Ohio Public Utilities Commission

Case No.: 13-0167-EL-EEC

Mercantile Customer:	Shaker Heights City Schools
Electric Utility:	The Cleveland Electric Illuminating Company
Program Title or Description:	Lighting, Chillers, Controls, and Steam Trap

Rule 4901:1-39-05(F), Ohio Administrative Code (O.A.C.), permits a mercantile customer to file, either individually or jointly with an electric utility, an application to commit the customer's existing demand reduction, demand response, and energy efficiency programs for integration with the electric utility's programs. The following application form is to be used by mercantile customers, either individually or jointly with their electric utility, to apply for commitment of such programs in accordance with the Commission's pilot program established in Case No. <u>10-834-EL-POR</u>

Completed applications requesting the cash rebate reasonable arrangement option (Option 1) in lieu of an exemption from the electric utility's energy efficiency and demand reduction (EEDR) rider will be automatically approved on the sixty-first calendar day after filing, unless the Commission, or an attorney examiner, suspends or denies the application prior to that time. Completed applications requesting the exemption from the EEDR rider (Option 2) will also qualify for the 60-day automatic approval so long as the exemption period does not exceed 24 months. Rider exemptions for periods of more than 24 months will be reviewed by the Commission Staff and are only approved up the issuance of a Commission order.

Complete a separate application for each customer program. Projects undertaken by a customer as a single program at a single location or at various locations within the same service territory should be submitted together as a single program filing, when possible. Check all boxes that are applicable to your program. For each box checked, be sure to complete all subparts of the question, and provide all requested additional information. Submittal of incomplete applications may result in a suspension of the automatic approval process or denial of the application.

Any confidential or trade secret information may be submitted to Staff on disc or via email at <u>ee-pdr@puc.state.oh.us</u>.

Section 1: Mercantile Customer Information

Name:Shaker Heights City Schools

Principal address:15600 Parkland Drive, Shaker Heights, Ohio 44120 Address of facility for which this energy efficiency program applies:As listed

Administration Building	15600 Parkland Drive, 44120
Boulevard Elementary	14900 Drexmore Road, 44120
Fernway Elementary	17420 Fernway Road, 44120
Lomond Elementary	17917 Lomond Boulevard, 44122
Mercer Elementary	23325 Wimbledon Road, 44122
Onaway Elementary	3115 Woodbury Road 44120
Woodbury Elementary	15400 S Woodland Road, 44120
Middle School	20600 Shaker Boulevard, 44122
High School	15911 Aldersyde Drive, 44120
Service Center	3654 Lee Road, 44120

Name and telephone number for responses to questions:Dr. Robert Kreiner 216-295-4312

Electricity use by the customer (check the box(es) that apply):

- The customer uses more than seven hundred thousand kilowatt hours per year at the above facility. (Please attach documentation.)
- The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.)

Section 2: Application Information

- A) The customer is filing this application (choose which applies):
 - Individually, without electric utility participation.
 - \Box Jointly with the electric utility.
- B) The electric utility is: The Cleveland Electric Illuminating Company
- C) The customer is offering to commit (check any that apply):

\square	Energy savings from the customer's energy efficiency program. (Complete Sections 3, 5, 6, and 7.)
	Capacity savings from the customer's demand response/demand reduction program. (Complete Sections 4, 5, 6, and 7.)
	Both the energy savings and the capacity savings from the customer's energy efficiency program. (Complete all sections of the Application.)

Revised June 24, 2011

Section 3: Energy Efficiency Programs

- A) The customer's energy efficiency program involves (check those that apply):
 - Early replacement of fully functioning equipment with new equipment. (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)). If Checked, Please see Exhibit 1 and Exhibit 2
 - Installation of new equipment to replace equipment that needed to be replaced The customer installed new equipment on the following date(s):
 - Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s):
 - Behavioral or operational improvement.
- B) Energy savings achieved/to be achieved by the energy efficiency program:
 - If you checked the box indicating that the project involves the early replacement of fully functioning equipment replaced with new equipment, then calculate the annual savings [(kWh used by the original equipment) – (kWh used by new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: 1,343,876 kWh

2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by the higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____ kWh

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment. **Please see Exhibit 1 if applicable**

3) If you checked the box indicating that the project involves equipment for new construction or facility expansion, then calculate the annual savings [(kWh used by less efficient new equipment) – (kWh used by higher efficiency new equipment) = (kWh per year saved)]. Please attach your calculations and record the results below:

Annual savings: _____ kWh

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment. **Please see Exhibit 1 if applicable**

4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined.

	Section 4: Demand Reduction/Demand Response Programs
A)	The customer's program involves (check the one that applies):
	Coincident peak-demand savings from the customer's energy efficiency program.
	Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
	Potential peak-demand reduction (check the one that applies):
	☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
	☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.
B)	On what date did the customer initiate its demand reduction program?
C)	What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

_____ kW

Section 5: Request for Cash Rebate Reasonable Arrangement (Option 1) or Exemption from Rider (Option 2)

Under this section, check the box that applies and fill in all blanks relating to that choice.

Note: If Option 2 is selected, the application will not qualify for the 60-day automatic approval. All applications, however, will be considered on a timely basis by the Commission.

- A) The customer is applying for:
 - Option 1: A cash rebate reasonable arrangement.

OR

Option 2: An exemption from the energy efficiency cost recovery mechanism implemented by the electric utility.

OR

Commitment payment

- B) The value of the option that the customer is seeking is:
 - Option 1: A cash rebate reasonable arrangement, which is the lesser of (show both amounts):
 - \square A cash rebate of \$<u>57,128</u>. (Rebate shall not exceed 50% project cost. Attach documentation showing the methodology used to determine the cash rebate value and calculations showing how this payment amount was determined.)
 - Option 2: An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider.
 - An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for _____ months (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

A commitment payment valued at no more than \$____. (Attach documentation and calculations showing how this payment amount was determined.)

OR

Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

- Total Resource Cost (TRC) Test. The calculated TRC value is: ____(Continue to Subsection 1, then skip Subsection 2)
- Utility Cost Test (UCT) . The calculated UCT value is: **See Exhibit 3** (Skip to Subsection 2.)

Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were _____.

Our program costs were _____.

The incremental measure costs were _____.

Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were See Exhibit 3

The utility's program costs were **See Exhibit 3**

The utility's incentive costs/rebate costs were See Exhibit 3

Section 7: Additional Information

Please attach the following supporting documentation to this application:

- Narrative description of the program including, but not limited to, make, model, and year of any installed and replaced equipment.
- A copy of the formal declaration or agreement that commits the program or measure to the electric utility, including:
 - 1) any confidentiality requirements associated with the agreement;
 - 2) a description of any consequences of noncompliance with the terms of the commitment;
 - 3) a description of coordination requirements between the customer and the electric utility with regard to peak demand reduction;
 - 4) permission by the customer to the electric utility and Commission staff and consultants to measure and verify energy savings and/or peak-demand reductions resulting from your program; and,
 - 5) a commitment by the customer to provide an annual report on your energy savings and electric utility peak-demand reductions achieved.
- A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results. Additionally, identify and explain all deviations from any program measurement and verification guidelines that may be published by the Commission.

Ohio Public Utilities Commission

Application to Commit Energy Efficiency/Peak Demand Reduction Programs (Mercantile Customers Only)

Case No.: 13-0167-EL-EEC

State of Ohio :

Dr. Robert Kreiner, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

> Shaker Heights City Schools [insert customer or EDU company name and any applicable name(s) doing business as]

2. I have personally examined all the information contained in the foregoing application, including any exhibits and attachments. Based upon my examination and inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete.

Kolend C. Kreinen Burness administrator Signature of Affiant & Title

Sworn and subscribed before me this 19^{H} day of <u>Fehrman</u>, 2013 Month/Year

Karen E. Dunbar Signature of official administering oath

KARENE. DUNBAR Print Name and Title

My commission expires on $12 - 28^{\circ} 2016$



KAREN E DUI NOTARY PUBL MY COMMISSION EXPIRES 12-28-2016 RECORDED IN CUYAHOGA COUNTY

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Shaker Heights Administration Building Principal Address: 15600 Parkland Drive

What date would you have replaced your

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Administration Building Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures, which reduced energy consumption.	See Lighting Calculator	5 to 10 years	N/A

Rev (2.1.2012)

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Shaker Heights Administration Building

Principal Address: 15600 Parkland Drive

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011 2010	1,656 1,656	1,656 1,656	1,656 1,656	5				
	2009	1,665	1,665	1,665 1,65 9	5				
	Average	1,659	1,659	1,659	<u>,</u>				
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Administration Building Lighting Retrofit	09/01/2012	\$12,769	\$6,385	41,346	41,346		\$2,067	\$1,550
					-		-		
							-		
					-	-	-		
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						-	-		
		Total	\$12,769		41,346	41,346	0	\$2,067	\$1,550

Docket No. 13-0167 **Site:** 15600 Parkland Drive

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	Utility Avoided Cost \$/MWh (B)	Utility Avoided Cost \$ (C)	Utility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	Total Utility Cost \$ (G)	UCT (H)
1	41	\$ 308	\$ 12,746	\$ 4,050	\$1,550	\$413	\$ 6,014	2.1
Total	41	\$ 308	12,746	4,050	\$1,550	\$413	6,014	2.1

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

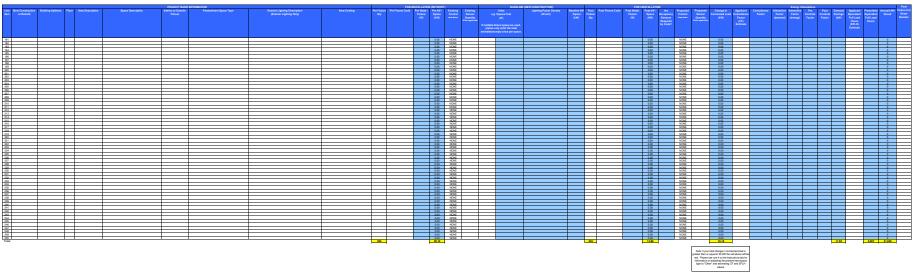
(G) = (D) + (E) + (F)

(H) =(C) / (G)

Shaker Heights City Schools ~ Shaker Heights Administration Building Docket No. $13\mathchar`-0167$

Site: 15600 Parkland Drive

Lighting Inventory Form									
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Project Estimated Annual Savings Summary					
Lighting					
Estimated Annual kWh Savings	41,346				
Total Change in Connected Load	10.16				
Annual Estimated Cost Savings	\$4,134.60				
Annual Operating Hours	3,657				
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$2,067.30				
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00				
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00				
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00				
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00				
Total Calculated Incentive	\$2,067.30				
	<i>42</i> ,007.00				
Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	324				
Total Lamp Quantity for retrofit Screw-In CFLs	0				

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Boulevard Elementary Principal Address: 14900 Drexmore Road

What date would you have replaced your

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced your Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Boulevard Elementary Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption.	See lighting calculator	5 to 10 years	N/A
2	Boulevard Elementary Controls	Controls were installed to shut off ventilator fans during unoccupied hours, which decreased energy consumption.	See custom project calculaor and engineering study for HB264 project	N/A	N/A

Rev (2.1.2012)

Customer Legal Entity Name: Shaker Heights City Schools Site Address: Boulevard Elementary

Principal Address: 14900 Drexmore Road

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011 2010	265,600 263,160	265,600 263,160	265,600 263,160					
	2009	329,080	329,080	329,080					
	Average	285,947	285,947	285,947	-				
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Boulevard Elementary Lighting Retrofit	08/01/2012	\$40,730	\$20,365	73,462	73,462	-	\$3,673	\$2,755
2	Boulevard Elementary Controls	12/31/2012	\$15,080	\$7,540	9,613	9,613	-	\$769	\$577
						-	-		
					-	-	-		
						-	-		
					-	-	-		
						-	-		
		Total	\$55,810		83,075	83,075	0	\$4,442	\$3,332

Docket No. 13-0167 Site: 14900 Drexmore Road

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

	Project	Total Annual Savings, MWh (A)	ĺ	Avoided Cost /MWh (B)	Uti	ility Avoided Cost \$ (C)	ι	Jtility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	То	otal Utility Cost \$ (G)	UCT (H)
2 10 \$ 308 \$ 2,963 \$ 2,025 \$577 \$96 \$ 2,698 1.10	1	73	\$	308	\$	22,647	\$	2,025	\$2,755	\$735	\$	5,514	4.1
	2	10	\$	308	\$	2,963	\$	2,025	\$577	\$96	\$	2,698	1.10
Total 83 \$ 308 25,610 4,050 \$3,332 \$831 8,212 3.3	Total	83	¢	308		25.610		4 050	¢2 323	¢831		8 212	3.1

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

(G) = (D) + (E) + (F)

(H) =(C) / (G)

Shaker Heights City Schools ~ Boulevard Elementary Docket No. 13-0167

Site: 14900 Drexmore Road



Ohio Edison • The Illuminating Company • Toledo Edison

Mercantile Customer Program - Custom Project Rebate Calculator

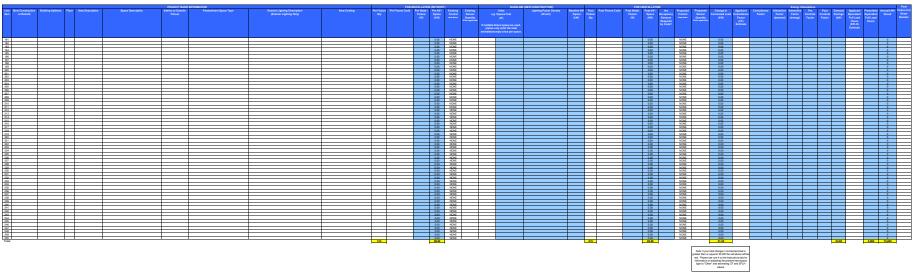
Project Name and Number:	Controls
Site Name:	Shaker Heights Boulevard Elem
Completed by (Name):	Michele DiFrancesco
Date completed:	3/25/2013

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
shutting off unit ventilatorsfans during	9,613	769.04
unoccupied hours		
Total Project Energy Savings kWh	9,613	
Total Custom Prescriptive	Rebate Amount \$	\$ 769.04

Notes about this rebate calculation:
See engineering study completed for HB264 program.

	Motor Savings	Bin Temperature Ventilation Energy Consumption						
Name	Description	Value	Units	StrTemp	EndTemp	T(F)	hrs1-24	Qng (Btu/hr) = Qvent x (Tset - Toa) x hrs / Eff
HPm	motor rating	0.125	hp	105	109	107	0	0
PL	percent loaded	0.7		100	104	102	0	0
Effm	motor efficiency	0.6		95	99	95.7	3	0
Pm	Motor power = HPm x 0.746 kW/hp x PL / Effm	0.1	kW	90	94	91.9	43	0
HPW	operating hours per week	118	hr/wk	85	89	87.5	127	0
W'PY	operating weeks per year	29.4	wk/yr	80	84	82	359	0
Esav	Energy Savings = Pm x HPW x WPY	506	-kWb/yr	75	79	76.7	523	0
ACE	Avoided cost of Electricity	0.07854	\$/kWh	70	74	72.4	617	0
Csav	Cost Savings = Esav x ACE	\$40	S/yr	65	69	68	754	0
				60	64	62.5	1,029	0
	Ventilation Savings			55	59	57.2	604	U
Name	Description	Value	Units	50	54	51.9	631	0
CFM	Unit ventilator air flow	1000	ft^3/min	45	49	47.6	420	0
Poa	Percent outdoor air	0		40	44	42.8	529	0
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/hr-F	35	39	37.4	904	0
Tia	Indoor air serpoint temperature	70	F	30	34	32	749	0
Tbal	Balance point temperture	65	F	25	29	27.5	497	0
Eff	Heating system efficiency	0.8		20	24	23.2	370	0
HPW	Hours per week	118	hr/wk	15	19	17.5	335	0
WPY	Weeks per year	29.4	wk/yr	10	1.1	12.2	155	Ú
HPY	Hours per year = HPW x WPY	3469.2	hr/yr	5	9	7.7	65	0
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	-	0	4	2.7	22	0
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr	-5	-1	-1.5	21	0
Qng,total	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr	-10	-6	-5.1	3	0
Cng	Cost of natural gas	8.12	\$/mmBtu				Total	0
Cng,sav	Annual NG cost savings = Cng x Qng,total	\$0	S/yr					
	Overall Total Savings	_		100%		_		
Name	Description	Value	Units	80% 70%		_		
Ny	Number of ventilators	19	China				*	Figure 1: Representa-
ElecSav	Total annual electricity savings = Nv x Esav	9,613	kWh/yr	50% a	<u> </u>			tive subfractional horsepower motor
Ecost, sav		\$755	S/yr					efficiencies (for re- frigerator fon mo-
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr	10 20%	_		- Shaded P	ole lors)."
	v Annual NG cost savings = Cng x NgSav	\$0	S/yr	10%			- PSC - ECPM	
-			21	0	U.* 0.2 Molo	C 2 or Sizo (h		0.5
Csav,total	Total annual cost savings = Ecost, sav + NgCostSav	\$755	S/vr	1				

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Project Estimated Annual Savings Summary					
Lighting					
Estimated Annual kWh Savings	73,462				
Total Change in Connected Load	31.53				
Annual Estimated Cost Savings	\$7,346.20				
Annual Operating Hours	2,080				
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$3,673.10				
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00				
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00				
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00				
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00				
Total Calculated Incentive	\$3,673.10				
Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	515				
Total Lamp Quantity for retrofit Screw-In CFLs	0				

Total Lamp Quantity for retrofit Hard-Wired CFLs	0								
Total Fixture Quantity for retrofit LED Exit Signs	0								
Total Quantity for Occupancy Sensors	0								
Total Quantity for Daylight Sensors	0								

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Fernawy Elementary Principal Address: 17420 Fernway Road

What date would you have replaced your

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	what date would you have replaced your equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Fernway Elementary Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced their energy consumption.	See lighting calculator	5 to 10 years	N/A
2	Fernaway Elementary Contols	Controls were installed to shut off ventilator fans during unoccupied hours to decreased energy consumption.	See custom project calculaor and engineering study for HB264 project	N/A	N/A

Customer Legal Entity Name: Shaker Heights City Schools Site Address: Fernawy Elementary

Principal Address: 17420 Fernway Road

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011 2010 2009	192,560 197,160 182,280	192,560 197,160 182,280	192,560 197,160 182,280					
	Average	190,667	190,667	190,667	-				
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Fernway Elementary Lighting Retrofit	09/01/2012	\$36,138	\$18,069	52,519	52,519	-	\$2,626	\$1,970
2	Fernaway Elementary Contols	12/31/2012	\$9,425	\$4,713	9,107	9,107	-	\$729	\$547
							-		
						-	-		
						-	-		
					-	-	-		
							-		
		Total	\$45,563		61,626	61,626	0	\$3,355	\$2,516

Docket No. 13-0167 **Site:** 17420 Fernway Road

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	(A)	\$/M` (E		Cost \$ (C)	Jtility Cost \$ (D)	Cash Rebate \$ (E)	Variable Fee \$ (F)	Cost \$ (G)	UCT (H)
1	53	\$	308	\$ 16,191	\$ 2,025	\$1,970	\$525	\$ 4,520	3.6
2	9	\$	308	\$ 2,808	\$ 2,025	\$547	\$91	\$ 2,663	1.05
Total	62	\$	308	18,998	4,050	\$2,516	\$616	7,183	2.6

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

(G) = (D) + (E) + (F)

(H) =(C) / (G)

Shaker Heights City Schools ~ Fernawy Elementary Docket No. 13-0167

Site: 17420 Fernway Road

	Motor Savings										
Name	Description	Value	Units								
HPm	motor rating	0.125	hp								
PI.	percent loaded	0.7	np								
Effm	motor efficiency	0.6									
Pm	Motor power = HPm x 0.746 kW/hp x PL / Effm	0.1	kW								
HPW	operating hours per week	118	hr/wk								
WPY	operating weeks per year	29.4	wk/yr								
Esav	Energy Savings = Pm x HPW x WPY	506	kWh/vr								
ACE	Avoided cost of Electricity	0.07854	\$/kWh								
Csav	Cost Savings = Esav x ACE	\$40	S/yr								
Name	Ventilation Savings Description	Value	Units								
CFM	Unit ventilator air flow	1000	ft^3/min								
Poa	Percent outdoor air	0	-								
Ovent	Ventilation load = 1.08 CFM x Poa	0	Bru/hr-F								
Tia	Indoor air setpoint temperature	70	F								
Tbal	Balance point temperture	65	F								
Eff	Heating system efficiency	0.8	-								
HPW	Hours per week	118	hr/wk								
WPY	Weeks per year	29.4	wk/yr								
HPY	Hours per year = $HPW \times WPY$	3469.2	hr/yr								
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	3								
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yi								
Qng,total	Acutal NG savings = Qng.pot x I't	0.0	mmBru/yr								
Cng	Cost of natural gas	8.12	S/mmBhi								
Cng,sav	Annual NG cost savings = Cng x Qng,total	\$0	S/vr								

StrTemp	EndTemp	T(F)	hrs1-24	Qng (Btu/hr) = Qvent x (Tset - Toa) x hrs / Eff
105	109	107	0	0
100	104	102	0	0
95	99	95.7	3	0
90	94	91.9	43	0
85	89	87.5	127	0
80	84	82	359	0
75	79	76.7	523	0
70	74	72.4	617	0
65	69	68	754	0
60	64	62.5	1,029	0
55	59	57.2	604	0
50	54	51.9	631	0
45	49	47.6	420	0
40	44	42.8	529	0
35	39	37.4	904	0
30	34	32	749	0
25	29	27.5	497	0
20	24	23.2	370	0
15	19	17.5	335	0
10	14	12.2	155	0
5	9	7.7	65	0
0	4	27	22	0
-5	-1	-1.5	21	0
-10	-6	-5.1	3	0
			Total	0

Overall Total Savings				90% 2 80%				
Name	Description	Value	Units	60% 80%				
Nv	Number of ventilators	18			Je			
ElecSav	Total annual electricity savings = Nv x Esav	9,107	kWh/yr	proj-11a	18	_	_	_
Ecost,sav	Cost Savings = ElecSav x ACE	\$715	S/yr	5 30%		_		
NgSav	Sav Total annual natural gas savings = Nv x Qng,total		mmBtu/yr	10%	1		-le- PSC	-
NgCostSavAnnual NG cost savings = Cng x NgSav		\$0	S/yr	0~		01 02	0.3	944 (0-4 (
Csav,total	'Total annual cost savings = Ecost,sav + NgCostSav	\$715	\$/yr]		Moto	r Size (hp)	





Ohio Edison • The Illuminating Company • Toledo Edison

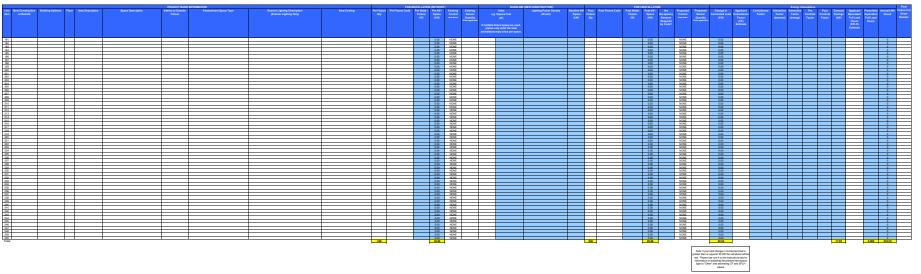
Mercantile Customer Program - Custom Project Rebate Calculator

Project Name and Number:	Controls		
Site Name:	Shaker Hghts Fernway Elementary		
Completed by (Name):	Michele DiFrancesco		
Date completed:	3/25/2013		

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
shutting off unit ventilatorsfans during	9,107	728.56
unoccupied hours		
Total Project Energy Savings kWh	9,107	
Total Custom Prescriptive	\$ 728.56	

Notes about this rebate calculation:						
See engineering study completed for HB264 program.						

Lighting Inventory Form									
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Project Estimated Annual Savings Summary					
Lighting	Lighting				
Estimated Annual kWh Savings	52,519				
Total Change in Connected Load	22.54				
	AT AT / AA				
Annual Estimated Cost Savings	\$5,251.90				
Annual Operating Hours	2,080				
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$2,625.95				
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00				
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00				
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00				
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00				
Total Calculated Incentive	\$2,625.95				
	Ţ, Ţ				
Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	348				
Total Lamp Quantity for retrofit Screw-In CFLs	0				

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	_
Total Quantity for Daylight Sensors	0	

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Shaker Heights High School Principal Address: 15911 Aldersyde Drive

What date would you have replaced your

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Shaker Heights High School Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption.	See lighting calculator	5 to 10 yrs	N/A
2	Shaker Heights High School Controls	Controls were installed to shut off ventilator fans during unoccupied hours, which decreased energy consumption.	See custom project calculaor and engineering study for HB264 project	N/A	N/A
3	Shaker Heights Chiller Project	By replacing the exisisting 205 ton and 25 ton installed in 1969 with higher efficiency water cooled magnetic bearing oil-free unit and an Air cooled scroll compressor package unit will significantly decrease the consumption of energy.	See custom project calculaor and engineering study for HB264 project pg 110 & 111	When the repairing and maintaining was no longer feasible.	N/A

Rev (2.1.2012)

Customer Legal Entity Name: Shaker Heights City Schools Site Address: Shaker Heights High School

Principal Address: 15911 Aldersyde Drive

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011 2010 2009	3,316,800 3,318,320 3,219,200	3,316,800 3,318,320 3,219,200	3,316,800 3,318,320 3,219,200)				
	Average	3,284,773	3,284,773	3,284,773	3				
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Shaker Heights High School Lighting Retrofit	09/01/2012	\$268,403	\$134,202	328,266	328,266		\$16,413	\$12,310
2	Shaker Heights High School Controls	12/31/2012	\$65,975	\$32,988	68,300	68,300	-	\$5,464	\$4,098
3	Shaker Heights Chiller Project	09/01/2012	\$417,496	\$208,748	146,431	146,431	-	\$11,714	\$8,786
					-	-			
							-		
					-	-	-		
							-		
		Total	\$751,874		542,997	542,997	0	\$33,591	\$25,193

Docket No. 13-0167 Site: 15911 Aldersyde Drive

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	-	y Avoided Cost /MWh (B)	Ut	ility Avoided Cost \$ (C)	ι	Jtility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	То	otal Utility Cost \$ (G)	UCT (H)
1	328	\$	308	\$	101,198	\$	1,350	\$12,310	\$3,283	\$	16,942	6.0
2	68	\$	308	\$	21,056	\$	1,350	\$4,098	\$683	\$	6,131	3.43
3	146	\$	308	\$	45,142	\$	1,350	\$8,786	\$1,464	\$	11,600	3.89
Total	543	\$	308		167,395		4,050	\$25,193	\$5,430		34,673	4.8

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

(G) = (D) + (E) + (F)

(H) = (C) / (G)

Shaker Heights City Schools ~ Shaker Heights High School Docket No. 13-0167

Site: 15911 Aldersyde Drive



Ohio Edison • The Illuminating Company • Toledo Edison

Mercantile Customer Program - Custom Project Rebate Calculator

Project Name and Number:	Chiller
Site Name:	Shaker Heights High School
Completed by (Name):	Michele DiFrancesco
Date completed:	3/25/2013

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
Savings calculated using bin analysis	146,431	11714.48
HB264 doc pg 110 & 111		
Total Project Energy Savings kWh	146,431	
Total Custom Prescriptive	Rebate Amount \$	\$ 11,714.48

Notes about this rebate calculation:					
See engineering study completed for the HB264 application.					

Shaker Heights High School Chiller Savings

Cooling Load and Chiller Parameters Description ag load g load corresponding to max cooling load corresponding to min cooling load corresponding to min cooling load hiller specific power chiller specific power chiller specific power chiller specific power chiller specific power	Value 25 2.5 95.7 62.5 1.35 1.00	Units ton ton F F kW/ton kW/ton	StrTemp (F) 95 90 85 80 75 70 65	EndTemp (F) 99 94 89 84 79 74 69	Tavg (F) 95.7 91.9 87.5 82 76.7 72.4	hrs1-24 3 43 127 359 523 617	Load (tons) 25 22 19 16 12	Baseline Energy (kWh) 101 1,302 3,333 7,616 8,560	Proposed Energy (kWh) 75 964 2,469 5,642	Baseli Propo
Description ag load g load corresponding to max cooling load corresponding to min cooling load miller specific power chiller specific power Electricity and Cost Savings	25 2.5 95.7 62.5 1.35	ton ton F F kW/ton	90 85 80 75 70	94 89 84 79 74	91.9 87.5 82 76.7	43 127 359 523	22 19 16 12	1,302 3,333 7,616	964 2,469	
ng load g load corresponding to max cooling load corresponding to min cooling load niller specific power chiller specific power Electricity and Cost Savings	25 2.5 95.7 62.5 1.35	ton ton F F kW/ton	85 80 75 70	89 84 79 74	87.5 82 76.7	127 359 523	19 16 12	3,333 7,616	2,469	Propo
g load corresponding to max cooling load corresponding to min cooling load niller specific power chiller specific power Electricity and Cost Savings	2.5 95.7 62.5 1.35	ton F F kW/ton	80 75 70	84 79 74	82 76.7	359 523	16 12	7,616		
corresponding to max cooling load corresponding to min cooling load niller specific power chiller specific power Electricity and Cost Savings	95.7 62.5 1.35	F F kW/ton	75 70	79 74	76.7	523	12	,	5,642	
corresponding to min cooling load hiller specific power chiller specific power Electricity and Cost Savings	62.5 1.35	F kW/ton	70	74				8 560		
hiller specific power chiller specific power Electricity and Cost Savings	1.35	kW/ton			72.4	617		0,000	6,341	Cooli
chiller specific power Electricity and Cost Savings			65	69		017	9	7,671	5,682	and t
Electricity and Cost Savings	1.00	kW/ton		07	68	754	6	6,339	4,695	chille
, ,			60	64	62.5	1,029	0	0	0	
Description			55	59	57.2	604	0	0	0	
Description	Value	Units	50	54	51.9	631	0	0	0	
nergy consumption = sum(Baseline)	34,923	kWh/yr	45	49	47.6	420	0	0	0	
energy consumption = sum(Proposed)	25,869	kWh/yr	40	44	42.8	529	0	0	0	
rings = Ebase - Eprop	9,054	kWh/yr	35	39	37.4	904	0	0	0	
ost of electricity	0.0785	\$/kWh	30	34	32	749	0	0	0	
ectneity cost savings = Esav x Ecost	\$711	S/vr	25	29	27.5	497	0	0	0	
			20	24	23.2	370	0	0	0	
			15	19	17.5	335	0	0	0	
			10	14	12.2	155	0	0	0	
			5	9	7.7	65	0	0	0	
			0	4	2.7	22	0	0	0	
			-5	-1	-1.5	21	0	0	0	
			-10	-6	-5.1	3	0	0	0	
							Total	34,923 2,743	25,869 2,032	
	culluly cost savings – Lisar a Loost	Culluly Cost savings – Loav & Loost		20 15 10 5 0 -5	20 24 15 19 10 14 5 9 0 4 -5 -1	20 24 23.2 15 19 17.5 10 14 12.2 5 9 7.7 0 4 2.7 -5 -1 -1.5	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	20 24 23.2 370 0 0 15 19 17.5 335 0 0 10 14 12.2 155 0 0 5 9 7.7 65 0 0 0 4 2.7 22 0 0 -5 -1 -1.5 21 0 0 -10 -6 -5.1 3 0 0 Total 34,923	20 24 23.2 370 0 0 0 15 19 17.5 335 0 0 0 10 14 12.2 155 0 0 0 5 9 7.7 65 0 0 0 0 4 2.7 22 0 0 0 -5 -1 -1.5 21 0 0 0 -10 -6 -5.1 3 0 0 0 Total 34,923 25,869

Baseline Energy = Cooling Load x CSPbase x hrs Proposed Energy = Cooling Load x CSPprop x hrs

Cooling energy savings were estimated using a BIN analysis and the vendor provided specific power of the existing chiller and proposed chiller.

Shaker Heights High School Chiller Savings

Name	Cooling Load and Chiller Parameters Description	Value	Units
CLmax	max cooling load	205	ton
CLmin	min cooling load	20	ton
Tmax	OA temp corresponding to max cooling load	95.7	F
Tmin	OA temp corresponding to min cooling load	62.5	F
CSPbase	Baseline chiller specific power	1.2	kW/ton
CSPprop	Proposed chiller specific power	0.55	kW/ton
	Electricity and Cost Savings		
Name	Description	Value	Units
Ebase	Baseline energy consumption = sum(Baseline)	253,619	kWh/yr
Eprop	Proposed energy consumption = sum(Proposed)	116,242	kWh/yr
Esav	Energy savings = Ebase - Eprop	137,377	kWh/yr
Ecost	Marginal cost of electricity	0.07854	S/kWh
Csav	Annual Electricity cost savings = Esav x Ecost	\$10,790	\$/sr

StrTemp (F)	EndTemp (F)	Tavg (F)	hrs1-24	Cooling Load (tons)	Baseline Energy (kWh)	Proposed Energy (kWh)
95	99	95.7	3	205	738	338
90	94	91.9	43	184	9,485	4,347
85	89	87.5	127	159	24,278	11,128
80	84	82	359	129	55,427	25,404
75	79	76.7	523	99	62,212	28,514
70	74	72.4	617	75	55,653	25,507
65	69	68	754	51	45,826	21,004
60	64	62.5	1,029	0	0	0
55	59	57.2	604	0	0	0
50	54	51.9	631	0	0	0
45	49	47.6	420	0	0	0
40	44	42.8	529	0	0	0
35	39	37.4	904	0	0	0
30	34	32	749	0	0	0
25	29	27.5	497	0	0	0
20	24	23.2	370	0	0	0
15	19	17.5	335	0	0	0
10	14	12.2	155	0	0	0
5	9	7.7	65	0	0	0
0	4	2.7	22	0	0	0
-5	-1	-1.5	21	0	0	0
-10	-6	-5.1	3	0	0	0
				Total	253,619	116,242

Baseline Energy = Cooling Load x CSPbase x hrs Proposed Energy = Cooling Load x CSPprop x hrs

Cooling energy savings were estimated using a BIN analysis and the vendor provided specific power of the existing chiller and proposed chiller.



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Mercantile Customer Program - Custom Project Rebate Calculator

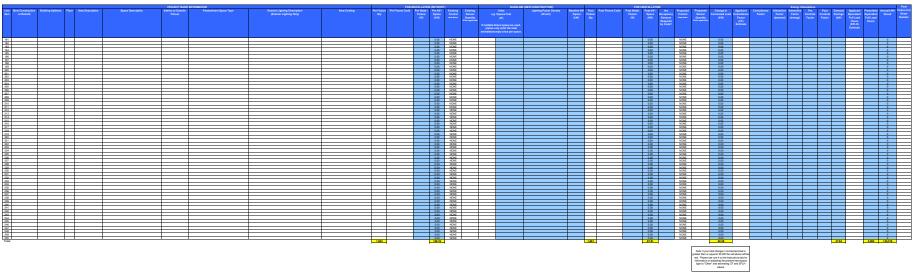
Project Name and Number:	Controls
Site Name:	Shaker Hghts Fernway Elementary
Completed by (Name):	Michele DiFrancesco
Date completed:	3/25/2013

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
shutting off unit ventilatorsfans during	68,300	5464.00
unoccupied hours		
	<u> </u>	
Total Project Energy Savings kWh	68,300	
Total Custom Prescriptive	Rebate Amount \$	\$ 5,464.00

Notes about this rebate calculation:										
See engineering study completed for HB264 program.										

			1	D1 (7)				
Name	Motor Savings Description	Value	Units	StrTemp				rgy Consumption Qng (Btu/hr) = Qvent x (Tset - Toa) x hrs / Eff
HPm	motor ming	0.125	hp	105	109	107	D	Û
PL	percent loaded	0.7		100	104	102	0	0
Effm	motor efficiency	0.6	+	95	99	95.7	3	Ŭ
Pm	Motor power = HPm x 0.746 kW/hp x PL / Effm	0.1	kW/	- 90	94	91.9	-3	0
HPW	operating hours per week	118	hr/wk	85	89	87.5	127	0
WPY	operating weeks per year	29.4	wk/yr	80	84	82	359	0
Esav	Energy Savings = Pm x HPW x WPY	506	kWh/yr	75	79	76.7	523	0
ACE	Avoided cost of Electricity	0.07854	S/kWh	70	74	72.4	617	0
Csav	Cost Savings = Esav x ACE	\$40	S/yr	65	69	68	754	0
				60	61	62.5	1,029	1,562,794
	Ventilation Savings			55	59	57.2	604	1,565,568
Name	Description	Value	Units	50	54	51.9	631	2,312,773
CFM	Unit ventilator air flow	1000	ft^3/min	-45	49	47.6	420	1,905,120
Poa	Percent outdoor air	0.15		40	44	42.8	529	2,913,732
Qvent	Ventilation load = 1.08 CFM x Poa	162	Btu/hr-F	35	39	37.4	904	5,967,756
Tia	Indoor air serpoint temperature	70	F	30	34	32	749	5,763,555
Tbal	Balance point temperture	65	F	25	29	27.5	497	4,277,306
Eff	Heating system efficiency	0.8	1.1	20	24	23.2	370	3,506,490
HPW	Hours per week	118	hr/wk	15	19	17.5	335	3,561,469
WPY	Weeks per year	29.4	wk/yr	10	14	12.2	155	1,814,198
HPY	Hours per year = HPW x WPY	3469.2	hr/yr	5	9	7.7	65	820,024
Ft	Fraction time OA damper closed = HPY / 8,760	0.396		0	+	2.7	22	299,822
Qng,pot	Potential NG savings = sum of Qng	36.62	mmBtu/yr	-5	-1	-1.5	21	304,054
Qng,total	Acutal NG savings =Qng,pot x Ft	14.5	minBtu/yr	-10	-6	-5.1	3	15,623
Cng	Cost of natural gas		\$/mmBtu				Total	36,620,282
Cng,sav	Annual NG cost savings = Cng x Qng,total	\$118	S/yr	2				
				100%		-		
	Overall Total Savings	_		2 80%				
Name	Description	Value	Units	0 70%				-
Nv	Number of ventilators	135			part and a second			Figure 1: Representa- tive subfractional
ElecSav	Total annual electricity savings = Nv x Esav	68,300	kWh/yr	50% 50%			_	afficiencies (for re-
	Cost Savings = ElecSav x ACE	\$5,364	5/yr	8 000				frigerator fan mu-
NgSav	Total annual natural gas savings = Nv x Qng,total	1,958	mmBtu/yr	8 20% / 10%			- Shaded Po - PSC	to .
NgCostSa	v Annual NG cost savings = Cng x NgSav	\$15,891	S/yr	046	0.1 0.2	0.0	- ECPM	0.5
Comment	Total annual cost savings = Ecost,sav + NgCostSav	\$21,256	S/vr			Size (hp		

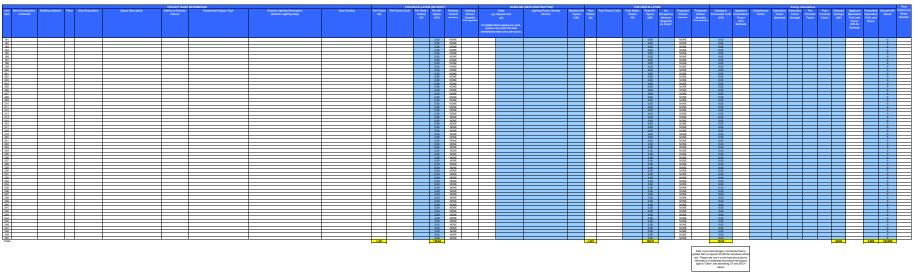
Lighting Inventory Form										
Applicate home Dealer Highing Cay Groups Fields Theme: Big Educort #1 Dame 202013 Lateries 202013		For existing or prop		r Occupany Sensor, DAY for photo		4E for none. Controls in spaces where existing cont used to calculate your incentive on the NorGlandard				
PAGRET BASE And Advector Fraze And Advector Fraze And Decomption Space Decomption Parameter Fraze And Advector Fraze Advector	Estenior Lighting Description Awa Cooling (Estenior Lighting Description)	Pre Fixture Ony	RE-INSTALLATION (RETRO le Pre Watts / Pre kW Fisikane Space (W) (kW)	FIT) / Eaisting Eaisting Control Sensor Guantity	BASELINE Units e.g. Square Feet (17)	(NEW CONSTRUCTION) Lighting Power Density (Wunit) / Spac (NIII)	e kill Post Post Patere Code Post Nath Post Kill / Are Proposed ce Future Oat Post Rath Post Kill / Are Cottool Oay (W) Seasce Cottool Are Cottool Are Proposed Cottool Cott	Proposed Change in Applicant Sensor Connected Load Colocidence Quantity (XW) Factor	Coincidence Interactive Interactive Pre- Pactor Factor Factor Cortrols Const factor Factor Factor Factor Factor	Demand Applicant Preached Jonus ktm Falans Curl Savings Equivalent Equivalent Savind Number VM0 Full Load Full Load Number
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Total Lamp Quantity for retrofit Screw-In	Total Fixture Quantity excluding retrofit	1661						
	Total Lamp Quantity for retrofit Screw-In	_						

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	

Lighting Inventory Form	Shakar Heights (Dly Schools			or each fixture type in a soon						
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Project Estimated Annual Savings Summary						
Lighting						
Estimated Annual kWh Savings	182,950					
Total Change in Connected Load	78.53					
Annual Estimated Cost Savings	\$18,295.00					
Annual Operating Hours	2,080					
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$9,147.50					
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00					
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00					
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00					
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00					
Total Calculated Incentive	\$9,147.50					
Total Fixture Quantity excluding retrofit	1447					
CFLs and LED Exit Signs Total Lamp Quantity for retrofit Screw-In CFLs	0					

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	

Project

No.

1

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Lomond Elementary Principal Address: 17917 Lomond Boulevard

Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
Lomond Elementay Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption.	See lighting calculator	5 to 10 years	N/A

What date would you have replaced your

equipment if you had not replaced it early? Please describe the less efficient new

Rev (2.1.2012)

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Lomond Elementary

Principal Address: 17917 Lomond Boulevard

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011 2010	347,680 307,120	347,680 307,120	347,680 307,120					
	2009	295,440	295,440	295,440					
	Average	316,747	316,747	316,747	,				
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Lomond Elementay Lighting Retrofit	09/01/2012	\$51,943	\$25,972	64,742	64,742		\$3,237	\$2,428
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							-		
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					-		-		
		Total	\$51,943		64,742	64,742	0	\$3,237	\$2,428

Docket No. 13-0167 Site: 17917 Lomond Boulevard

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	Utility Avoid Cost \$/MWh (B)	ded L	Jtility Avoided Cost \$ (C)	Utility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	Total Utility Cost \$ (G)	UCT (H)
1	65		308 \$	19,959	\$ 4,050	\$2,428	\$647	\$ 7,125	2.8
Total	65	\$ 3	08	19,959	4,050	\$2,428	\$647	7,125	2.8

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

(G) = (D) + (E) + (F)

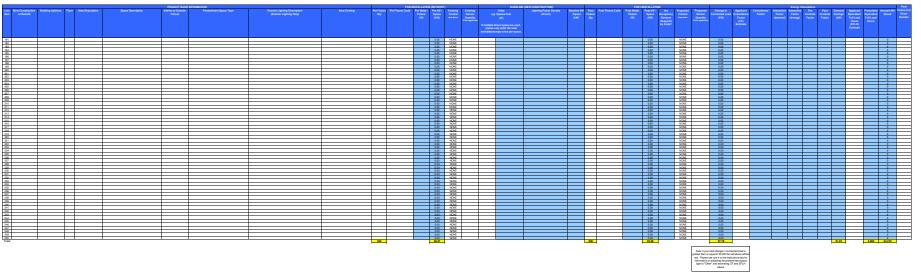
(H) =(C) / (G)

Shaker Heights City Schools ~ Lomond Elementary Docket No. 13-0167

Site: 17917 Lomond Boulevard

Lighting Inventory Form				
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Lighting Inventory Form



Project Estimated Annual Savings Summary					
Lighting					
Estimated Annual kWh Savings	64,742				
Total Change in Connected Load	27.79				
Annual Estimated Cost Savings	¢6 474 20				
Annual Estimated Cost Savings	\$6,474.20				
Annual Operating Hours	2,080				
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$3,237.10				
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00				
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00				
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00				
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00				
Total Calculated Incentive	\$3,237.10				
Total Fixture Quantity excluding retrofit					
CFLs and LED Exit Signs Total Lamp Quantity for retrofit Screw-In	508				
CFLs	0				

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Mercer Elementary Principal Address: 23325 Wimbledon Road

What date would you have replaced your

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced your equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Mercer Elementary Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption.	See lighting calculator	5 to 10 years	N/A
2	Mercer Elementary Controls	Controls were installed to shut off ventilator fans during unoccupied hours, which decreased energy consumption.	See custom project calculaor and engineering study for HB264 project	N/A	N/A

Rev (2.1.2012)

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Mercer Elementary

Principal Address: 23325 Wimbledon Road

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011	304,393	304,393	304,393					
	2010	311,834	311,834	311,834					
	2009	365,962	365,962	365,962					
	Average	327,396	327,396	327,396					
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Mercer Elementary Lighting Retrofit	09/01/2012	\$73,437	\$36,719	83,062	83,062	-	\$4,153	\$3,115
2	Mercer Elementary Controls	12/31/2012	\$18,850	\$9,425	13,660	13,660	-	\$1,093	\$820
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
							-		
		Total	\$92,287		96,722	96,722	0	\$5,246	\$3,935

Docket No. 13-0167 Site: 23325 Wimbledon Road

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	ty Avoided Cost \$/MWh (B)	Ut	ility Avoided Cost \$ (C)	ι	Jtility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	Тс	otal Utility Cost \$ (G)	UCT (H)
1	83	\$ 308	\$	25,606	\$	2,025	\$3,115	\$831	\$	5,970	4.3
2	14	\$ 308	\$	4,211	\$	2,025	\$820	\$137	\$	2,981	1.41
Total	97	\$ 308		29,817		4,050	\$3,935	\$967		8,952	3.3

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

(G) = (D) + (E) + (F)

(H) =(C) / (G)

Shaker Heights City Schools ~ Mercer Elementary Docket No. 13-0167

Site: 23325 Wimbledon Road

	Schedule Unit Ventilator Fans - Mercer							
	Motor Savings			Bin To	emperature	Ventila	tion End	ergy Consumption
Name	Description	Value	Units	StrTemp	EndTemp	T(F)	hrs1-24	Qng (Btu/hr) = Qvent x (Tset - Toa) x hrs / Eff
IPm	motor rating	0.125	hp	105	109	107	0	0
PI.	percent loaded	0.7		100	104	102	0	0
Effm	motor efficiency	0.6	-	95	99	95.7	3	0
Pm	Motor power = HPm x 0.746 kW/hp x PL / Effm	0.1	kW	90	94	91.9	43	0
HPW	operating hours per week	118	hr/wk	85	89	87.5	127	0
WPY	operating weeks per year	29.4	wk/yr	80	84	82	359	0
Esav	Energy Savings = Pm x HPW x WPY	506	kWh/yr	75	79	76.7	523	0
ACE	Avoided cost of Electricity	0.07854	S/kWh	70	74	72.4	617	0
Csav	Cost Savings = Esav x ACE	\$40	S/yr	65	69	68	754	0
	X · · · · · · · · · · · · ·			60	64	62.5	1,029	U
	Ventilation Savings			55	59	57.2	604	0
Name	Description	Value	Units	50	54	51.9	631	0
CFM	Unit ventilator air flow	1000	ft^3/min	45	49	47.6	420	0
Poa	Percent outdoor air	0	-	40	44	42.8	529	0
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/hr-F	35	39	37.4	904	0
Tia	Indoor air setpoint temperature	70	F	30	34	32	749	0
Tbal	Balance point temperture	65	I.	25	29	27.5	497	0
Eff	Heating system efficiency	0.8		20	24	23.2	370	0
HPW	Hours per week	118	hr/wk	15	19	17.5	335	0
WPY	Weeks per year	29.4	wk/yr	10	14	12.2	155	0
HPY	Hours per year = HPW x WPY	3469.2	hr/yr	5	9	7.7	65	0
Ft	Fraction time OA damper closed = HPY / 8,760	0.396		0	4	2.7	22	0
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr	-5	-1	-1.5	21	0
Qng,total	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr	-10	6	-5.1	3	0
Cng	Cost of natural gas		\$/mmBtu				Total	0
Cng,sav	Annual NG cost savings = Cng x Qng,total	\$0	\$/yr					
	Overall Total Savings			90%				
Name	Description	Value	Units	100m				
Nv	Number of ventilators	27		SU 60%				Figure 1: Representa- tive subfractional
ElecSav	Total annual electricity savings = Nv x Esav	13,660	kWh/yr	80%				horsepower motor
	Cost Savings = ElecSav x ACE	\$1,073	S/yr					frigerator fan mo-
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr	Noto Noto			Shadod Po	te tors), ²
NgCostSav	Annual NG cost savings = Cng x NgSav	\$0	5/yr	0%	-	-	ECPM	_]
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Ohio Edison • The Illuminating Company • Toledo Edison

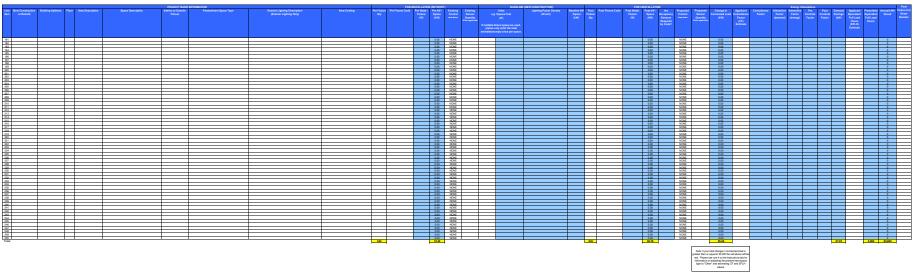
Mercantile Customer Program - Custom Project Rebate Calculator

Project Name and Number:	Controls
Site Name:	Shaker Hghts Mercer Elementary
Completed by (Name):	Michele DiFrancesco
Date completed:	3/25/2013

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
shutting off unit ventilatorsfans during	13,660	1092.80
unoccupied hours		
Total Project Energy Savings kWh	13,660	
Total Custom Prescriptive	Rebate Amount \$	\$ 1,092.80

Notes about this rebate calculation:
See engineering study completed for HB264 program.

Lighting Inventory Form					
Agkont Name Baker Hight Cly Goods Facility Name Macae Elementary Date: \$20043	For existing or propo	e line for each flature type in a score or area proposed control, choose OCC for Occupany Sensor, DAY for photosensor, H-La Jamo S. the quantifier of CEI a sort and science in Column M. and the quantifier of an	or bi-level sensors or NCNE for none. Controls in spaces where existing controls exist do not quality. sors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.		
Linitina Zana Inderitar zona i Linitina Zana Inderitar zona i December zona i					Press Onto Antonio
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Project Estimated Annual Savings Summary					
Lighting					
Estimated Annual kWh Savings	83,062				
Total Change in Connected Load	35.66				
Annual Estimated Cost Savings	\$8,306.20				
Annual Operating Hours	2,080				
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$4,153.10				
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00				
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00				
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00				
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00				
Total Calculated Incentive	\$4,153.10				
Total Fixture Quantity excluding retrofit	543				
CFLs and LED Exit Signs Total Lamp Quantity for retrofit Screw-In	0				
CFLs	U				

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	

Site Address: Shaker Heights Middle School Principal Address: 20600 Shaker Boulevard

What date would you have replaced your

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced your Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Shaker Heights Middle School Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption.	See lighting calculator	5 to 10 years	N/A
2	Shaker Heights Middle School Controls	Controls were installed to shut off ventilator fans during unoccupied hours, which decreased energy consumption.	See custom project calculaor and engineering study for HB264 project proposal	N/A	N/A

Rev (2.1.2012)

Site Address: Shaker Heights Middle School

Principal Address: 20600 Shaker Boulevard

		Unadjusted Usage, kwh (A)		Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011 2010	991,956 1,008,420	991,956 1,008,420	991,956 1,008,420					
	2009	1,025,472	1,025,472	1,025,472					
	Average	1,008,616	1,008,616	1,008,616					
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Shaker Heights Middle School Lighting Retrofit	09/01/2012	\$88,352	\$44,176	86,081	86,081	-	\$4,304	\$3,228
2	Shaker Heights Middle School Controls	12/31/2012	\$22,620	\$11,310	25,802	25,802	-	\$2,064	\$1,548
					-	-	-		
					-		-		
					-	-	-		
					-		-		
							-		
		Total	\$110,972		111,883	111,883	0	\$6,368	\$4,776

Docket No. 13-0167 Site: 20600 Shaker Boulevard

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	ty Avoided Cost \$/MWh (B)	Ut	tility Avoided Cost \$ (C)	ι	Jtility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	То	otal Utility Cost \$ (G)	UCT (H)
1	86	\$ 308	\$	26,537	\$	2,025	\$3,228	\$861	\$	6,114	4.3
2	26	\$ 308	\$	7,954	\$	2,025	\$1,548	\$258	\$	3,831	2.08
Total	112	\$ 308		34,491		4,050	\$4,776	\$1,119		9,945	3.5

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

(G) = (D) + (E) + (F)

(H) = (C) / (G)

Shaker Heights City Schools ~ Shaker Heights Middle School Docket No. 13-0167

Site: 20600 Shaker Boulevard



Ohio Edison • The Illuminating Company • Toledo Edison

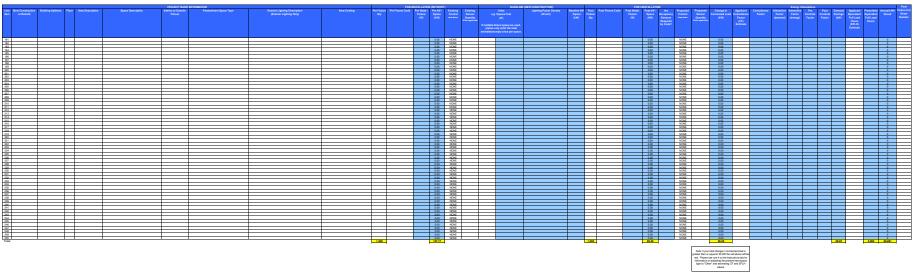
Mercantile Customer Program - Custom Project Rebate Calculator

Project Name and Number:	Controls
Site Name:	Shaker Hghts Middle School
Completed by (Name):	Michele DiFrancesco
Date completed:	3/25/2013

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08				
shutting off unit ventilatorsfans during	25,802	2064.16				
unoccupied hours						
Total Project Energy Savings kWh	25,802					
Total Custom Prescriptive	Total Custom Prescriptive Rebate Amount \$					

Notes about this rebate calculation:							
See engineering study completed for HB264 program.							

Lighting Inventory Form										
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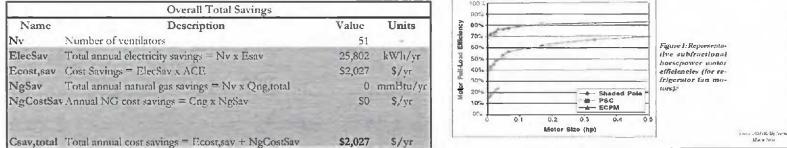


Project Estimated Annual Savings Summary						
Lighting						
Estimated Annual kWh Savings	86,081					
Total Change in Connected Load	36.95					
Annual Estimated Cost Savings	\$8,608.10					
Annual Operating Hours	2,080					
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$4,304.05					
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00					
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00					
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00					
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00					
Total Calculated Incentive	\$4,304.05					
Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	1339					
Total Lamp Quantity for retrofit Screw-In CFLs	0					
01 L3						

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	
		on the Lighting Form

	Motor Savings	_	_	Bin T
Name	Description	Value	Units	StrTem
HPm	motor rating	0.125	hp	105
PL	percent loaded	0.7	-	100
Effm	motor efficiency	0.6	-	95
Pm	Motor power = HPm x 0.746 kW/hp x PL / Effm	0.1	kW	90
HPW	operating hours per week	118	hr/wk	85
WPY	operating weeks per year	29.4	wk/yr	80
Esav	Energy Savings = Pm x HPW x WPY	506	kWh/yr	75
ACE	Avoided cost of Electricity	0.07854	S/kWh	70
Csav	Cost Savings = Esav x ACE	\$40	\$/yr	55
	0			60
	Ventilation Savings			55
Name	Description	Value	Units	50
CFM	Unit ventilator air flow	1000	ft^3/min	45
Poa	Percent outdoor air	0		40
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/hr-F	35
Tia	Indoor air serpoint temperature	70	F	30
Tbal	Balance point temperture	65	F	25
Eff	Heating system efficiency	0.8		20
HPW	Hours per week	118	hr/wk	15
WPY	Weeks per year	29.4	wk/yr	10
HPY	Hours per year = HPW x WPY	3469.2	hr/vr	5
Ft	Fraction time OA damper closed = HIPY / 8,760	0.396		0
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr	-5
Qng,total	Acutal NG savings =Qng.pot x Ft		mmBtu/yr	-10
Cng	Cost of natural gas	8.12	\$/mmBtu	
Cng.sav	Annual NG cost savings = Cng x Qng,total	SO	\$/yr	
	Overall Total Savings			100 %
Name	Description	Value	Units	
Nv	Number of ventilators	51	-	5005 70%
ElecSav	Total annual electricity savings = Nv x Esav	25,802	kWh/yr	
Ecost,sav	Cost Savings = ElecSav x ACE	\$2,027	\$/yr	9 50% 9 40%
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr	20%
No CostSa	v Annual NG cost savings = Cog x NoSav	SO	S/vr	3 10%

StrTemp	EndTemp	T(F)	hrs1-24	Qng (Btu/hr) = Qvent x (Tset - Toa) x hrs / Eff
105	109	107	Û	0
100	104	102	0	0
95	99	95.7	3	0
90	94	91.9	43	0
85	89	87.5	127	0
80	84	82	359	0
75	79	76.7	523	U
70	74	72.4	617	0
55	69	68	754	0
60	64	62.5	1,029	0
55	59	57.2	604	0
50	54	51.9	631	0
45	49	47.6	420	0
40	44	42.8	529	0
35	39	37.4	904	0
30	34	32	7.9	0
25	29	27.5	497	0
20	24	23.2	370	0
15	19	17.5	335	0
10	14	12.2	155	0
5	9	7.7	65	0
0	4	2.7	22	0
-5	-1	-1.5	21	0
-10	-6	-5.1	3	0



Site Address: Onaway Elementary Principal Address: 3115 Woodbury Road

What date would you have replaced your

equipment if you had not replaced it early? Please describe the less efficient new Project Narrative description of your program including, but not limited to, Description of methodologies, protocols and practices Also, please explain briefly how you equipment that you rejected in favor of No. Project Name make, model, and year of any installed and replaced equipment: used in measuring and verifying project results determined this future replacement date. the more efficient new equipment. Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption. Onaway Elementray Lighting Retrofit See lighting calculator 5 to 10 years N/A 1

Rev (2.1.2012)

Site Address: Onaway Elementary

Principal Address: 3115 Woodbury Road

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011	222,139	222,139	222,139					
	2010 2009	236,409 323,970	236,409 323,970	236,409 323,970					
	Average	260,839	260,839	260,839					
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Onaway Elementray Lighting Retrofit	09/01/2012	\$49,277	\$24,639	78,084	78,084	•	\$3,904	\$2,928
					-	-	-		
					-		-		
					-		-		
					-	-	-		
					-	-	-		
							-		
		Total	\$49,277		78,084	78,084	0	\$3,904	\$2,928

Weather Adjusted Hears

Docket No. 13-0167 **Site:** 3115 Woodbury Road

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	Utility Avoided Cost \$/MWh (B)	Utility Avoided Cost \$ (C)	Utility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	Total Utility Cost \$ (G)	UCT (H)
1	78	\$ 308	\$ 24,072	\$ 4,050	\$2,928	\$781	\$ 7,759	3.1
Total	78	\$ 308	24,072	4,050	\$2,928	\$781	7,759	3.1

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

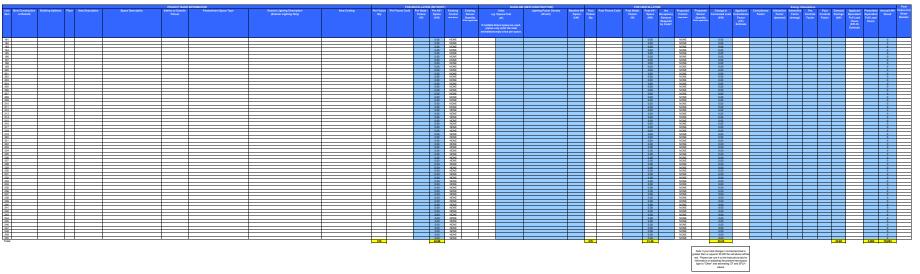
(G) = (D) + (E) + (F)

(H) =(C) / (G)

Shaker Heights City Schools ~ Onaway Elementary Docket No. 13-0167

Site: 3115 Woodbury Road

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Project Estimated Annual Savings Summary				
Lighting				
Estimated Annual kWh Savings	78,084			
Total Change in Connected Load	33.52			
Annual Estimated Cost Savings	\$7,808.40			
Annual Operating Hours	2,080			
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$3,904.20			
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00			
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00			
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00			
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00			
Total Calculated Incentive	\$3,904.20			
Total Fixture Quantity excluding retrofit	576			
CFLs and LED Exit Signs Total Lamp Quantity for retrofit Screw-In CFLs	0			
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Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	

Site Address: Shaker Heights Service Center Principal Address: 3654 Lee Road

What date would you have replaced your

Project No.	Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced it early? Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Shaker Heights Service Center Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption.	See lighting calculator	5 to 10 years	N/A

Rev (2.1.2012)

Site Address: Shaker Heights Service Center Principal Address: 3654 Lee Road

	2011	Unadjusted Usage, kwh (A) 38,426	Weather Adjusted Usage, kwh (B) 38,426	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1 38,426	6				
	2010 2009	39,760 42,300	39,760 42,300	39,760 42,300					
	Average	42,300	42,300	40,162					
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Shaker Heights Service Center Lighting Retrofit	08/01/2012	\$4,000	\$2,000	29,966	29,966	•	\$1,498	\$1,124
					-	-	-		
							-		
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						-			
		Total	\$4,000		29,966	29,966	0	\$1,498	\$1,124

Docket No. 13-0167 **Site:** 3654 Lee Road

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	Utility Avoic Cost \$/MWh (B)	led l	Utility Avoided Cost \$ (C)	Utility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	Total Utility Cost \$ (G)	UCT (H)
1	30	\$ 3	08 \$	9,238	\$ 4,050	\$1,124	\$300	\$ 5,473	1.7
Total	30	\$ 3	08	9,238	4,050	\$1,124	\$300	5,473	1.7

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

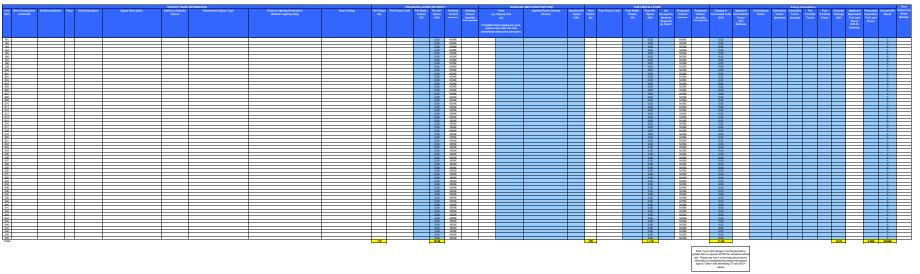
(G) = (D) + (E) + (F)

(H) = (C) / (G)

Shaker Heights City Schools ~ Shaker Heights Service Center Docket No. 13-0167

Site: 3654 Lee Road

Lighting Inventory Form					
Applicant New Desker Legin (Cry School) Facility New Carego Desc 201913 Justino School Lindbac New 3			ikare type in a com or ness ori, dhoose OCC for Cocupany Sensor, DAY for photosensor, H-Lo for bi-level sensors or NONE for none atlifies of CPLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calc		
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Project Estimated Annual Savings Summary				
Lighting				
Estimated Annual kWh Savings	29,966			
Total Change in Connected Load	11.20			
Annual Estimated Cost Savings	\$2,996.60			
Annual Operating Hours	2,388			
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$1,498.30			
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00			
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00			
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00			
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00			
Total Calculated Incentive	\$1,498.30			
	φ1,430.30			
Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	109			
Total Lamp Quantity for retrofit Screw-In				

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	
Total Quantity for Daylight Sensors	0	

Site Address: Woodbury Elementary Principal Address: 15400 South Woodland Road

What date would you have replaced your

Projec No.	t Project Name	Narrative description of your program including, but not limited to, make, model, and year of any installed and replaced equipment:	Description of methodologies, protocols and practices used in measuring and verifying project results	equipment if you had not replaced your Also, please explain briefly how you determined this future replacement date.	Please describe the less efficient new equipment that you rejected in favor of the more efficient new equipment.
1	Woodbury Elementary Lighting Retrofit	Replaced all T12, 60,75,100, and 150W, and Metal Halide fixtures with energy efficient 32W T8 and incandescent fixtures that reduced energy consumption.	See lighting calculator	5 to 10 years	N/A
2	Woodbury Elementary Controls	Controls were installed to shut off ventilator fans during unoccupied hours to decreased energy consumption.	See custom project calculaor and engineering study for HB264 project	N/A	N/A

Rev (2.1.2012)

Site Address: Woodbury Elementary

Principal Address: 15400 South Woodland Road

		Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) Note 1					
	2011 2010 2009	1,421,196 1,369,452 1,358,868	1,421,196 1,369,452 1,358,868	1,421,196 1,369,452 1,358,868	2				
	Average	1,383,172	1,383,172	1,383,172	2				
Project Number	Project Name	In-Service Date	Project Cost \$	50% of Project Cost \$	KWh Saved/Year (D) counting towards utility compliance	KWh Saved/Year (E) eligible for incentive	Utility Peak Demand Reduction Contribution, KW (F)	Prescriptive Rebate Amount (G) \$	Eligible Rebate Amount (H) \$ Note 2
1	Woodbury Elementary Lighting Retrofit	09/01/2012	\$159,609	\$79,805	207,127	207,127	-	\$10,356	\$7,767
2	Woodbury Elementary Controls	12/31/2012	\$28,275	\$14,138	26,308	26,308	-	\$2,105	\$1,579
					-	-	•		
					-	-	-		
						-	•		
					-	-	-		
						-	-		
		Total	\$187,884		233,435	233,435	0	\$12,461	\$9,346

Weather Adjusted Hears

Docket No. 13-0167 Site: 15400 South Woodland Road

Notes

(1) Customer's usage is adjusted to account for the effects of the energy efficiency programs included in this application. When applicable, such adjustments are prorated to the in-service date to account for partial year savings.

(2) The eligible rebate amount is based upon 75% of the rebates offered by the FirstEnergy Commercial and Industrial Energy Efficiency programs or 75% of \$0.08/kWh for custom programs for all energy savings eligible for a cash rebate as defined in the PUCO order in Case NO.10-834-EL-EEC dated 9/15/2010, not to exceed the lesser of 50% of the project cost or \$250,000 per project. The rebate also cannot exceed \$500,000 per customer per year, per utility service territory.



Exhibit 3 Utility Cost Test

UCT = Utility Avoided Costs / Utility Costs

Project	Total Annual Savings, MWh (A)	C \$/I	Avoided Cost MWh (B)	Ut	ility Avoided Cost \$ (C)	l	Utility Cost \$ (D)	Cash Rebate \$ (E)	Administrator Variable Fee \$ (F)	То	otal Utility Cost \$ (G)	UCT (H)
1	207	\$	308	\$	63,853	\$	2,025	\$7,767	\$2,071	\$	11,863	5.4
2	26	₽ \$	308	\$	8,110	₽ \$	2,025	\$1,579	\$263	\$	3,867	2.10
Total	233	\$	308		71,963		4,050	\$9,346	\$2,334		15,730	4.6

Notes

- (A) From Exhibit 2, = kWh saved / 1000
- (B) This value represents avoided energy costs (wholesale energy prices) from the Department of Energy, Energy Information Administration's 2009 Annual Energy Outlook (AEO) low oil prices case. The AEO represents a national average energy price, so for a better representation of the energy price that Ohio customers would see, a Cinergy Hub equivalent price was derived by applying a ratio based on three years of historic national average and Cinergy Hub prices. This value is consistent with avoided cost assumptions used in EE&PDR Program Portfolio and Initial Benchmark Report, filed Dec 15, 2009 (See Section 8.1, paragraph a).

(C) = (A) * (B)

- (D) Represents the utility's costs incurred for self-directed mercantile applications for applications filed and applications in progress. Includes incremental costs of legal fees, fixed administrative expenses, etc.
- (E) This is the amount of the cash rebate paid to the customer for this project.
- (F) Based on approximate Administrator's variable compensation for purposes of calculating the UCT, actual compensation may be less.

(G) = (D) + (E) + (F)

(H) =(C) / (G)

Shaker Heights City Schools ~ Woodbury Elementary Docket No. 13-0167

Site: 15400 South Woodland Road

	Motor Savings			Bin Te	emperature V	entila	tion Ene	rgy C	Consumption
Name	Description	Value	Units	StrTemp	EndTemp	T(F)	hrs1-24	Qvc	(Btu/hr) = nt x (Tsct -) x hrs / Eff
HPm	motor rating	0.125	hp	105	109	107	0		0
PL	percent loaded	0.7		100	104	102	0		0
Effm	motor efficiency	0.6		95	99	95.7	3		0
Pm	Motor power = HPm x 0.746 kW/hp x PL / Effm	0.1	kW	90	94	91.9	43		0
HPW	operating hours per week	118	hr/wk	85	89	87.5	127		0
WPY	operating weeks per year	29.4	wk/yr	80	84	82	359		υ
Esav	Energy Savings = Pm x HPW x WPY	506	kWh/yr	75	79	76.7	523		0
ACE	Avoided cost of Electricity	0.07854	S/kWh	70	74	72.4	617		0
Csav	Cost Savings = Esav x ACE	\$40	S/vr	65	69	68	754		0
				60	64	62.5	1,029		0
	Ventilation Savings			55	59	57.2	604		0
Name	Description	Value	Units	50	54	51.9	631		0
CFM	Unit ventilator air flow	1000	ft^3/min	45	49	47.6	420		0
Poa	Percent outdoor air	0		40	44	42.8	529		0
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/hr-F	35	39	37.4	904		0
Tia	Indoor air setpoint temperature	70	F	30	34	32	749		0
Tbal	Balance point temperture	65	F	25	29	27.5	497		0
Eff	Heating system efficiency	0.8		20	24	23.2	370		0
HPW	Hours per week	118	hr/wk	15	19	17.5	335		0
WPY	Weeks per year	29.4	wk/yr	10	14	12.2	155	<u> </u>	0
HPY	Hours per year = HPW x WPY	3469.2	hr/yr	5	9	7.7	65		0
Ft	Fraction time OA damper closed = HPY / 8,760	0.396		0	4	2.7	22		0
Qng,pot	Potential NG savings - sum of Qng	0.00	mmBtu/vr	-5	-1	-1.5	21		0
and the second se	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr	-10	-6	-5.1	3	-	0
Cng	Cost of natural gas		\$/mmBtu				Total		0
Cng,sav	Annual NG cost savings = Cng x Qng,total	\$0	S/vr	100%					
				90%			_		
	Overall Total Savings			Keuojojiju 70%					
Name	Description	Value	Units		-				Figure 1: Represent
Nv	Number of ventilators	52	-	50% 50%	<u> </u>		_	_	tive subfraction. borsepower moto
ElecSav	Total annual electricity savings = Nv x Esav	26,308	kWh/yr			_			efficiencies (for re frigerator fun me
Ecost,sav	Cost Savings = ElecSav x ACE	\$2,066	S/yr	Motor			- Shaded Pe	ale	tors)."
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr	10%	_		- PSC - ECPM		
NgCostSav	Annual NG cost savings = Cng x NgSav	\$0	S/yr	ů.	0.1 0.2	03 r 6420 (h	0.4	0.5	



faure (455-1671) lines Mark



Ohio Edison • The Illuminating Company • Toledo Edison

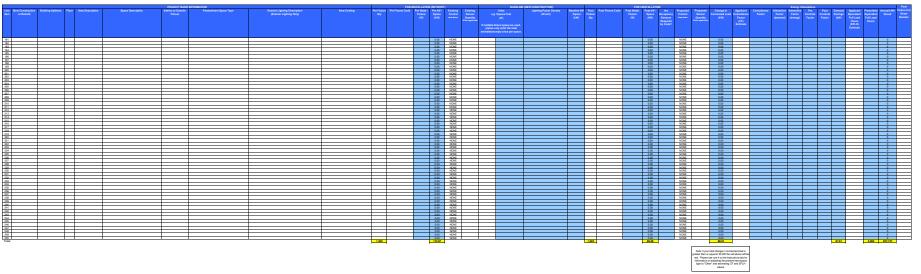
Mercantile Customer Program - Custom Project Rebate Calculator

Project Name and Number:	Controls
Site Name:	Shaker Hghts Woodbury Elementary
Completed by (Name):	Michele DiFrancesco
Date completed:	3/25/2013

Energy Conservation Measure	Annual Energy Savings kWh	Eligible Prescriptive Rebate Amount kWh * \$0.08
shutting off unit ventilatorsfans during	26,308	2104.64
unoccupied hours		
Total Project Energy Savings kWh	26,308	
Total Custom Prescriptive	Rebate Amount \$	\$ 2,104.64

Notes about this rebate calculation:
See engineering study completed for HB264 program.

Lighting Inventory Form															
Aglorithme Deservings Ch School Facility Team Westury Chryster With School See 2014	inst		pased control, cho	ose OCC for Occupa	any Sensor, DAY			E for none. Controls in spaces where ed to calculate your incentive on the							
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Project Estimate Savings Sum	
Lighting	
Estimated Annual kWh Savings	207,127
Total Change in Connected Load	88.91
Annual Estimated Cost Savings	\$20,712.70
Annual Operating Hours	2,080
Interior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$10,356.35
Exterior Lighting Incentive @ \$0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	\$0.00
Total retrofit CFL Incentive @ \$1/screw-in CFL lamp; \$15/hard- wired CFL lamp (includes all retrofit CFLs, both interior and exterior)	\$0.00
Total retrofit LED Exit Incentive @ \$10/exit sign	\$0.00
Total Lighting Controls Incentive @ \$25/occupancy sensor and \$25/daylight sensor (includes all Lighting Controls, both interior and exterior)	\$0.00
Total Calculated Incentive	\$10,356.35
Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	1322
Total Lamp Quantity for retrofit Screw-In CFLs	0

Total Lamp Quantity for retrofit Hard-Wired CFLs	0	
Total Fixture Quantity for retrofit LED Exit Signs	0	
Total Quantity for Occupancy Sensors	0	_
Total Quantity for Daylight Sensors	0	

<u>Mercantile Customer Project Commitment Agreement</u> <u>Cash Rebate Option</u>

THIS MERCANTILE CUSTOMER PROJECT COMMITMENT AGREEMENT ("Agreement") is made and entered into by and between The Cleveland Electric Illuminating Company, its successors and assigns (hereinafter called the "Company") and Shaker Heights City Schools, Taxpayer ID No. 34-1083568 its permitted successors and assigns (hereinafter called the "Customer") (collectively the "Parties" or individually the "Party") and is effective on the date last executed by the Parties as indicated below.

WITNESSETH

WHEREAS, the Company is an electric distribution utility and electric light company, as both of these terms are defined in R.C. § 4928.01(A); and

WHEREAS, Customer is a mercantile customer, as that term is defined in R.C. § 4928.01(A)(19), doing business within the Company's certified service territory; and

WHEREAS, R.C. § 4928.66 (the "Statute") requires the Company to meet certain energy efficiency and peak demand reduction ("EE&PDR") benchmarks; and

WHEREAS, when complying with certain EE&PDR benchmarks the Company may include the effects of mercantile customer-sited EE&PDR projects; and

WHEREAS, Customer has certain customer-sited demand reduction, demand response, or energy efficiency project(s) as set forth in attached Exhibit 1 (the "Customer Energy Project(s)") that it desires to commit to the Company for integration into the Company's Energy Efficiency & Peak Demand Reduction Program Portfolio Plan ("Company Plan") that the Company will implement in order to comply with the Statute; and

WHEREAS, the Customer, pursuant to the Public Utilities Commission of Ohio's ("Commission") September 15, 2010 Order in Case No. 10-834-EL-EEC, desires to pursue a cash rebate of some of the costs pertaining to its Customer Energy Project(s) ("Cash Rebate") and is committing the Customer Energy Project(s) as a result of such incentive.

WHEREAS, Customer's decision to commit its Customer Energy Project(s) to the Company for inclusion in the Company Plan has been reasonably encouraged by the possibility of a Cash Rebate.

WHEREAS, in consideration of, and upon receipt of, said cash rebate, Customer will commit the Customer Energy Project(s) to the Company and will comply with all other terms and conditions set forth herein.

NOW THEREFORE, in consideration of the mutual promises set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties, intending to be legally bound, do hereby agree as follows:

1. Customer Energy Projects. Customer hereby commits to the Company and Company accepts for integration into the Company Plan the Customer Energy Project(s) set forth on attached Exhibit 1. Said commitment shall be for the life of the Customer Energy Project(s). Company will incorporate said project(s) into the Company Plan to the extent that such projects qualify. In so committing, and as evidenced by the affidavit attached hereto as Exhibit A, Customer acknowledges that the information provided to the Company about the Customer Energy Project(s) is true and accurate to the best of its knowledge.

- a. By committing the Customer Energy Project(s) to the Company, Customer acknowledges and agrees that the Company shall control the use of the kWh and/or kW reductions resulting from said projects for purposes of complying with the Statute. By committing the Customer Energy Project(s), Customer further acknowledges and agrees that the Company shall take ownership of the energy efficiency capacity rights associated with said Project(s) and shall, at its sole discretion, aggregate said capacity into the PJM market through an auction. Any proceeds from any such bids accepted by PJM will be used to offset the costs charged to the Customer and other of the Company's customers for compliance with state mandated energy efficiency and/or peak demand requirements
- b. The Company acknowledges that some of Customer's Energy Projects contemplated in this paragraph may have been performed under certain other federal and/or state programs in which certain parameters are required to be maintained in order to retain preferential financing or other government benefits (individually and collectively, as appropriate, "Benefits"). In the event that the use of any such project by the Company in any way affects such Benefits, and upon written request from the Customer, Company will release said Customer's Energy Project(s) to the extent necessary for Customer to meet the prerequisites for such Benefits. Customer acknowledges that such release (i) may affect Customer's cash rebate discussed in Article 3 below; and (ii) will not affect any of Customer's other requirements or obligations.
- c. Any future Customer Energy Project(s) committed by Customer shall be subject to a separate application and, upon approval by the Commission, said projects shall become part of this Agreement.
- d. Customer will provide Company or Company's agent(s) with reasonable assistance in the preparation of the Commission's standard joint application for approval of this Agreement ("Joint Application") that will be filed with the Commission, with such Joint Application being consistent with then current Commission requirements.
- e. Upon written request and reasonable advance notice, Customer will grant employees or authorized agents of either the Company or the Commission reasonable, pre-arranged access to the Customer Energy Project(s) for purposes of measuring and verifying energy savings and/or peak demand reductions resulting from the Customer Energy Project(s). It is expressly agreed that consultants of either the Company or the Commission are their respective authorized agents.
- 2. Joint Application to the Commission. The Parties will submit the Joint Application using the Commission's standard "Application to Commit Energy Efficiency/Peak Demand Reduction Programs" ("Joint Application") in which they will seek the Commission's approval of (i) this Agreement: (ii) the commitment of the Customer Energy Project(s) for inclusion in the Company Plan; and (iii) the Customer's Cash Rebate.

The Joint Application shall include all information as set forth in the Commission's standard form which, includes without limitation:

- i. A narrative description of the Customer Energy Project(s), including but not limited to, make, model and year of any installed and/or replaced equipment;
- ii. A copy of this Agreement; and
- iii. A description of all methodologies, protocols, and practices used or proposed to be used in measuring and verifying program results.

- 3. Customer Cash Rebate. Upon Commission approval of the Joint Application, Customer shall provide Company with a W-9 tax form, which shall at a minimum include Customer's tax identification number. Within the greater of 90 days of the Commission's approval of the Joint Application or the completion of the Customer Energy Project, the Company will issue to the Customer the Cash Rebate in the amount set forth in the Commission's Finding and Order approving the Joint Application.
 - a. Customer acknowledges: i) that the Company will cap the Cash Rebate at the lesser of 50% of Customer Energy Project(s) costs or \$250,000; ii) the maximum rebate that the Customer may receive per year is \$500,000 per Taxpayer Identification Number per utility service territory; and iii) if the Customer Energy Project qualifies for a rebate program approved by the Commission and offered by the Company, Customer may still elect to file such project under the Company's mercantile customer self direct program, however the Cash Rebate that will be paid shall be discounted by 25%; and
 - b. Customer acknowledges that breaches of this Agreement, include, but are not limited to:
 - i. Customer's failure to comply with the terms and conditions set forth in the Agreement, or its equivalent, within a reasonable period of time after receipt of written notice of such non-compliance;
 - ii. Customer knowingly falsifying any documents provided to the Company or the Commission in connection with this Agreement or the Joint Application.
 - c. In the event of a breach of this Agreement by the Customer, Customer agrees and acknowledges that it will repay to the Company, within 90 days of receipt of written notice of said breach, the full amount of the Cash Rebate paid under this Agreement. This remedy is in addition to any and all other remedies available to the Company by law or equity.
- 4. Termination of Agreement. This Agreement shall automatically terminate:
 - a. If the Commission fails to approve the Joint Agreement;
 - b. Upon order of the Commission; or
 - c. At the end of the life of the last Customer Energy Project subject to this Agreement.

Customer shall also have an option to terminate this Agreement should the Commission not approve the Customer's Cash Rebate, provided that Customer provides the Company with written notice of such termination within ten days of either the Commission issuing a final appealable order or the Ohio Supreme Court issuing its opinion should the matter be appealed.

- 5. Confidentiality. Each Party shall hold in confidence and not release or disclose to any person any document or information furnished by the other Party in connection with this Agreement that is designated as confidential and proprietary ("Confidential Information"), unless: (i) compelled to disclose such document or information by judicial, regulatory or administrative process or other provisions of law; (ii) such document or information is generally available to the public; or (iii) such document or information was available to the receiving Party on a non-confidential basis at the time of disclosure.
 - a. Notwithstanding the above, a Party may disclose to its employees, directors, attorneys, consultants and agents all documents and information furnished by the other Party in connection with this Agreement, provided that such employees, directors, attorneys,

consultants and agents have been advised of the confidential nature of this information and through such disclosure are deemed to be bound by the terms set forth herein.

- b. A Party receiving such Confidential Information shall protect it with the same standard of care as its own confidential or proprietary information.
- c. A Party receiving notice or otherwise concluding that Confidential Information furnished by the other Party in connection with this Agreement is being sought under any provision of law, to the extent it is permitted to do so under any applicable law, shall endeavor to:
 (i) promptly notify the other Party; and (ii) use reasonable efforts in cooperation with the other Party to seek confidential treatment of such Confidential Information, including without limitation, the filing of such information under a valid protective order.
- d. By executing this Agreement, Customer hereby acknowledges and agrees that Company may disclose to the Commission or its Staff any and all Customer information, including Confidential Information, related to a Customer Energy Project, provided that Company uses reasonable efforts to seek confidential treatment of the same.
- 6. **Taxes.** Customer shall be responsible for all tax consequences (if any) arising from the payment of the Cash Rebate.
- 7. **Notices.** Unless otherwise stated herein, all notices, demands or requests required or permitted under this Agreement must be in writing and must be delivered or sent by overnight express mail, courier service, electronic mail or facsimile transmission addressed as follows:

If to the Company:

FirstEnergy Service Company 76 South Main Street Akron, OH 44308 Attn: Victoria Nofziger Telephone: 330-384-4684 Fax: 330-761-4281 Email: <u>vmnofziger@firstenergycorp.com</u>

If to the Customer:

Shaker Heights City Schools 15600 Parkland Drive Shaker Heights, Ohio 44120 Attn:Dr. Robert Kreiner Telephone:216-295-4312 Fax: Email: or to such other person at such other address as a Party may designate by like notice to the other Party. Notice received after the close of the business day will be deemed received on the next business day; provided that notice by facsimile transmission will be deemed to have been received by the recipient if the recipient confirms receipt telephonically or in writing.

- 8. Authority to Act. The Parties represent and warrant that they are represented by counsel in connection with this Agreement, have been fully advised in connection with the execution thereof, have taken all legal and corporate steps necessary to enter into this Agreement, and that the undersigned has the authority to enter into this Agreement, to bind the Parties to all provisions herein and to take the actions required to be performed in fulfillment of the undertakings contained herein.
- 9. Non-Waiver. The delay or failure of either party to assert or enforce in any instance strict performance of any of the terms of this Agreement or to exercise any rights hereunder conferred, shall not be construed as a waiver or relinquishment to any extent of its rights to assert or rely upon such terms or rights at any later time or on any future occasion.
- 10. Entire Agreement. This Agreement, along with related exhibits, and the Company's Rider DSE, or its equivalent, as amended from time to time by the Commission, contains the Parties' entire understanding with respect to the matters addressed herein and there are no verbal or collateral representations, undertakings, or agreements not expressly set forth herein. No change in, addition to, or waiver of the terms of this Agreement shall be binding upon any of the Parties unless the same is set forth in writing and signed by an authorized representative of each of the Parties. In the event of any conflict between Rider DSE or its equivalent and this document, the latter shall prevail.
- 11. Assignment. Customer may not assign any of its rights or obligations under this Agreement without obtaining the prior written consent of the Company, which consent will not be unreasonably withheld. No assignment of this Agreement will relieve the assigning Party of any of its obligations under this Agreement until such obligations have been assumed by the assignee and all necessary consents have been obtained.
- 12. Severability. If any portion of this Agreement is held invalid, the Parties agree that such invalidity shall not affect the validity of the remaining portions of this Agreement, and the Parties further agree to substitute for the invalid portion a valid provision that most closely approximates the economic effect and intent of the invalid provision.
- 13. Governing Law. This Agreement shall be governed by the laws and regulations of the State of Ohio, without regard to its conflict of law provisions.
- 14. **Execution and Counterparts.** This Agreement may be executed in multiple counterparts, which taken together shall constitute an original without the necessity of all parties signing the same page or the same documents, and may be executed by signatures to electronically or telephonically transmitted counterparts in lieu of original printed or photocopied documents. Signatures transmitted by facsimile shall be considered original signatures.

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IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their duly authorized officers or representatives as of the day and year set forth below.

The Cleveland Electric Illuminating Company_

(Company) ang By:

Title: V.P. Of Energy Efficiency

9-19-13 Date:

Shaker Heights City Schools_ (Eustomer) By: Koler <u>une</u>r Dolmen Title: During 19 2013 Date: Telemany

Affidavit of Shaker Heights City Schools - Exhibit _A _

STATE OF OHIO

SS:

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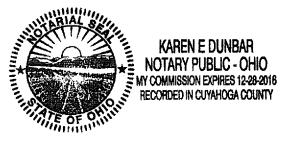
COUNTY OF Cuyahoga)

I, Dr. Robert Kreiner being first duly sworn in accordance with law, deposes and states as follows:

- 1. I am the Business Administrator of Shaker Heights City Schools ("Customer") As part of my duties, I oversee energy related matters for the Customer.
- 2. The Customer has agreed to commit certain energy efficiency projects to The Cleveland Electric Illuminating Company ("Company"), which are the subject of the agreement to which this affidavit is attached ("Project(s)").
- 3. In exchange for making such a commitment, the Company has agreed to provide Customer with Cash ("Incentive"). This Incentive was a critical factor in the Customer's decision to go forward with the Project(s) and to commit the Project(s) to the Company.
- 4. All information related to said Project(s) that has been submitted to the Company is true and accurate to the best of my knowledge.

FURTHER AFFIANT SAYETH NAUGHT.

Sworn to before me and subscribed in my presence this <u>19</u>^t day of <u>Feb</u>, 20<u>13</u> Karen E. Danba Notary



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This foregoing document was electronically filed with the Public Utilities

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12/2/2013 2:26:52 PM

in

Case No(s). 13-0167-EL-EEC

Summary: Application to Commit Energy Efficiency/Peak Demand Reduction Programs of The Cleveland Electric Illuminating Company and Shaker Heights City Schools electronically filed by Ms. Jennifer M. Sybyl on behalf of The Cleveland Electric Illuminating Company and Shaker Heights City Schools