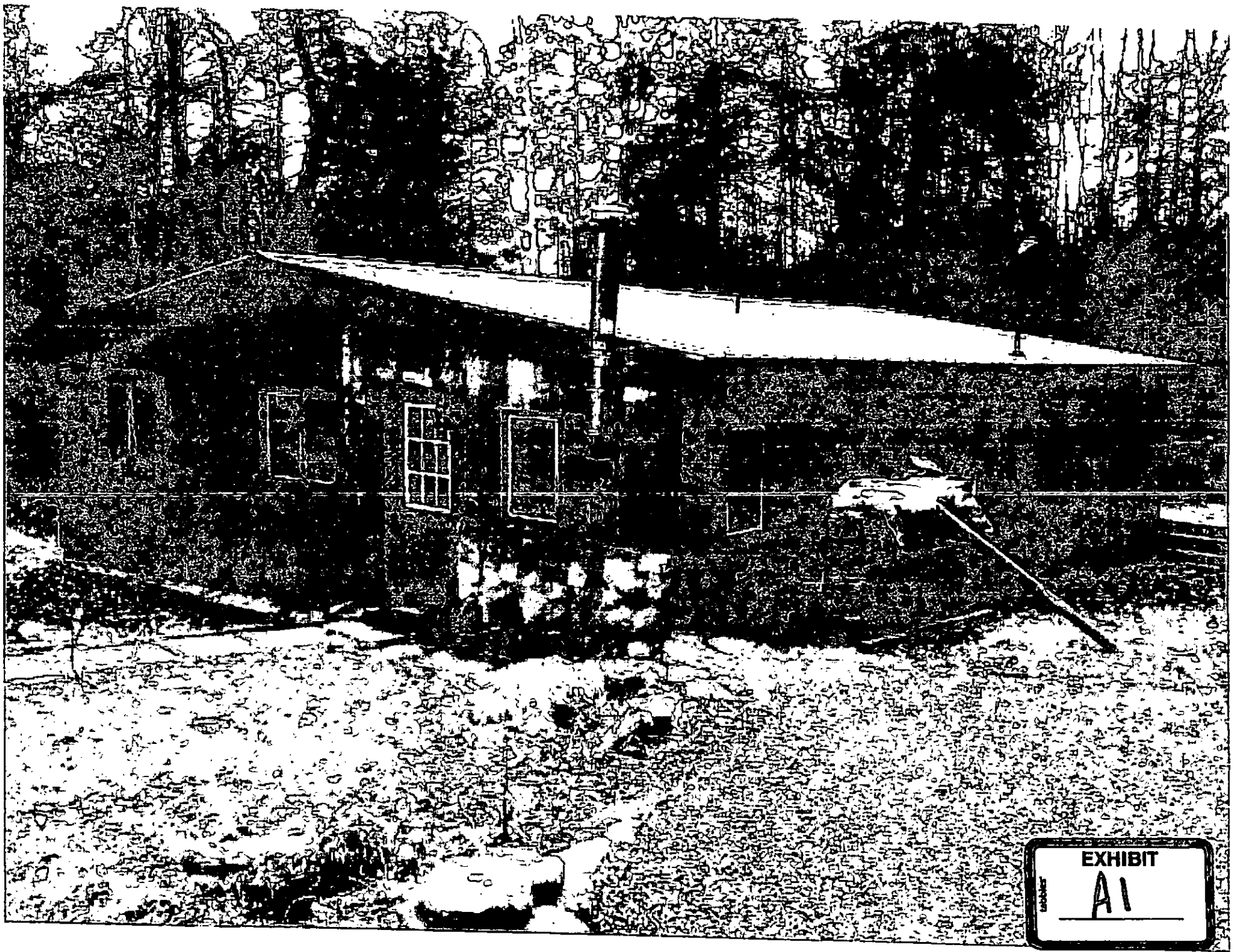


EXHIBIT
A1

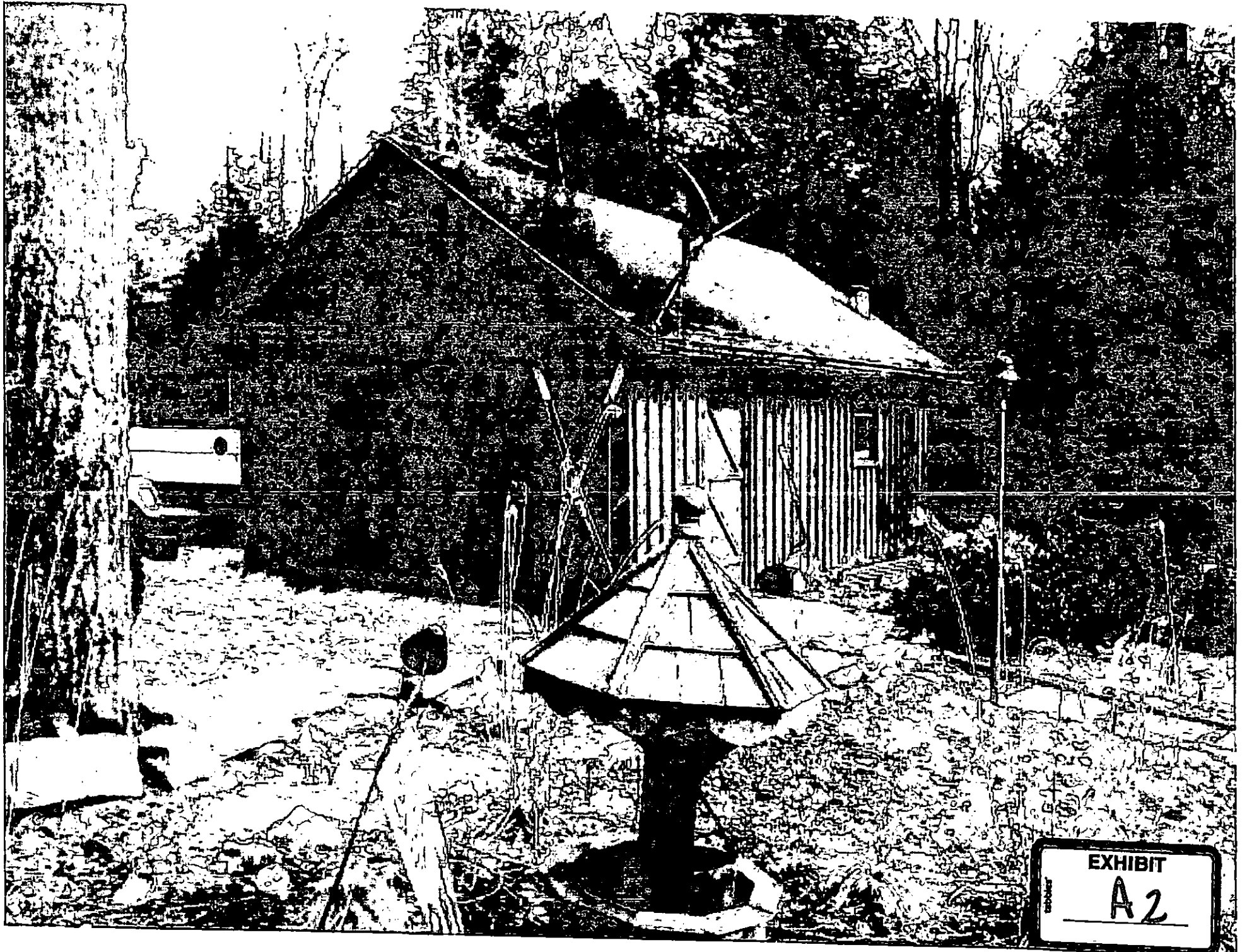
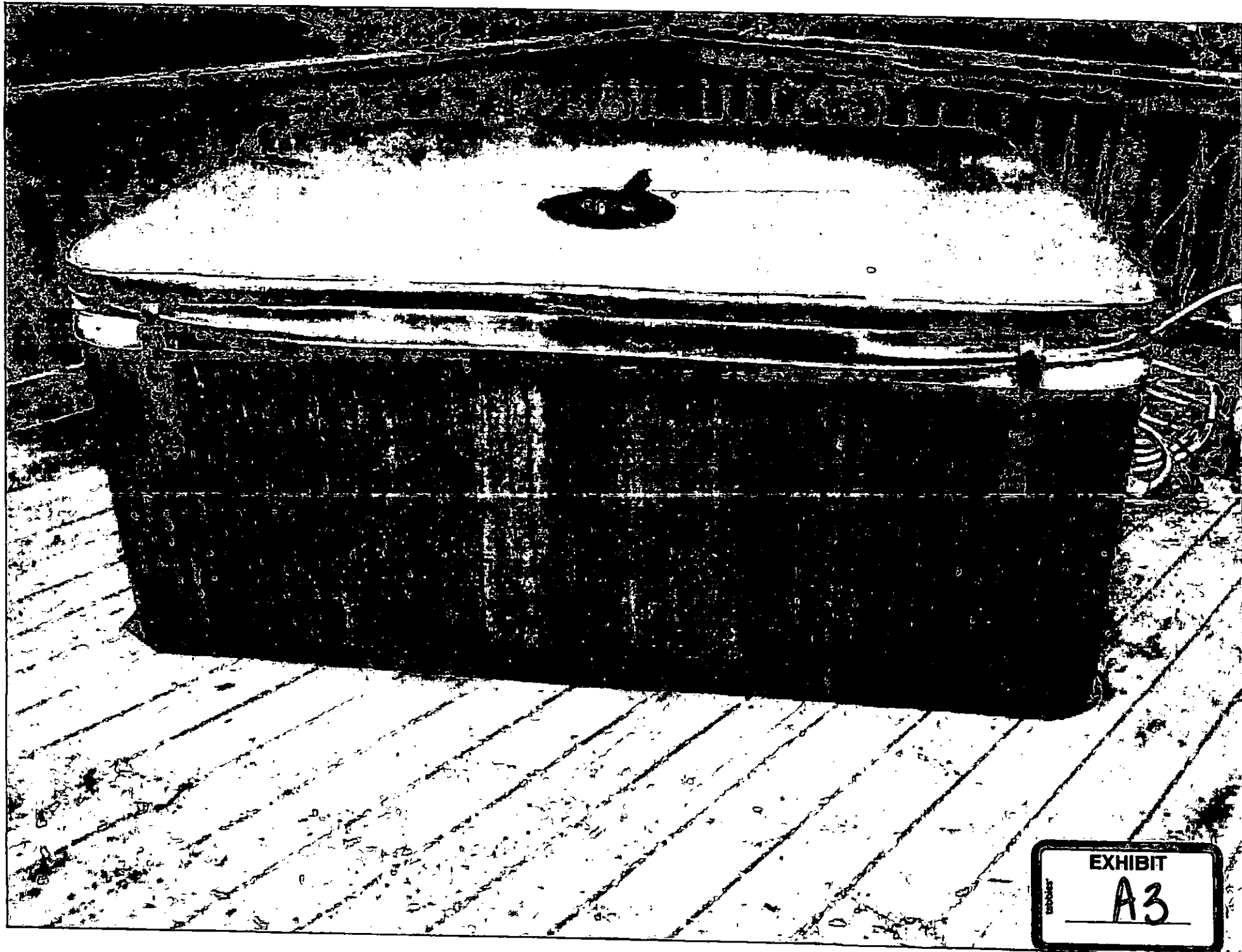


EXHIBIT
A2



EXHIBIT

A3

DISTRIBUTION ENGINEERING PRACTICES

FE NEUTRAL-TO-EARTH VOLTAGE (NEV)
COMPLAINT PROCEDURE

EP# 01-025
PAGE 4 of 34
DATE 12/11/06

4.1 Verification of NEV at the Reported Point Of Contact

Establish a remote (isolated) ground by installing a ground probe a sufficient depth into undisturbed soil, 20 feet (or more) from the problem location. Try to avoid placement near any other underground conductors, such as water pipes. Investigator should measure and record the AC voltages between the remote ground and 1) the service entrance grounding conductor and 2) conductive objects in the area where the point of contact was first reported using a sharp probe. (See *Appendix D* for a diagram of testing the meter at the house or at a central metering pole.) This test should be done several times at 15 minute or more intervals with all of the customer's equipment running. All other conditions under which the problem was evident should be simulated as closely as possible (i.e., motor and pumps running). If unable to recreate the same circumstances, document in the investigator's notes.

If the measured neutral-to-earth voltages do not exceed the FE established threshold voltage limits (refer to sections 2.2 for humans and 2.3 for livestock), no further testing is required. The customer should be advised that NEV is a natural phenomenon and the measured neutral-to-earth voltages were at or below the acceptable level. If neutral-to-earth voltages greater than the established threshold voltage are measured, then proceed to section 4.2.

01-025.jah



DISTRIBUTION ENGINEERING PRACTICES

FE NEUTRAL-TO-EARTH VOLTAGE (NEV)
COMPLAINT PROCEDURE

EP# 01-025
PAGE 2 of 34
DATE 12/11/06

- 2.2 A number of studies have been undertaken to determine when neutral-to-earth voltages become *objectionable to humans*. The results of these studies vary and are inconclusive. Furthermore, the states where FirstEnergy (FE) operates have not promulgated standards, which specify an acceptable NEV level. In consideration of the above, FE will use a NEV level of 4.0 volts at the point of contact at a residence, as the level at which a case should be further investigated and appropriate mitigative actions taken.



Potential Use without HVAC and broken or not used equipment per customer.

Estimated Energy Use

Joey Maluchnik
185 Sportsman Rd, Boswell, PA

03/15/12 03:37 PM

Item	Volts	Amps	Phases	Watts	Quan.	Connected		Diversified		Hours /Day	Days/ Week	kWh/ Month	\$/Month	% of Bill	
						Total kW	Diversity	kW Demand							
Outside															
Driveway post lite - CFL	0	0.0	1	27	1	0.027	90%	0.024		12	7	9	\$1.14	0.7%	
Motion - CFL double	0	0.0	1	27	2	0.054	90%	0.049		2	7	3	\$0.38	0.2%	
CFL	0	0.0	1	13	1	0.013	90%	0.012		2	5	1	\$0.07	0.0%	
Incandescents	0	0.0	1	60	3	0.180	90%	0.162		2	5	7	\$0.90	0.6%	
Spot light - Incandescent	0	0.0	1	75	2	0.150	90%	0.135		2	5	6	\$0.75	0.5%	
Rope lights	0	0.0	1	100	4	0.400	90%	0.360		2	2	6	\$0.80	0.5%	
Hot tub	240	40.0	1	9,600	1	9.600	15%	1.440		0	0	0	\$0.00	0.0%	
Front Room															
Full size fan	0	0.0	1	180	1	0.180	90%	0.162		12	7	59	\$7.57	4.9%	
Dehumidifier	0	0.0	1	400	1	0.400	50%	0.200		24	7	144	\$18.69	12.1%	
Ceiling fan	0	0.0	1	100	1	0.100	90%	0.090		2	7	5	\$0.70	0.5%	
Ceiling fan lights	0	0.0	1	13	4	0.052	90%	0.047		2	7	3	\$0.36	0.2%	
Water heater	0	0.0	1	4,500	1	4.500	5%	0.225		24	7	163	\$21.03	13.6%	
Well pump	0	0.0	1	500	1	0.500	90%	0.450		1	7	14	\$1.75	1.1%	
Baseboard by well - 30"	0	0.0	1	250	2.5	0.625	80%	0.500		0	0	0	\$0.00	0.0%	
Candellabra lights	0	0.0	1	40	3	0.120	90%	0.108		2	5	5	\$0.60	0.4%	
Direct TV tuner	0	0.0	1	35	1	0.035	90%	0.032		1	7	1	\$0.12	0.1%	
37" Vizio LCD TV	0	0.0	1	35	1	0.035	90%	0.032		2	5	6	\$0.75	0.5%	
TV standby power	0	0.0	1	150	1	0.150	90%	0.135		2	5	6	\$0.75	0.5%	
Wine cooler - 24"x30"	0	0.0	1	20	1	0.020	100%	0.020		24	7	14	\$1.87	1.2%	
TV standby power	0	0.0	1	200	1	0.200	50%	0.100		24	7	72	\$9.35	6.0%	
Beer cooler - 24"x30"	0	0.0	1	200	1	0.200	30%	0.060		24	7	43	\$5.61	3.6%	
Wine cooler - broken?	0	0.0	1	200	1	0.200	90%	0.180		2	7	11	\$1.40	0.9%	
Spot light - Incandescent	0	0.0	1	100	2	0.200	90%	0.180		2	7	11	\$1.40	0.9%	
Christmas lights	0	0.0	1	7	5	0.035	90%	0.032		2	7	2	\$0.25	0.2%	
Side Room															
Baseboard	0	0.0	1	250	12	3.000	80%	2.400		0	0	0	\$0.00	0.0%	
Candellabra lights	0	0.0	1	40	4	0.160	90%	0.144		1	5	3	\$0.40	0.3%	
All In One printer	0	0.0	1	40	4	0.160	90%	0.144		2	7	9	\$1.12	0.7%	
Recessed lights	0	0.0	1	35	1	0.035	100%	0.035		24	7	25	\$3.27	2.1%	
Closet light	0	0.0	1	60	1	0.060	90%	0.054		0	0	0	\$0.00	0.0%	
1/2 Bath															
Light	0	0.0	1	60	1	0.060	90%	0.054		0.2	7	0	\$0.04	0.0%	
Living Room															
Halogen Lights	0	0.0	1	50	3	0.150	90%	0.135		5	7	20	\$2.63	1.7%	
Candellabra sconces	0	0.0	1	40	3	0.120	90%	0.108		5	7	16	\$2.10	1.4%	
~42" Samsung Plasma	0	0.0	1	350	1	0.350	90%	0.315		5	7	47	\$6.13	4.0%	
TV standby power	0	0.0	1	20	1	0.020	100%	0.020		24	7	14	\$1.87	1.2%	
Direct TV-DVR	0	0.0	1	20	1	0.020	100%	0.020		24	7	14	\$1.87	1.2%	
5 disc CD player/stereo	0	0.0	1	35	1	0.035	90%	0.032		5	7	5	\$0.61	0.4%	
Ceiling vent fan	0	0.0	1	200	1	0.200	90%	0.180		5	7	27	\$3.50	2.3%	
Lights	0	0.0	1	200	1	0.200	90%	0.180		5	7	27	\$3.50	2.3%	
Baseboard	0	0.0	1	60	1	0.060	90%	0.054		12	7	20	\$2.52	1.6%	
Rear Foyer	0	0.0	1	60	2	0.120	90%	0.108		5	7	16	\$2.10	1.4%	
Baseboard	0	0.0	1	250	12	3.000	80%	2.400		0	0	0	\$0.00	0.0%	
Baseboard	0	0.0	1	250	12	3.000	80%	2.400		0	0	0	\$0.00	0.0%	
Recessed lights	0	0.0	1	40	4	0.160	90%	0.144		2	7	9	\$1.12	0.7%	
Dining Room															
Candellabra ceiling light	0	0.0	1	40	6	0.240	90%	0.216		2	7	13	\$1.68	1.1%	
Baseboard	0	0.0	1	250	6	1.500	80%	1.200		0	0	0	\$0.00	0.0%	
Kitchen															
Triple crockpot	0	0.0	1	150	1	0.150	80%	0.120		0	0	0	\$0.00	0.0%	
Hot plate	0	0.0	1	1,250	1	1.250	80%	1.000		0	0	0	\$0.00	0.0%	
Refrigerator - 18 cf - new	0	0.0	1	300	1	0.300	30%	0.090		24	7	65	\$8.41	5.4%	
Fluorescent light - 30"	0	0.0	1	24	2	0.048	90%	0.043		2	7	3	\$0.34	0.2%	
Microwave - small	0	0.0	1	800	1	0.800	90%	0.720		0.3	7	7	\$0.84	0.5%	
Fluorescent light - 14"	0	0.0	1	10	1	0.010	90%	0.009		2	7	1	\$0.07	0.0%	



Electric Appliance Operating Cost List

Electric Appliance Operating Cost List

Here is an extensive list of electric appliances and an estimate of how much electricity each may use in an average home with average usage patterns. Note the assumptions that were made for each appliance, especially how much electricity the appliance draws (watts) and how often the appliance might be used in a typical household. These two factors along with the age of the appliance are the most important variables that determine operating costs.

The assumptions listed for each appliance determine the "Monthly Cost Estimate." The assumptions examples. These references allow you to compare your appliance and your personal usage patterns with the estimate shown below. Your exact usage will likely vary from these examples, but a list like this is still very helpful to learn which appliances affect your electric bill the most.

Cost per kilowatt hour

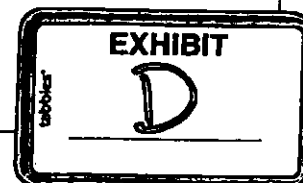
One of the most important factors in determining the cost to operate your appliances is your cost of electricity. This is usually stated as a "cost per kilowatt hour" (kWh). Your personal cost per kWh can be calculated by dividing your most recent electric bill's dollar amount by the number of kWhs on that bill. For example, a monthly bill of \$90.00 that used 1100 kWhs would have an average cost per kWh of $\$90.00 \div 1100$ or about \$.082 (8.2 cents) per kWh.

If your personal cost per kWh is significantly different from this, you can still use this table to estimate your appliance costs. Multiply the "Monthly kWh Estimate" shown for each appliance by your personal cost per kWh to determine a more accurate estimate for the appliances in your home.

The estimated costs below have been calculated with a cost of: \$.082 per kWh

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Air compressor	1000 watts, 3 uses per week, 1 HP, 2 hours per use	8.5	\$0.70
Air purifier, portable for one room	100 watts, 24 hours per day, fan and filter type (wattage varies widely)	72.0	\$5.90
Air purifier, portable for one room	40 watts, 24 hours per day, ultraviolet light(s) always on	28.8	\$2.36
Air purifier, UV in furnace	70 watts, 24 hours per day, ultraviolet light(s) always on	50.4	\$4.13
Appliance power adaptor	6 watts, 24 hours per day, plug-in transformer converting AC power to DC (wattage varies widely)	4.3	\$0.35
Aquarium air pump	5 watts, 24 hours per day, always on	3.6	\$0.30
Automobile battery charger	235 watts, 1 use per week, 2 hours per use	2.0	\$0.17
Automobile engine heater	1000 watts, 12 hours per day, winter months, coolant flow heater	360.0	\$29.52
Automobile engine heater	300 watts, 12 hours per day, winter months, block heater	108.0	\$8.86

Please read notes on the first page and the disclaimer on the last page.



Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Battery recharger for cordless appliance	6 watts, 24 hours per day, always on (wattage varies widely)	4.3	\$0.35
Blanket, electric	150 watts, 8 hours per day, 50% cycle time	18.0	\$1.48
Blender	330 watts, 2 uses per week, 3 minutes per use	0.1	\$0.01
Bread maker	650 watts, 1 use per week, 2 hours per use, cycles off & on	2.8	\$0.23
Broiler	1350 watts, 1 use per week, 1 hour per use, cycles off & on	2.9	\$0.24
Bug killer light	40 watts, 2 hours per day, used each evening	2.4	\$0.20
Can opener	220 watts, 20 uses per week, 30 seconds each	0.2	\$0.01
Carving knife	100 watts, 2 uses per week, 5 minutes per use	0.1	\$0.01
Christmas/holiday light strands	600 watts, 5 hours per day, older bulbs, 6 watts@, per strand of 100	90.0	\$7.38
Christmas/holiday light strands	40 watts, 5 hours per day, typical mini lights, .4 watts@, per strand of 100	6.0	\$0.49
Christmas/holiday light strands	8 watts, 5 hours per day, New LED lights, .08 watts@, per strand of 100	1.2	\$0.10
Clocks	2 watts, 24 hours per day, plug in, not battery	1.4	\$0.12
Clock radio	10 watts, 6 hours per day, older model with radio on	1.8	\$0.15
Coffee maker	350 watts, 1 hour per day, brew & keep warm	10.5	\$0.86
Coffee maker	1500 watts, 10 minutes per day, brew & turn off	7.5	\$0.62
Coffee percolator	660 watts, 15 minutes per day, percolate and then turn off	5.0	\$0.41
Compact disc player	50 watts, 4 hours per day	6.0	\$0.49
Computer, desktop	65 watts, 2 hours per day, actual wattage varies with different work loads	3.9	\$0.32
Computer, desktop in sleep mode	15 watts, 24 hours per day, wattage varies with different units	10.8	\$0.89
Computer, laptop	15 watts, 2 hours per day, wattage varies with different work loads	0.9	\$0.07
Computer monitor, 15" CRT	35 watts, 2 hours per day, wattage varies with different units	2.1	\$0.17

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Computer monitor, 17" CRT	80 watts, 2 hours per day, wattage varies with different units	4.8	\$0.39
Computer monitor, 17" LCD	35 watts, 2 hours per day, wattage varies with different units	2.1	\$0.17
Computer system left on	150 watts, 24 hours per day, PC, monitor, printer all left on with no sleep mode	108.0	\$8.86
Convection oven	1500 watts, 2 uses per week, bake 60 minutes per use	6.5	\$0.53
Crock cooker	150 watts, 1 use per week, on high power, cycling 4 hours	1.3	\$0.11
Crock cooker	70 watts, 1 use per week, on low power, cycling 8 hours	1.2	\$0.10
Deep fryer	1400 watts, 1 use per week, 1 hour per use	3.0	\$0.25
Dehumidifier, runs constantly	400 watts, 24 hours per day, In "always-moist" location	288.0	\$23.62
Dehumidifier, cycles 50% of time	400 watts, 24 hours per day, normal application, cycling 50%	144.0	\$11.81
Dishwasher and heater	1200 watts, 4 uses per week, using heater to dry	10.3	\$0.85
Dishwasher	300 watts, 4 uses per week, wash cycle only	4.1	\$0.34
Disposer	400 watts, 2 minutes per day, 4) 30 second uses	0.4	\$0.03
Dryer, clothes	5500 watts, 6 uses per week, average family of 4, 45 minutes per load	83.0	\$6.81
Dryer - clothes, portable	1200 watts, 10 uses per week, one hour cycles	51.6	\$4.23
Electronic air filter - on central HVAC system	40 watts, 24 hours per day, always on, (see furnace fan for additional)	28.8	\$2.36
Evaporative cooler	325 watts, 24 hours per day, always on	234.0	\$19.19
Exercise, treadmill	1500 watts, 5 uses per week, 2 HP treadmill, 30 minutes per use	16.1	\$1.32
Fan, attic fan	400 watts, 12 hours per day, in home ceiling, exhaust to attic	144.0	\$11.81
Fan, furnace fan	500 watts, 24 hours per day, ½ HP, always on	360.0	\$29.52
Fan, ceiling fan	65 watts, 12 hours per day, high efficiency, Energy Star ceiling fan on high speed	23.4	\$1.92

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Fan, ceiling fan	8 watts, 12 hours per day, high efficiency, Energy Star ceiling fan on low speed	2.9	\$0.24
Fan	60 watts, 12 hours per day, portable - 12"	21.6	\$1.77
Fan	180 watts, 12 hours per day, portable - 20"	64.8	\$5.31
Fax machine	10 watts, 24 hours per day, newer, Energy Star model, always on	7.2	\$0.59
Fax machine	43 watts, 24 hours per day, older model, always on	31.0	\$2.54
Floor polisher	400 watts, 1 use per week, 15 minutes per use	0.4	\$0.04
Food processor	400 watts, 1 use per week, 5 minutes per use	0.1	\$0.01
Freezer, new	335 watts, 24 hours per day, medium size	60.3	\$4.94
Freezer, old	450 watts, 24 hours per day, medium size	97.2	\$7.97
Gaming, electronic	50 watts, 1 hours per day, Playstation 2	1.5	\$0.12
Gaming, electronic	74 watts, 1 hours per day, X-box original	2.2	\$0.18
Gaming, electronic	160 watts, 1 hours per day, X-box 360	4.8	\$0.39
Garage door opener, small size, (with light)	250 watts, 2 minutes per day, 1/4 HP, 4 cycles per day	0.3	\$0.02
Garage door opener, medium size, (with light)	500 watts, 2 minutes per day, 1/2 HP, 4 cycles per day	0.5	\$0.04
Grill, outdoor electric	1500 watts, 2 uses per week, 40 minutes per use	8.6	\$0.71
Grill - sandwich	1200 watts, 2 uses per week, 10 minutes per use	1.0	\$0.08
Hair curling iron	100 watts, 15 minutes per day	0.8	\$0.06
Hair dryer	1200 watts, 14 uses per week, 5 minutes per use	6.0	\$0.49
Hair rollers	400 watts; 3 uses per week, 15 minutes per use	1.3	\$0.11
Heater, high heat setting	1500 watts, 3 uses per week, portable heater, cycling 50%, 12 Hrs per use	116.1	\$9.52
Heater, low heat setting	750 watts, 3 uses per week, portable heater, cycling 50%, 12 Hrs per use	58.1	\$4.76

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Heater, constant use in warm space	1000 watts, 24 hours per day, portable heater, cycling 50% in warm living space	360.0	\$29.52
Heater, constant use in cold space	1500 watts, 24 hours per day, portable heater, maximum heat in cold space	1080.0	\$88.56
Heating pad	60 watts, 3 uses per week, 30 minutes per use	0.4	\$0.03
Heating cable, roof overhang	600 watts, 24 hours per day, always on, 6 watts/foot, cost per 100 ft	432.0	\$35.42
Heating mat, sidewalk	5000 watts, 24 hours per day, average 50 watts/sq ft, 100 sq ft, cycles off & on 50%	1800.0	\$147.60
Heating tape, water line	150 watts, 24 hours per day, average 6 watts/foot, 25 ft, cycles off & on 50%	54.0	\$4.43
Heat lamp	250 watts, 24 hours per day, always on, in a cold location	180.0	\$14.76
Hedge clipper	300 watts, 0.25 uses per week, 1 hour per use	0.3	\$0.03
Hot tub heater, electric	5500 watts, 3 uses per week, 2 hours per use, heating only when tub is used	141.9	\$11.64
Hot tub heater, electric	5500 watts, 24 hours per day, heater left on, insulated tub and covered, heat cycles 15%	594.0	\$48.71
Hot tub heater, electric	5500 watts, 24 hours per day, heater left on, poorly insulated tub and/or no cover, heat cycles 50%	1980.0	\$162.36
Hot tub pump	1800 watts, 3 uses per week, jets, 1½ HP, 2 hours per use	46.4	\$3.81
Hot tub pump	300 watts, 24 hours per day, low speed, circulation pump	216.0	\$17.71
Humidifier, tabletop warm mist	300 watts, 24 hours per day, always on	216.0	\$17.71
Humidifier, tabletop cool mist	90 watts, 24 hours per day, always on	64.8	\$5.31
Humidifier, console cool mist	170 watts, 24 hours per day, always on	122.4	\$10.04
Humidifier, on furnace	25 watts, 24 hours per day, fan powered model, always on	18.0	\$1.48

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Ice cream maker	140 watts, 0.25 uses per week, 1 hour per use	0.2	\$0.01
Iron	1100 watts, 4 uses per week, 30 minutes per use	6.6	\$0.54
Jacuzzi (see hot tub)			
Kiln, small	1000 watts, 1 use per week, 8 hours per use	34.4	\$2.82
Kiln, large	10,000 watts, 1 use per week, 8 hours per use, cycling 50% of time	172.0	\$14.10
Lawn edger	600 watts, 1 use per week, 30 minutes per use	1.3	\$0.11
Lawn mower	1200 watts, 1 use per week, 60 minutes per use	5.2	\$0.42
Lawn trimmer	460 watts, 1 use per week, 30 minutes per use	1.0	\$0.08
Lighting, by the hour, compact fluorescent	25 watts, 1 hour per day, equivalent light of a 100 watt incandescent	0.8	\$0.06
Lighting, by the hour, incandescent	100 watts, 1 hour per day, bulb or spot light	3.0	\$0.25
Lighting, indoors, small home	600 watts, 5 hours per day, for average family of four, 8) 75 wt bulbs	90.0	\$7.38
Lighting, indoors, small home, 5 most used lights are CFLs	325 watts, 5 hours per day, 5) 20 wt compact fluorescent lights & 3) 75 wt bulbs	48.8	\$4.00
Lighting, indoors, well lit larger home	1875 watts, 8 hours per day, 25) 75 wt bulbs, many ceiling can lights or home office well lit	450.0	\$36.90
Lighting, shop light	80 watts, 1 hours per day, 2, four foot fluorescent bulbs	2.4	\$0.20
Lighting, outdoors	50 watts, 12 hours per day, small mercury vapor	18.0	\$1.48
Lighting, outdoor, quartz	150 watts, 12 hours per day, quartz light	54.0	\$4.43
Lighting, outdoor pole light with photocell	175 watts, 12 hours per day, mercury vapor security light	63.0	\$5.17
Lighting, outdoor pole light with photocell	100 watts, 12 hours per day, high pressure sodium, security light	36.0	\$2.95
Lighting, outdoor with photocell	100 watts, 12 hours per day, typical incandescent yard light	36.0	\$2.95
Medical, Nebulizer	100 watts, 30 minutes per day, average size	1.5	\$0.12

Please read notes on the first page and the disclaimer on the last page.



Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Medical, Oxygen Concentrator	400 watts, 12 hours per day, average size & output	144.0	\$11.81
Microwave oven	800 watts, 30 minutes per day, average usage	12.0	\$0.98
Mixer, portable	100 watts, 2 uses per week, 5 min per use	0.1	\$0.01
Mixer, standard	350 watts, 2 uses per week, 5 min per use	0.3	\$0.02
Oven, electric	3500 watts, 3 uses per week, single oven, one hour per use, cycling	15.0	\$1.23
Oven, electric, cleaning	3500 watts, 0.25 uses per week, self clean cycle, 3 hrs	5.6	\$0.46
Popcorn popper	500 watts, 2 uses per week, small, 5 minutes per use	0.4	\$0.03
Popcorn popper	1400 watts, 2 uses per week, large, 5 minutes per use	1.0	\$0.08
Tool, grinder	370 watts, 1 use per week, 5 minutes per use	0.1	\$0.01
Tool, electric chain saw	1200 watts, 1 use per week, 30 minutes per use	2.6	\$0.21
Tool, circular saw	1320 watts, 1 use per week, 10 minutes per use	0.9	\$0.08
Tool, cordless tool battery charger	6 watts, 24 hours per day, Always charging	4.3	\$0.35
Tool, drill	360 watts, 1 use per week, 15 minutes per use	0.4	\$0.03
Tool, belt sander	900 watts, 1 use per week, 15 minutes per use	1.0	\$0.08
Tool, pad sander	360 watts, 1 use per week, 15 minutes per use	0.4	\$0.03
Tool, scroll saw	420 watts, 1 use per week, 15 minutes per use	0.5	\$0.04
Tool, soldering gun	600 watts, 1 use per week, 15 minutes per use	0.6	\$0.05
Radio	15 watts, 6 hours per day, small desk radio	2.7	\$0.22
Range/stove top	1600 watts, 5 uses per week, small surface unit, 20 minutes per use	5.7	\$0.47
Range/stove top	2700 watts, 3 uses per week, large surface unit, 20 minutes per use	3.8	\$0.31
Refrigerator, new, medium size	300 watts, 24 hours per day, rough estimate based on 4 in family	71.9	\$5.90

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Refrigerator, over 10 years old, medium size	600 watts, 24 hours per day, rough estimate based on 4 in family	143.9	\$11.80
Septic tank aerator	300 watts, 24 hours per day, always on	216.0	\$17.71
Sewing machine	120 watts, 1 use per week, 60 minutes per use	0.3	\$0.02
Shaver	15 watts, 10 minutes per day, plug in, not battery	0.1	\$0.01
Shoe buffer	175 watts, 2 minutes per day, once each day	0.2	\$0.01
Skillet	1250 watts, 3 uses per week, 30 minutes per use	4.0	\$0.33
Smoke detector	2 watts, 24 hours per day, always on	1.4	\$0.12
Sound equipment	5 watts, 3 hours per day, single audio appliance using plug instead of batteries	0.5	\$0.04
Sound equipment	50 watts, 3 hours per day, single, older audio appliance using 120 AC volts	4.5	\$0.37
Sound equipment	300 watts, 3 hours per day, 4 to 5 components in system	27.0	\$2.21
Sun lamp, single bulb	60 watts, 3 uses per week, 15 minutes per use	0.2	\$0.02
Sun lamp, tanning device	800 watts, 3 uses per week, 15 minutes per use	2.6	\$0.21
Swimming pool filter pump	700 watts, 24 hours per day, ½ horse power	504.0	\$41.33
Swimming pool filter pump	1400 watts, 24 hours per day, 1 horse power	1008.0	\$82.66
Swimming pool filter pump	2100 watts, 24 hours per day, 1.5 horse power	1512.0	\$123.98
Swimming pool sweep pump	900 watts, 15 minutes per day, ¼ horse power	6.8	\$0.55
Telephone, charger & answering machine	6 watts, 24 hours per day, always on	4.3	\$0.35
Television, standard	100 watts, 6 hours per day, CRT tube, small	18.0	\$1.48
Television, standard	150 watts, 6 hours per day, CRT tube, large	27.0	\$2.21
Television, projection	220 watts, 6 hours per day, rear projection, average size and wattage	39.6	\$3.25
Television, LCD	150 watts, 6 hours per day, 32 inch LCD screen average size and wattage	27.0	\$2.21

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Electric Appliance Operating Cost List

Appliance Description	The appliance wattage, size and usage assumptions listed, determine the monthly kWh and cost estimate	Monthly kWh Estimate	Monthly Cost Estimate
Television, plasma	350 watts, 6 hours per day, plasma, average size and wattage	63.0	\$5.17
Television, standby electric use	20 watts, 24 hours per day, power use when TV is off, (usage varies widely)	14.4	\$1.18
Toaster	1100 watts, 10 uses per week, 2 minutes per use	1.6	\$0.13
Toaster - broiler oven	1500 watts, 3 uses per week, 10 minutes per use	3.2	\$0.26
Trash compactor	750 watts, 2 minutes per day, once each day	0.8	\$0.06
Vacuum cleaner	740 watts, 1 use per week, 30 minutes per use	1.6	\$0.13
Vaporizer	30 watts, 1 use per week, mini, 4 hour capacity	0.5	\$0.04
Video, DVD	25 watts, 3 uses per week, 2 hours per use	0.6	\$0.05
Video, VCR	35 watts, 3 uses per week, 2 hours per use	0.9	\$0.07
Waffle iron	1400 watts, 1 use per week, 30 minutes per use	1.5	\$0.12
Washing machine	665 watts, 8 uses per week, average for family of four, 45 min cycles (Does not include hot water usage)	12.0	\$0.98
Water bed heater	400 watts, 24 hours per day, cycling 33% on time	95.9	\$7.86
Water heater, electric, general use	4500 watts, 24 hours per day, cycles on 8%, average for family of four, heater located in warm space	259.2	\$21.25
Water heater (this is additional use if clothes washer uses hot wash)	4500 watts, 8 uses per week, average for family of four, hot wash, cold rinse (40 minutes recovery time)	103.2	\$8.46
Water, well pump	1100 watts, 24 hours per day, ¼ HP, run time totals 15 min/day for family of four	15.8	\$1.30
Water, well pump used for irrigation	1600 watts, 4 hours per day, 1 HP	192.0	\$15.74
Wok	1000 watts, 1 use per week, 20 minutes per use	0.7	\$0.06

Due to the number of factors beyond Duke Energy's control, Duke Energy in no way represents or warrants that your electric costs will correspond with these estimates. Duke Energy disclaims any obligation to update or revise the estimates and expressly disclaims any and all liability for any damages of any nature (including direct, indirect, incidental and consequential) arising in connection with the use of the estimates.

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Fact Sheet



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The Cost of Operating Appliances

How much does it cost to operate all of your electrical appliances?

The answer depends on many factors, including: the number and kinds of appliances you use; the way you use them; how long you use them; the number of people in your household; and, the price you pay for electricity.

There are also seasonal factors. For example, in the summer, you may cook less, use your lighting for shorter periods of time and use air conditioners or fans. In the winter, your heating and cooking costs are probably higher, and your lighting will be used for more hours during the day.

The addition of new appliances—or new family members—can also increase your electricity use.

The appliances that cost the most to operate are the ones that require the greatest amount of electricity to generate heat, such as your furnace, water heater or range, or to cool, such as your air conditioning system. The cost of operating an electrical appliance is calculated using these three factors:

1. The number of watts the appliance uses.
2. The number of hours the appliance is used.
3. The cost you pay for one kilowatt-hour (kWh) of electricity. (A kilowatt-hour is 1,000 watts of electricity used for one hour.)

To calculate the cost of operating an appliance, multiply the wattage of the appliance by the approximate number of hours you operate the appliance (the wattage of an appliance is usually listed on the appliance). Next, divide by 1,000 – this will give you the number of kWhs the appliance uses. Finally, multiply the kWh use by your cost per kWh as shown on your electric bill.

Example: A television set is rated at 300 watts and operated for seven hours a day.

1. Multiply 300 watts by seven hours (300 x 7 = 2,100 watt-hours)
2. Divide by 1,000 (2,100 ÷ 1,000 = 2.1 kWh)
3. Multiply the kilowatt-hours by the price of electricity.
Let's use 7 cents per kWh: (2.1 kWh x 7 cents = 14.7 cents)

The TV set costs approximately 15 cents a day to operate.

Typical Operating Costs of Various Appliances

Average Use	Estimated Typical Wattage	Avg. Op. Time (Hrs./mo.)	Use (\$/mo.)
Air Conditioner (5,000 BTUH room unit)*	900	200	\$9.45
Air Conditioner (12,000 BTUH room unit)*	1,500	200	\$15.75
Aquarium (air pump & heater)	150	720	\$7.56
Attic Fan	350	60	\$1.47
Blanket (electric)	170	240	\$2.86
Ceiling Fan	90	180	\$1.14
Clothes Dryer (24-32 loads)	5,000	24	\$8.40
Clothes Washer (24-32 loads)	550	16	\$0.62
Computer (desktop)	750	120	\$6.30
Computer (laptop)	75	90	\$.48
Dehumidifier (continuous)	350	720	\$17.64
Dishwasher	1,200	20	\$1.68
Freezer*	400	720	\$8.07
Furnace Fan*	450	360	\$5.67
Humidifier	80	200	\$1.12
Lighting (7 rooms @ 60W)*	720	100	\$5.04
CFL Lighting (7 rooms @ 13W)	156	100	\$1.10
Microwave	875	10	\$0.62
Oxygen Concentrator	250	720	\$12.60
Pool Pump*	875	360	\$11.03
Room Heater	1,200	75	\$6.30
Range	12,000	10	\$8.40
Refrigerator*	500	720	\$10.15
Hot Tub (indoors)*	1,500	720	\$11.34
Hot Tub (outdoors)*	1,500	720	\$41.58
Television (conventional 32")	130	120	\$1.10
LCD (42")	216	120	\$1.82
Plasma (42")	286	120	\$2.41
Toaster	1,200	3	\$0.26
Vacuum Cleaner	1,050	5	\$0.37
Water Bed	300	720	\$15.12
Well Pump	1,200	15	\$1.26
Water Heater (30 gal. /1 person)*	3,500	300	\$22.05
Water Heater (40-50 gal. /1 person)*	4,500	300	\$28.35

Calculations are based on a rate of 7 cents per kilowatt-hour. Your actual rate may be different depending on where you live and the company that supplies your electricity.

* These appliances do not run continuously. The monthly costs are based on the percentage of time the appliances are fully operational. These percentages may vary depending on your usage habits.





WATT Watchers Fact Sheet

Use Energy Wisely.



Energy Efficiency Tips to Make Your Home More Comfortable this Winter

Keep the Cold Out

According to the U.S. Department of Energy (DOE), the most common places where air escapes in homes are:

- › Floors, walls, ceilings31 percent
- › Ducts..... 15 percent
- › Fireplace..... 14 percent
- › Plumbing 13 percent
- › Doors 11 percent
- › Windows 10 percent
- › Fans and vents 4 percent
- › Electric outlets 2 percent

Sealing leaks around doors, windows and other openings – such as pipes or ducts – with caulk or weather-stripping could cut as much as 10 percent from an average household's monthly energy bill.

Be a Watt Watcher

The Watt Watchers: Use Energy Wisely Campaign is our commitment to demonstrating the very real and positive impact that energy efficiency initiatives can have on your home. As a part of this program, we're developing a number of new energy conservation initiatives. For more information and helpful links, visit www.alleghenypower.com and click on the "Watt Watchers" logo. These sites include a convenient way to search for ENERGY STAR® energy-efficient appliances, educational material for children and much more.



Use Energy Wisely

- Set your thermostat between 65 and 70 degrees during the winter and lower it to 58 degrees when away from the house for more than a few hours. Bear in mind that warmer temperatures are recommended for homes with ill or elderly persons or infants.
- Turn down thermostats automatically without sacrificing comfort by installing an automatic setback or programmable thermostat.

\$ BE A WATT WATCHER: Cut your annual heating bill by as much as 10 percent per year by turning your thermostat back 10 to 15 percent for eight hours per day.

- Change or clean furnace filters once a month during the heating season. Furnaces consume less energy when they can "breathe" more easily.
- Lower the thermostat on the water heater to 120 degrees to cut water heating bills without sacrificing comfort.

\$ BE A WATT WATCHER: Since water-heating is a typical family's third-largest energy expense – accounting for about 14 percent of the utility bill – turning down the unit's thermostat to 120 degrees can help you save money.

- If radiators are located near cold walls, place a sheet of aluminum foil between the radiator and the wall to reflect heat back into the room.
- Run your washing machine and clothes dryer with a full load.
- Open draperies and blinds on sunny winter days to take advantage of free solar heat. Close draperies at night to insulate against cold air outside.

Heat Loss Factors from Manual J - Air Conditioning Contractors of America (ACCA)

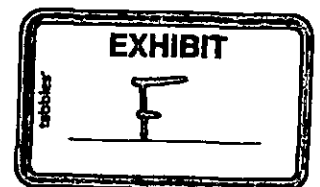
Baseboard Heat

Assumptions: 2x4 Wall Construction R-11 Insulation

Ceiling 2x8 Construction - R-11 Insulation

Floor - Partially accessible Crawl Space R-11 Insulation

	House		
Dimensions	32.5 X 40		
Ceiling Height (avg)	8		
Lineal Feet Exposed Wall	145		
	Factor (watts per sq ft)	Area or Volume	Watts Loss
Gross Wall		1160	
Windows			
Thermopane	8	42.5	340
Single with Storm - Wood	11.1	68.25	757.575
Single without Storm - Wood	23.2	40.25	933.8
Glass Block	15.2	3	45.6
Doors			
Thermopane - Sliding Glass	14.3	42	600.6
Steel Insulated	11	25	275
Net Walls - R-11	2.1	939	1971.9
Floor R-11 Closed Crawl space	0.94	1300	1222
Ceiling R-11 Roof - Ceiling Combination	1.7	1300	2210
Infiltration 1 AC/Hr	0.42	10400	4368
Building Total Heat Loss			12724.475
Annual KWH Consumption	12724 X 7000 X 18.5/80	20,597 KWH	
Avg Cost per Killowatthour		\$.13/kwh	
Annual Heating Operating Cost			\$2,678.00



BILLING ESTIMATE

Customer: **Joey Maluchnik**

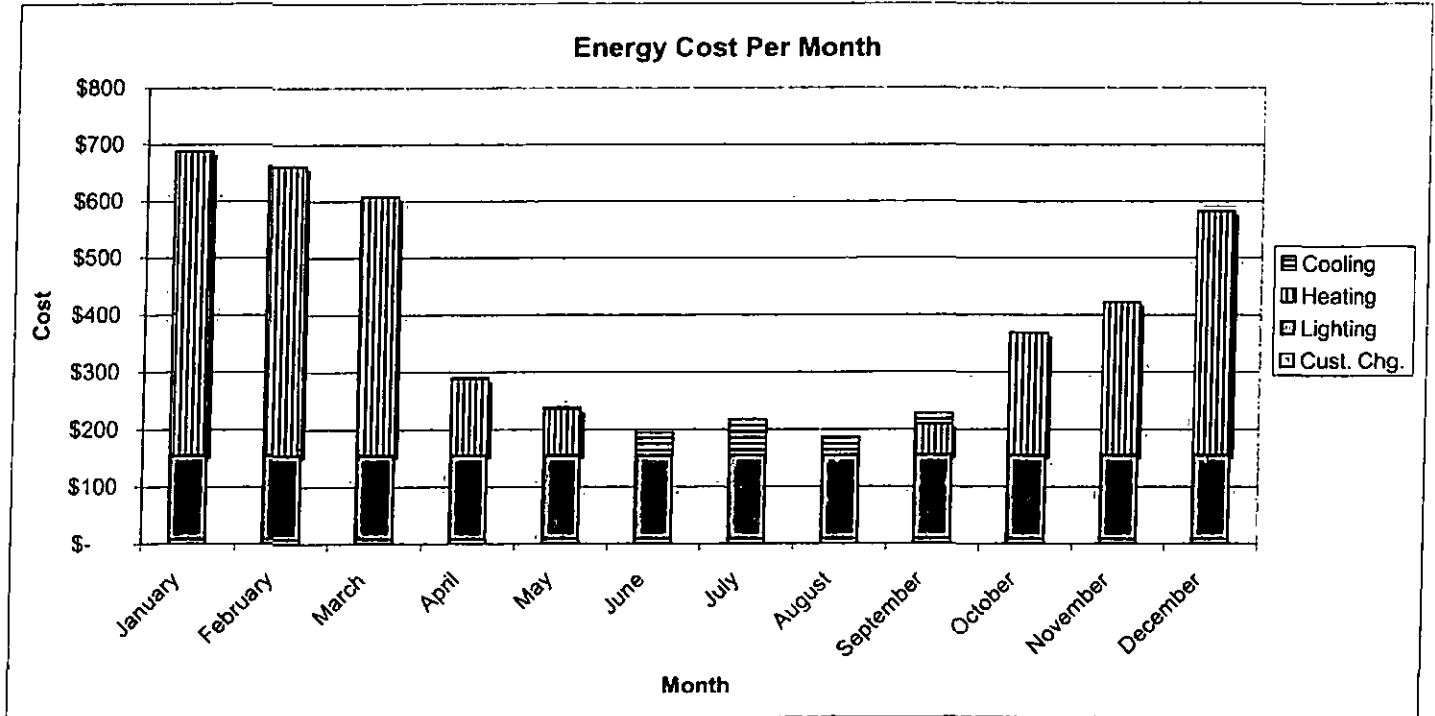
Customer Charge 7.98
 Total Energy Charge 0.12936
 Tax % 0%

Energy
kWh/Year
 Heating 20597
 AC 1200
 Lighting 13632

Month	Demand kW				Energy kWh			Cost			Cust. Chg.	Estimated Bill	
	Heating	Cooling	Lighting	Total	Heating	Cooling	Lighting	Total	Heating	Cooling			Lighting
January	0	0	0	0	4,119	0	1,136	5,255	\$ 533	\$ -	\$ 147	\$ 8	\$ 688
February	0	0	0	0	3,913	0	1,136	5,049	\$ 506	\$ -	\$ 147	\$ 8	\$ 661
March	0	0	0	0	3,501	0	1,136	4,637	\$ 453	\$ -	\$ 147	\$ 8	\$ 608
April	0	0	0	0	1,030	12	1,136	2,178	\$ 133	\$ 2	\$ 147	\$ 8	\$ 290
May	0	0	0	0	618	24	1,136	1,778	\$ 80	\$ 3	\$ 147	\$ 8	\$ 238
June	0	0	0	0	0	300	1,136	1,436	\$ -	\$ 39	\$ 147	\$ 8	\$ 194
July	0	0	0	0	0	480	1,136	1,616	\$ -	\$ 62	\$ 147	\$ 8	\$ 217
August	0	0	0	0	0	240	1,136	1,376	\$ -	\$ 31	\$ 147	\$ 8	\$ 186
September	0	0	0	0	412	144	1,136	1,692	\$ 53	\$ 19	\$ 147	\$ 8	\$ 227
October	0	0	0	0	1,648	0	1,136	2,784	\$ 213	\$ -	\$ 147	\$ 8	\$ 368
November	0	0	0	0	2,060	0	1,136	3,196	\$ 266	\$ -	\$ 147	\$ 8	\$ 421
December	0	0	0	0	3,296	0	1,136	4,432	\$ 426	\$ -	\$ 147	\$ 8	\$ 581
Totals/Year ==>>				0				35,429	\$ 2,664	\$ 155	\$ 1,763	96	\$ 4,679

03/15/12 03:38 PM

Average \$ 390



BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

JOEY MALUCHNIK

v.

PENNSYLVANIA ELECTRIC COMPANY

:
:
:
:
:
:
:

Docket No. C-2011-2245451

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing document upon the parties, listed below, in accordance with the requirements of § 1.54 (relating to service by a party).

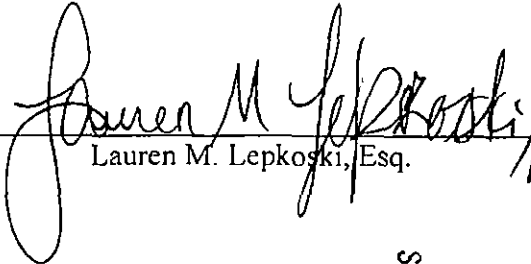
Via Electronic and UPS Overnight Delivery

Joey Maluchnik
185 Sportsmans Road
Boswell, PA 15530

jmaluchnik@wiu.k12.pa.us

Joey Maluchnik
P.O. Box 413
Jennerstown, PA 15547

Dated this 16th day of March, 2012.


Lauren M. Lepkoski, Esq. *KA*

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SECRETARY'S BUREAU

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A FirstEnergy Company

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DETAILED STATEMENT OF ACCOUNT



PA.P.U.C.
SECRETARY'S BUREAU
Customer Name: JOEY L MALUCHNIK

Account Number: 100064194499

Service Address:

185 SPORTSMAN RD
BOSWELL PA 15531

Entry Date	Read Date	Cons Type	Meter Reading	Cons Usage	Nbr Days	Daily Average	Read Type	FE Billing Amt	Supplier Billing Amt	Total Billing Amt	Budget Billing Amt	Due Date	Payment Amt	Adj Amt	Adj Type	Account Balance	
05/22/10	05/21/10	KWH	99,846	1,692	29	58	Est	196.63		196.63	210.00	06/14/10				3,328.33	
Bill reversed on 06/04/2010:																	
06/01/10													-1,000.00			2,328.33	
06/04/10														196.63	REV	2,131.70	
Reversal of 05/20/2010 bill.																	
06/05/10	05/21/10	KWH	99,235	1,081	29	37	Est	131.49		131.49	210.00	06/28/10				2,263.19	
06/21/10	06/21/10	KWH	165	930	31	30	Act	115.38		115.38	231.00	07/12/10				2,378.57	
07/21/10	07/21/10	KWH	1,065	1,900	30	30	Est	112.16		112.16	231.00	08/11/10				2,495.17	
08/09/10													-500.00			1,995.17	
08/21/10	08/19/10	KWH	1,068	3	29		Act	17.97		17.97	231.00	09/13/10			1.44	LPC	2,014.58
09/14/10													-500.00			1,514.58	
09/16/10													-500.00		MA	1,014.58	
09/20/10	09/20/10	KWH	1,071	3	32		Est	18.70		18.70	231.00	10/12/10				1,033.28	
10/19/10	10/19/10	KWH	3,467	2,396	29	83	Act	273.71		273.71	231.00	11/09/10			4.44	LPC	1,311.43
11/11/10													-500.00			811.43	
11/17/10	11/17/10	KWH	5,725	2,258	29	78	Act	258.99		258.99	231.00	12/08/10			1.44	LPC	1,071.86
12/06/10													-393.28			678.58	
12/08/10													-393.28			1,071.86	
Payment Returned - Account Number not Found																	
12/18/10	12/17/10	KWH	8,061	2,336	30	78	Est	267.31		267.31	185.00	01/10/11			5.88	LPC	1,345.05
01/18/11	01/18/11	KWH	13,294	5,233	32	164	Act	634.78		634.78	185.00	02/08/11			9.62	LPC	1,989.45
02/16/11	02/16/11	KWH	17,077	3,783	29	130	Act	496.91		496.91	185.00	03/09/11			13.38	LPC	2,499.74
02/24/11													-500.00			1,999.74	
03/17/11	03/17/11	KWH	20,186	3,109	29	107	Act	428.68		428.68	261.00	04/07/11				2,428.42	
04/18/11	04/18/11	KWH	23,617	3,431	32	107	Est	484.75		484.75	261.00	05/09/11			21.58	LPC	2,934.75
Installment plan deactivated on 05/12/2011. Installment Plan In Arrears																	
Installment plan started on 05/12/2011 for current + 26.00																	
05/13/11													-1,000.00			1,934.75	
05/17/11	05/17/11	KWH	23,963	346	29	12	Act	65.69		65.69	261.00	06/07/11				2,000.44	

Entry Date	Read Date	Cons Type	Meter Reading	Cons Usage	Nbr Days	Daily Average	Read Type	FE Billing/Amt	Supplier Billing/Amt	Total Billing/Amt	Budget Billing/Amt	Due Date	Payment Amt	Adj Amt	Adj Type	Account Balance
Installment plan deactivated on 06/13/2011 - Pending Commission Complaint.																
06/16/11	06/16/11	KWH	24,321	358	30	12	Est	65.64		65.64	261.00	07/07/11				2,066.08
07/18/11	07/18/11	KWH	25,827	1,506	32	47	Act	210.70		210.70	261.00	08/08/11				2,276.78
07/29/11													-500.00			1,776.78
08/17/11	08/17/11	KWH	26,524	697	30	23	Act	107.43		107.43	261.00	09/07/11				1,884.21
09/17/11	09/16/11	KWH	27,221	1,697	30	23	Est	110.36		110.36	274.00	10/11/11				1,994.57
10/12/11													-500.00			1,494.57
10/17/11	10/17/11	KWH	28,923	1,702	31	55	Act	249.12		249.12	274.00	11/07/11				1,743.69
11/15/11													-350.00			1,393.69
Meter G20347032 removed on 11/16/2011																
11/16/11	11/16/11	KWH	31,259	2,336	30	78	Est	335.04		335.04	274.00	12/07/11				1,728.73
Bill reversed on 11/23/2011																
Meter S59137546 installed on 11/17/2011																
11/17/11													-350.00			2,078.73
Payment Returned - Account Number not Found																
11/23/11														-335.04	REV	1,743.69
Reversal of 11/15/2011 bill.																
11/23/11	11/16/11	KWH	31,022	2,099	30	70	Act	302.92		302.92	274.00	12/13/11				2,046.61
12/15/11	12/15/11	KWH	2,590	2,590	29	89	Act	372.91		372.91	310.00	01/05/12				2,419.52
01/17/12	01/17/12	KWH	6,343	3,753	33	114	Est	533.77		533.77	310.00	02/07/12				2,953.29
02/15/12	02/15/12	KWH	9,801	3,458	29	119	Act	491.37		491.37	310.00	03/07/12				3,444.66
03/19/12	03/19/12	KWH	12,312	2,511	33	76	Act	357.87		357.87	283.00	04/09/12				3,802.53
04/18/12	04/18/12	KWH	13,965	1,653	30	55	Act	239.55		239.55	283.00	05/09/12				4,042.08

COMMONWEALTH OF PENNSYLVANIA
PA PUBLIC UTILITY COMMISSION
OFFICE OF ALJ
301 FIFTH AVENUE
SUITE 220 PIATT PLACE
PITTSBURGH PA 15222

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