Ohio | Public Utilities Commission

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

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. 10-834-EL-POR

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 ee-pdr@puc.state.oh.us.

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.
- ☒ 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):

☒ 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.)

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:

1) 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):

☒ A cash rebate of $57,128. (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.

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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.

Robert C. Kreiner, Business Administrator
Signature of Affiant & Title

Sworn and subscribed before me this 19th day of February, 2013 Month/Year

Karen E. Dunbar
Signature of official administering oath

KAREN E. DUNBAR
Print Name and Title

My commission expires on 12-28-2016

NOTARIAL SEAL STATE OF OHIO

KAREN E DUNBAR
NOTARY PUBLIC - OHIO
MY COMMISSION EXPIRES 12-28-2016
RECORDED IN CUYAHOGA COUNTY

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

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

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	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

Exhibit 2

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	1,656	1,656	1,656
2010	1,656	1,656	1,656
2009	1,665	1,665	1,665
Average	**1,659**	**1,659**	**1,659**

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
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
		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.

Commitment Payment $
$0

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. 13-0167

Site: 15600 Parkland Drive

Lighting Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools

Facility Name: Administration Building

Date: 5/7/2013

Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupancy Sensor, DAY for photosensor, HI-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts/ Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity (If Num. applicable)	Units e.g. Square Feet (ft²) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity (If Num. applicable)	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
ex	*Retrofit*	*400 North Street*	*3*	*Office*	*Other*	*Interior*	*Office - Small*		*Cooled Space*	*3*	*FA4ILL*	*112*	*0.34*	*NONE*																								
ex	*New Construction*	*Example*	*1*	*Restaurant*	*Conference, Meeting or Training Room*	*Exterior*	*Retail - Small*		*Cooled Space*							*600*	*Sheet 8*	*2.8*	*1.68*																		
1	Retrofit	15600 Parkland Drive	All	Office	Restrooms	Interior	Office - Large		Cooled Space	4	Cut Sheet 1	39	0.13	NONE					4	Cut Sheet 2	19	0.08	No	NONE		0.04		84%	84%	34%	12%	0%	0%	0.05		3,435	154	
2	Retrofit	15600 Parkland Drive	All	Office	Other	Interior	Office - Large		Cooled Space	2	Cut Sheet 3	115	0.23	NONE					2	Cut Sheet 4	75	0.15	No	NONE		0.08		84%	84%	34%	12%	0%	0%	0.09		3,435	309	
3	Retrofit	15600 Parkland Drive	All	Office	Other	Interior	Office - Large		Cooled Space	3	Cut Sheet 3	115	0.35	NONE					3	Cut Sheet 5	71	0.21	No	NONE		0.13		84%	84%	34%	12%	0%	0%	0.14		3,435	568	
4	Retrofit	15600 Parkland Drive	All	Office	Other	Interior	Office - Large		Cooled Space	4	Cut Sheet 6	144	0.58	NONE					4	Cut Sheet 3	90	0.36	No	NONE		0.22		84%	84%	34%	12%	0%	0%	0.23		3,435	733	
5	Retrofit	15600 Parkland Drive	All	Closet	Conference, Meeting or Training Room	Interior	Office - Large		Cooled Space	1	Cut Sheet 7	40	0.04	NONE					1	Cut Sheet 3	30	0.03	No	NONE		0.01		84%	84%	34%	12%	0%	0%	0.01		3,435	88	
6	Retrofit	15600 Parkland Drive	All	Stairwell	Other	Interior	Office - Large		Cooled Space	4	Cut Sheet 10	72	0.29	NONE					4	Cut Sheet 11	48	0.19	No	NONE		0.10		84%	84%	34%	12%	0%	0%	0.11		3,435	369	
7	Retrofit	15600 Parkland Drive	All	Office	Copy or Printing Room	Interior	Office - Large		Cooled Space	4	Cut Sheet 10	72	0.29	NONE					4	Cut Sheet 11	48	0.19	No	NONE		0.10		84%	84%	34%	12%	0%	0%	0.11		3,435	369	
8	Retrofit	15600 Parkland Drive	All	Office	Employee Lunch or Break Room	Interior	Office - Large		Cooled Space	14	Cut Sheet 10	72	1.01	NONE					14	Cut Sheet 11	48	0.67	No	NONE		0.34		84%	84%	34%	12%	0%	0%	0.38		3,435	1,292	
9	Retrofit	15600 Parkland Drive	All	Hallway	Other	Interior	Office - Large		Cooled Space	99	Cut Sheet 10	72	7.06	NONE					99	Cut Sheet 11	48	4.70	No	NONE		2.35		84%	84%	34%	12%	0%	0%	2.65		3,435	9,049	
10	Retrofit	15600 Parkland Drive	All	Office	Storage or Supply Room Between 50 SF2 and 1,000 SF	Interior	Office - Large		Cooled Space	19	Cut Sheet 10	72	1.37	NONE					19	Cut Sheet 11	48	0.91	No	NONE		0.46		84%	84%	34%	12%	0%	0%	0.51		3,435	1,754	
11	Retrofit	15600 Parkland Drive	All	Office	Reshooping	Interior	Office - Large		Cooled Space	4	Cut Sheet 10	72	0.29	NONE					4	Cut Sheet 11	48	0.19	No	NONE		0.10		84%	84%	34%	12%	0%	0%	0.11		3,435	369	
12	Retrofit	15600 Parkland Drive	All	Office	Conference, Meeting or Training Room	Interior	Office - Large		Cooled Space	24	Cut Sheet 10	72	1.73	NONE					24	Cut Sheet 11	48	1.15	No	NONE		0.58		84%	84%	34%	12%	0%	0%	0.65		3,435	2,216	
13	Retrofit	15600 Parkland Drive	All	Office	Other	Interior	Office - Large		Cooled Space	83	Cut Sheet 10	72	5.98	NONE					83	Cut Sheet 11	48	3.98	No	NONE		1.99		84%	84%	34%	12%	0%	0%	2.24		3,435	7,664	
14	Retrofit	15600 Parkland Drive	All	Office	Other	Interior	Office - Large		Cooled Space	5	Cut Sheet 12	230	1.15	NONE					5	Cut Sheet 13	144	0.72	No	NONE		0.43		84%	84%	34%	12%	0%	0%	0.48		3,435	1,654	
15	Retrofit	15600 Parkland Drive	All	Office	Other	Interior	Office - Large		Cooled Space	3	Cut Sheet 14	144	0.43	NONE					3	Cut Sheet 15	99	0.29	No	NONE		0.14		84%	84%	34%	12%	0%	0%	0.15		3,435	554	
16	Retrofit	15600 Parkland Drive	All	Office	Other	Interior	Exit Signs		Cooled Space	10	Cut Sheet 16	40	0.40	NONE					10	Cut Sheet 17	2	0.02	No	NONE		0.38		100%	94%	34%	12%	0%	0%	0.83		8,760	3,708	
17	Retrofit	15600 Parkland Drive	All	Office	Conference, Meeting or Training Room	Interior	Office - Large		Cooled Space	5	Cut Sheet 18	100	0.50	NONE					5	Cut Sheet 19	26	0.13	No	NONE		0.37		84%	84%	34%	12%	0%	0%	0.42		3,435	1,423	
18	Retrofit	15600 Parkland Drive	All	Closet	Other	Interior	Office - Large		Cooled Space	2	Cut Sheet 18	100	0.20	NONE					2	Cut Sheet 19	26	0.05	No	NONE		0.15		84%	84%	34%	12%	0%	0%	0.17		3,435	569	
19	Retrofit	15600 Parkland Drive	All	Lobby	Other	Interior	Office - Large		Cooled Space	12	Cut Sheet 18	100	1.20	NONE					12	Cut Sheet 19	26	0.31	No	NONE		0.89		84%	84%	34%	12%	0%	0%	1.00		3,435	3,416	
20	Retrofit	15600 Parkland Drive	All	Office	Restrooms	Interior	Office - Large		Cooled Space	8	Cut Sheet 18	100	0.80	NONE					8	Cut Sheet 19	26	0.21	No	NONE		0.59		84%	84%	34%	12%	0%	0%	0.67		3,435	2,278	
21	Retrofit	15600 Parkland Drive	All	Office	Employee Lunch or Break Room	Interior	Office - Large		Cooled Space	2	Cut Sheet 18	100	0.20	NONE					2	Cut Sheet 19	26	0.05	No	NONE		0.15		84%	84%	34%	12%	0%	0%	0.17		3,435	569	
22	Retrofit	15600 Parkland Drive	All	Stairwell	Other	Interior	Office - Large		Cooled Space	3	Cut Sheet 18	100	0.30	NONE					3	Cut Sheet 19	26	0.08	No	NONE		0.23		84%	84%	34%	12%	0%	0%	0.25		3,435	854	
23	Retrofit	15600 Parkland Drive	All	Closet	Other	Interior	Office - Large		Cooled Space	6	Cut Sheet 20	60	0.36	NONE					6	Cut Sheet 21	19	0.11	No	NONE		0.25		84%	84%	34%	12%	0%	0%	0.28		3,435	846	
24	Retrofit	15600 Parkland Drive	All	Entrance	Other	Interior	Office - Large		Cooled Space	2	Cut Sheet 20	60	0.12	NONE					2	Cut Sheet 21	19	0.04	No	NONE		0.08		84%	84%	34%	12%	0%	0%	0.09		3,435	315	
25													0.00	NONE								0.00															0
26													0.00	NONE								0.00															0
27													0.00	NONE								0.00															0
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37													0.00	NONE								0.00															0
38													0.00	NONE								0.00															0
39													0.00	NONE								0.00															0
40													0.00	NONE								0.00															0
41													0.00	NONE								0.00															0
42													0.00	NONE								0.00															0
43													0.00	NONE								0.00															0
44													0.00	NONE								0.00															0
45													0.00	NONE								0.00															0
46													0.00	NONE								0.00															0
47													0.00	NONE								0.00															0
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Lighting Form

	PROJECT BASIC INFORMATION									PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101													0.00	NONE									NONE		0.00									
102													0.00	NONE									NONE		0.00									
103													0.00	NONE									NONE		0.00									
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Totals										334			35.15						334			14.96			10.19						11.22		3,857	41,346	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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

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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	11.52

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Boulevard Elementary
Principal Address: 14900 Drexmore Road

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	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

Exhibit 2

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	265,600	265,600	265,600
2010	263,160	263,160	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.

Commitment Payment $
$0

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	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**	**3.1**

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

FirstEnergy®

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.

Schedule Unit Ventilator Fans - Boulevard

Motor Savings			
Name	Description	Value	Units
HPm	motor rating	0.125	hp
PL	percent loaded	0.7	-
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/yr
ACE	Avoided cost of Electricity	0.07854	$/kWh
Csav	Cost Savings = Esav x ACE	$40	$/yr

Ventilation Savings			
Name	Description	Value	Units
CFM	Unit ventilator air flow	1000	ft^3/min
Poa	Percent outdoor air	0	-
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/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 x WPY	3469.2	hr/yr
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	-
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr
Qng,total	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr
Cng	Cost of natural gas	8.12	$/mmBtu
Cng,sav	Annual NG cost savings = Cng x Qng,total	$0	$/yr

Overall Total Savings			
Name	Description	Value	Units
Nv	Number of ventilators	19	-
ElecSav	Total annual electricity savings = Nv x Esav	9,613	kWh/yr
Ecost,sav	Cost Savings = ElecSav x ACE	$755	$/yr
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr
NgCostSav	Annual NG cost savings = Cng x NgSav	$0	$/yr
Csav,total	Total annual cost savings = Ecost,sav + NgCostSav	$755	$/yr

Bin Temperature Ventilation Energy Consumption				
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	2.7	22	0
-5	-1	-1.5	21	0
-10	-6	-5.1	3	0
			Total	0

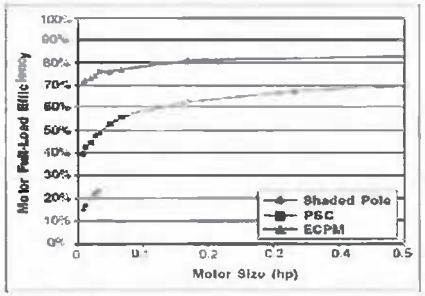

Figure 1: Representative subfractional horsepower motor efficiencies (for refrigerator fan motors).[2]

Source: ASHRAE Journal March 2001

Lighting Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools

Facility Name: Boulevard Elementary

Date: 3/7/2013

Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable
e.g.	Retrofit	400 North Street	2	Office	Other	Interior	Office - Small		Cooled Space	3	F44ILL	112	0.34	NONE	
e.g.	NewConstruction	Example	1	Restaurant	Conference, Meeting or Training Room	Exterior	Retail - Small	Builing facades (liner ft based)	Cooled Space						
1	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 1	36	0.04	NONE	
2	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 2	72	0.07	NONE	
3	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	5	Cut Sheet 2	72	0.36	NONE	
4	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 2	72	0.07	NONE	
5	Retrofit	14900 Drexmore Road	All	Displays	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 3	29	0.06	NONE	
6	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 4	29	0.03	NONE	
7	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 5	34	0.03	NONE	
8	Retrofit	14900 Drexmore Road	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 6	72	0.43	NONE	
9	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	31	Cut Sheet 8	144	4.46	NONE	
10	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 8	144	0.43	NONE	
11	Retrofit	14900 Drexmore Road	All	Kitchen	Other	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 8	144	0.86	NONE	
12	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	9	Cut Sheet 9	72	0.65	NONE	
13	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 9	72	0.07	NONE	
14	Retrofit	14900 Drexmore Road	All	Foyer	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 9	72	0.14	NONE	
15	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 9	72	0.29	NONE	
16	Retrofit	14900 Drexmore Road	All	Hall	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 10	98	0.20	NONE	
17	Retrofit	14900 Drexmore Road	All	Hall	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 11	144	0.29	NONE	
18	Retrofit	14900 Drexmore Road	All	Library	Other	Interior	Education - Primary School		Cooled Space	28	Cut Sheet 11	144	4.03	NONE	
19	Retrofit	14900 Drexmore Road	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 11	144	0.43	NONE	
20	Retrofit	14900 Drexmore Road	All	Office	Other	Interior	Education - Primary School		Cooled Space	19	Cut Sheet 11	144	2.74	NONE	
21	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 11	144	0.14	NONE	
22	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	77	Cut Sheet 11	144	11.09	NONE	
23	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	24	Cut Sheet 11	144	3.46	NONE	
24	Retrofit	14900 Drexmore Road	All	Compressor Room	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 13	72	0.14	NONE	
25	Retrofit	14900 Drexmore Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 14	72	0.22	NONE	
26	Retrofit	14900 Drexmore Road	All	Gymnasium	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 15	43	0.04	NONE	
27	Retrofit	14900 Drexmore Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	18	Cut Sheet 16	72	1.30	NONE	
28	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 17	43	0.09	NONE	
29	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 18	62	0.25	NONE	
30	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 19	72	0.07	NONE	
31	Retrofit	14900 Drexmore Road	All	Hall	Other	Interior	Education - Primary School		Cooled Space	28	Cut Sheet 20	43	1.20	NONE	
32	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	18	Cut Sheet 20	43	0.77	NONE	
33	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 20	43	0.13	NONE	
34	Retrofit	14900 Drexmore Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	29	Cut Sheet 21	72	2.09	NONE	
35	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 21	72	0.14	NONE	
36	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 21	72	0.43	NONE	
37	Retrofit	14900 Drexmore Road	All	Hall	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 21	72	0.22	NONE	
38	Retrofit	14900 Drexmore Road	All	Storage	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 21	72	0.29	NONE	
39	Retrofit	14900 Drexmore Road	All	Coffee Bar	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 21	72	0.07	NONE	
40	Retrofit	14900 Drexmore Road	All	Fire Alarm	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 21	72	0.07	NONE	
41	Retrofit	14900 Drexmore Road	All	Gymnasium	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 26	144	0.29	NONE	
42	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	86	Cut Sheet 23	123	10.58	NONE	
43	Retrofit	14900 Drexmore Road	All	Gymnasium	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 24	72	0.29	NONE	
44	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	7	Cut Sheet 25	112	0.78	NONE	
45	Retrofit	14900 Drexmore Road	All	Office	Other	Interior	Education - Primary School		Cooled Space	5	Cut Sheet 26	144	0.72	NONE	
46	Retrofit	14900 Drexmore Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	9	Cut Sheet 26	144	1.30	NONE	
47	Retrofit	14900 Drexmore Road	All	Storage	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 26	144	0.14	NONE	
48	Retrofit	14900 Drexmore Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 26	144	0.29	NONE	
49	Retrofit	14900 Drexmore Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 26	144	0.14	NONE	
50	Retrofit	14900 Drexmore Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 26	144	0.86	NONE	
51	Retrofit	14900 Drexmore Road	All	K-8 School	Copy or Printing Room	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 27	288	0.58	NONE	
52	Retrofit	14900 Drexmore Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 28	180	0.18	NONE	
53	Retrofit	14900 Drexmore Road	All	Gymnasium	Other	Interior	Education - Primary School		Cooled Space	8	MH400/1	458	3.66	NONE	
54	Retrofit	14900 Drexmore Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	16	Cut Sheet 32	100	1.60	NONE	
55	Retrofit	14900 Drexmore Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 33	150	0.15	NONE	
56	Retrofit	14900 Drexmore Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	5	Cut Sheet 34	60	0.30	NONE	
57	Retrofit	14900 Drexmore Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 35	75	0.15	NONE	
58													0.00	NONE	
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	BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations											
Line Item	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.		Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
e.g.					3	CFT55/1-BX	56	0.17	No	OCC	3	0.17	84%	84%	34%	12%	0%	30%	0.19	2,808	3,435	646	1
e.g.	500	linear ft	3.8	1.88	5	Example Cut Sheet 2	25	0.13	Yes	DAY	5	1.75	88%	89%	34%	12%	0%	0%	2.09	8,760	3,068	6,013	1A
1					1	Cut Sheet 37	27	0.03	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	21	
2					5	Cut Sheet 39	48	0.24	No	NONE		-0.17		57%	34%	12%	0%	0%	-0.13		2,080	-391	
3					1	Cut Sheet 39	48	0.05	No	NONE		0.31		57%	34%	12%	0%	0%	0.24		2,080	727	
4					1	Cut Sheet 39	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
5					2	Cut Sheet 36	19	0.04	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	47	
6					1	Cut Sheet 36	19	0.02	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	23	
7					1	Cut Sheet 38	33	0.03	No	NONE		0.00		57%	34%	12%	0%	0%	0.00		2,080	2	
8					6	Cut Sheet 7	41	0.25	No	NONE		0.19		57%	34%	12%	0%	0%	0.14		2,080	433	
9					31	Cut Sheet 12	48	1.49	No	NONE		2.98		57%	34%	12%	0%	0%	2.27		2,080	6,933	
10					3	Cut Sheet 12	48	0.14	No	NONE		0.29		57%	34%	12%	0%	0%	0.22		2,080	671	
11					6	Cut Sheet 12	48	0.29	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,342	
12					9	Cut Sheet 39	48	0.43	No	NONE		0.22		57%	34%	12%	0%	0%	0.16		2,080	503	
13					1	Cut Sheet 39	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
14					2	Cut Sheet 39	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
15					4	Cut Sheet 39	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
16					2	Cut Sheet 12	48	0.10	No	NONE		0.10		57%	34%	12%	0%	0%	0.08		2,080	233	
17					2	Cut Sheet 12	48	0.10	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
18					28	Cut Sheet 12	48	1.34	No	NONE		2.69		57%	34%	12%	0%	0%	2.05		2,080	6,262	
19					3	Cut Sheet 12	48	0.14	No	NONE		0.29		57%	34%	12%	0%	0%	0.22		2,080	671	
20					19	Cut Sheet 12	48	0.91	No	NONE		1.82		57%	34%	12%	0%	0%	1.39		2,080	4,249	
21					1	Cut Sheet 12	48	0.05	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
22					77	Cut Sheet 12	48	3.70	No	NONE		7.39		57%	34%	12%	0%	0%	5.65		2,080	17,220	
23					24	Cut Sheet 42	96	2.30	No	NONE		1.15		57%	34%	12%	0%	0%	0.88		2,080	2,684	
24					2	Cut Sheet 30	65	0.13	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	33	
25					3	Cut Sheet 39	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
26					1	Cut Sheet 37	27	0.03	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	37	
27					18	Cut Sheet 39	48	0.86	No	NONE		0.43		57%	34%	12%	0%	0%	0.33		2,080	1,006	
28					2	Cut Sheet 37	27	0.05	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	75	
29					4	Cut Sheet 39	48	0.19	No	NONE		0.06		57%	34%	12%	0%	0%	0.04		2,080	130	
30					1	Cut Sheet 39	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
31					46	Cut Sheet 37	27	1.24	No	NONE		-0.04		57%	34%	12%	0%	0%	-0.03		2,080	-89	
32					1	Cut Sheet 37	27	0.03	No	NONE		0.75		57%	34%	12%	0%	0%	0.57		2,080	1,740	
33					3	Cut Sheet 37	27	0.08	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
34					29	Cut Sheet 39	48	1.39	No	NONE		0.70		57%	34%	12%	0%	0%	0.53		2,080	1,621	
35					2	Cut Sheet 39	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
36					6	Cut Sheet 39	48	0.29	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
37					3	Cut Sheet 39	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
38					4	Cut Sheet 39	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
39					1	Cut Sheet 39	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
40					1	Cut Sheet 39	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
41					2	Cut Sheet 42	96	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
42					86	Cut Sheet 31	65	5.59	No	NONE		4.99		57%	34%	12%	0%	0%	3.81		2,080	11,620	
43					4	Cut Sheet 39	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
44					7	Cut Sheet 42	96	0.67	No	NONE		0.11		57%	34%	12%	0%	0%	0.09		2,080	261	
45					5	Cut Sheet 42	96	0.48	No	NONE		0.24		57%	34%	12%	0%	0%	0.18		2,080	559	
46					9	Cut Sheet 42	96	0.86	No	NONE		0.43		57%	34%	12%	0%	0%	0.33		2,080	1,006	
47					1	Cut Sheet 42	96	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
48					2	Cut Sheet 42	96	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
49					1	Cut Sheet 42	96	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
50					6	Cut Sheet 42	96	0.58	No	NONE		0.29		57%	34%	12%	0%	0%	0.22		2,080	671	
51					2	Cut Sheet 47	96	0.19	No	NONE		0.38		57%	34%	12%	0%	0%	0.29		2,080	895	
52					1	Cut Sheet 46	54	0.05	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	294	
53					8	Cut Sheet 29	192	1.54	No	NONE		2.13		57%	34%	12%	0%	0%	1.63		2,080	4,957	
54					16	Cut Sheet 44	26	0.42	No	NONE		1.18		57%	34%	12%	0%	0%	0.90		2,080	2,758	
55					1	Cut Sheet 45	42	0.04	No	NONE		0.11		57%	34%	12%	0%	0%	0.08		2,080	252	
56					5	Cut Sheet 43	19	0.10	No	NONE		0.21		57%	34%	12%	0%	0%	0.16		2,080	478	
57					2	Cut Sheet 44	26	0.05	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	228	
58								0.00		NONE		0.00										0	
59								0.00		NONE		0.00										0	
60								0.00		NONE		0.00										0	
61								0.00		NONE		0.00										0	
62								0.00		NONE		0.00										0	
63								0.00		NONE		0.00										0	
64								0.00		NONE		0.00										0	
65								0.00		NONE		0.00										0	
66								0.00		NONE		0.00										0	
67								0.00		NONE		0.00										0	
68								0.00		NONE		0.00										0	
69								0.00		NONE		0.00										0	
70								0.00		NONE		0.00										0	
71								0.00		NONE		0.00										0	
72								0.00		NONE		0.00										0	
73								0.00		NONE		0.00										0	
74								0.00		NONE		0.00										0	
75								0.00		NONE		0.00										0	
76								0.00		NONE		0.00										0	
77								0.00		NONE		0.00										0	
78								0.00		NONE		0.00										0	
79								0.00		NONE		0.00										0	
80								0.00		NONE		0.00										0	
81								0.00		NONE		0.00										0	
82								0.00		NONE		0.00										0	
83								0.00		NONE		0.00										0	
84								0.00		NONE		0.00										0	
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86								0.00		NONE		0.00										0	
87								0.00		NONE		0.00										0	
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94								0.00		NONE		0.00										0	
95								0.00		NONE		0.00										0	
96								0.00		NONE		0.00										0	
97								0.00		NONE		0.00										0	
98								0.00		NONE		0.00										0	
99								0.00		NONE		0.00										0	
100								0.00		NONE		0.00										0	
101								0.00		NONE		0.00										0	
102								0.00		NONE		0.00										0	
103								0.00		NONE		0.00										0	
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105								0.00		NONE		0.00										0	
106								0.00		NONE		0.00										0	
107								0.00		NONE		0.00										0	
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111								0.00		NONE		0.00										0	
112								0.00		NONE		0.00										0	
113								0.00		NONE		0.00										0	
114								0.00		NONE		0.00										0	
115								0.00		NONE		0.00										0	
116								0.00		NONE		0.00										0	
117								0.00		NONE		0.00										0	
118								0.00		NONE		0.00										0	
119								0.00		NONE		0.00										0	
120								0.00		NONE		0.00										0	
121								0.00		NONE		0.00										0	
122								0.00		NONE		0.00										0	
123								0.00		NONE		0.00										0	
124								0.00		NONE		0.00										0	
125								0.00		NONE		0.00										0	
126								0.00		NONE		0.00										0	
127								0.00		NONE		0.00										0	
128								0.00		NONE		0.00										0	
129								0.00		NONE		0.00										0	
130								0.00		NONE		0.00										0	
131								0.00		NONE		0.00										0	
132								0.00		NONE		0.00										0	
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134								0.00		NONE		0.00										0	
135								0.00		NONE		0.00										0	
136								0.00		NONE		0.00										0	
137								0.00		NONE		0.00										0	
138								0.00		NONE		0.00										0	
139								0.00		NONE		0.00										0	
140								0.00		NONE		0.00										0	
141								0.00		NONE		0.00										0	
142								0.00		NONE		0.00										0	
143								0.00		NONE		0.00										0	
144								0.00		NONE		0.00										0	
145								0.00		NONE		0.00										0	
146								0.00		NONE		0.00										0	
147								0.00		NONE		0.00										0	
148								0.00		NONE		0.00										0	
149								0.00		NONE		0.00										0	
150								0.00		NONE		0.00										0	
151								0.00		NONE		0.00										0	
152								0.00		NONE		0.00										0	
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162								0.00		NONE		0.00										0	
163								0.00		NONE		0.00										0	
164								0.00		NONE		0.00										0	
165								0.00		NONE		0.00										0	
166								0.00		NONE		0.00										0	
167								0.00		NONE		0.00										0	
168								0.00		NONE		0.00										0	
169								0.00		NONE		0.00										0	
170								0.00		NONE		0.00										0	
171								0.00		NONE		0.00										0	
172								0.00		NONE		0.00										0	
173								0.00		NONE		0.00										0	
174								0.00		NONE		0.00										0	
175								0.00		NONE		0.00										0	
176								0.00		NONE		0.00										0	
177								0.00		NONE		0.00										0	
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179								0.00		NONE		0.00										0	
180								0.00		NONE		0.00										0	
181								0.00		NONE		0.00										0	
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187								0.00		NONE		0.00										0	
188								0.00		NONE		0.00										0	
189								0.00		NONE		0.00										0	
190								0.00		NONE		0.00										0	

Lighting Form

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101													0.00	NONE								0.00	NONE		0.00									0	
102													0.00	NONE								0.00	NONE		0.00									0	
103													0.00	NONE								0.00	NONE		0.00									0	
104													0.00	NONE								0.00	NONE		0.00									0	
105													0.00	NONE								0.00	NONE		0.00									0	
106													0.00	NONE								0.00	NONE		0.00									0	
107													0.00	NONE								0.00	NONE		0.00									0	
108													0.00	NONE								0.00	NONE		0.00									0	
109													0.00	NONE								0.00	NONE		0.00									0	
200													0.00	NONE								0.00	NONE		0.00									0	
201													0.00	NONE								0.00	NONE		0.00									0	
202													0.00	NONE								0.00	NONE		0.00									0	
203													0.00	NONE								0.00	NONE		0.00									0	
204													0.00	NONE								0.00	NONE		0.00									0	
205													0.00	NONE								0.00	NONE		0.00									0	
206													0.00	NONE								0.00	NONE		0.00									0	
207													0.00	NONE								0.00	NONE		0.00									0	
208													0.00	NONE								0.00	NONE		0.00									0	
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212													0.00	NONE								0.00	NONE		0.00									0	
213													0.00	NONE								0.00	NONE		0.00									0	
214													0.00	NONE								0.00	NONE		0.00									0	
215													0.00	NONE								0.00	NONE		0.00									0	
216													0.00	NONE								0.00	NONE		0.00									0	
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218													0.00	NONE								0.00	NONE		0.00									0	
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224													0.00	NONE								0.00	NONE		0.00									0	
225													0.00	NONE								0.00	NONE		0.00									0	
226													0.00	NONE								0.00	NONE		0.00									0	
227													0.00	NONE								0.00	NONE		0.00									0	
228													0.00	NONE								0.00	NONE		0.00									0	
229													0.00	NONE								0.00	NONE		0.00									0	
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242													0.00	NONE								0.00	NONE		0.00									0	
243													0.00	NONE								0.00	NONE		0.00									0	
244													0.00	NONE								0.00	NONE		0.00									0	
245													0.00	NONE								0.00	NONE		0.00									0	
246													0.00	NONE								0.00	NONE		0.00									0	
247													0.00	NONE								0.00	NONE		0.00									0	
248													0.00	NONE								0.00	NONE		0.00									0	
249													0.00	NONE								0.00	NONE		0.00									0	
250													0.00	NONE								0.00	NONE		0.00									0	
Totals										516			59.40						516			28.38			31.03						34.09		2,085	73,462	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	24.09

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Fernawy Elementary
Principal Address: 17420 Fernway Road

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

Exhibit 2

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	192,560	192,560	192,560
2010	197,160	197,160	197,160
2009	182,280	182,280	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.

Commitment Payment $
$0

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	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

Schedule Unit Ventilator Fans - Fernway

Motor Savings			
Name	Description	Value	Units
HPm	motor rating	0.125	hp
PL	percent loaded	0.7	-
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/yr
ACE	Avoided cost of Electricity	0.07854	$/kWh
Csav	Cost Savings = Esav x ACE	$40	$/yr

Ventilation Savings			
Name	Description	Value	Units
CFM	Unit ventilator air flow	1000	ft^3/min
Poa	Percent outdoor air	0	-
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/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 x WPY	3469.2	hr/yr
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	-
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr
Qng,total	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr
Cng	Cost of natural gas	8.12	$/mmBtu
Cng,sav	Annual NG cost savings = Cng x Qng,total	$0	$/yr

Overall Total Savings			
Name	Description	Value	Units
Nv	Number of ventilators	18	-
ElecSav	Total annual electricity savings = Nv x Esav	9,107	kWh/yr
Ecost,sav	Cost Savings = ElecSav x ACE	$715	$/yr
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr
NgCostSav	Annual NG cost savings = Cng x NgSav	$0	$/yr
Csav,total	Total annual cost savings = Ecost,sav + NgCostSav	$715	$/yr

Bin Temperature Ventilation Energy Consumption				
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	2.7	22	0
-5	-1	-1.5	21	0
-10	-6	-5.1	3	0
			Total	0

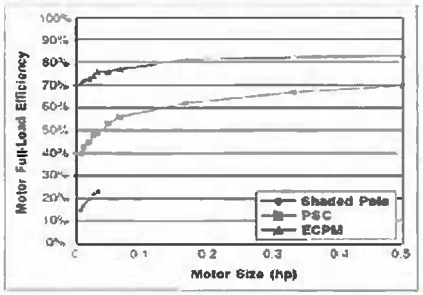

Figure 1:Representa- tive subfractional horsepower motor efficiencies (for re- frigerator fan mo- tors)

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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	**9,107**	**728.56**
unoccupied hours		
Total Project Energy Savings kWh	**9,107**	
Total Custom Prescriptive Rebate Amount $		**$ 728.56**

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

Lighting Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools

Facility Name: Fernway Elementary

Date: 5/7/2013

Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupancy Sensor, DAY for photosensor, HI-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)			POST-INSTALLATION							Energy Calculations									
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity (Num. applicable)	Units e.g. Square Feet (ft²) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity (If Num. applicable)	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
n/a	Retrofit	400 North Street	0	Office	Other	Interior	Office - Small		Cooled Space	3	FA4LL	112	0.34	NONE					3	CFT32-1-EX	34	0.17	No	OCC	3	0.17	84%	84%	24%	12%	0%	35%	0.13	2,604	3,435	440	1
n/a	New Construction	Example	1	Restroom	Conference, Meeting or Training Room	Exterior	Retail - Small		Cooled Space							600	Sheet 8	3.8	1	1.88			Yes	DAY	2	1.70	89%	89%	24%	12%	0%	0%	2.03	4,767	9,043	8,012	14
1	Retrofit	17400 Fernway Road	All	Foyer	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 1	72	0.22	NONE					3	Cut Sheet 2	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	158	
2	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 3	56	0.05	NONE					1	Cut Sheet 4	33	0.03	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	40	
3	Retrofit	17400 Fernway Road	All	Kitchen	Other	Interior	Education - Primary School		Cooled Space	24	Cut Sheet 5	96	2.26	NONE					24	Cut Sheet 6	48	1.15	No	NONE		1.10		57%	34%	12%	0%	0%	0.62		2,080	2,736	
4	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	24	Cut Sheet 5	96	2.26	NONE					24	Cut Sheet 6	48	1.15	No	NONE		1.10		57%	34%	12%	0%	0%	0.62		2,080	2,736	
5	Retrofit	17400 Fernway Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 7	112	0.45	NONE					4	Cut Sheet 8	48	0.19	No	NONE		0.26		57%	34%	12%	0%	0%	0.15		2,080	638	
6	Retrofit	17400 Fernway Road	All	Kitchen	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 7	112	0.45	NONE					4	Cut Sheet 6	48	0.19	No	NONE		0.26		57%	34%	12%	0%	0%	0.15		2,080	638	
7	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 9	144	0.29	NONE					2	Cut Sheet 6	48	0.10	No	NONE		0.19		57%	34%	12%	0%	0%	0.11		2,080	447	
8	Retrofit	17400 Fernway Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 9	144	0.29	NONE					2	Cut Sheet 6	48	0.10	No	NONE		0.19		57%	34%	12%	0%	0%	0.11		2,080	447	
9	Retrofit	17400 Fernway Road	All	Office	Other	Interior	Education - Primary School		Cooled Space	9	Cut Sheet 9	144	1.30	NONE					9	Cut Sheet 6	48	0.43	No	NONE		0.86		57%	34%	12%	0%	0%	0.66		2,080	2,013	
10	Retrofit	17400 Fernway Road	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 9	144	0.86	NONE					6	Cut Sheet 6	48	0.29	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,342	
11	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	51	Cut Sheet 9	144	7.34	NONE					51	Cut Sheet 6	49	2.45	No	NONE		4.90		57%	34%	12%	0%	0%	3.74		2,080	11,406	
12	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 10	72	0.22	NONE					3	Cut Sheet 11	39	0.12	No	NONE		0.10		57%	34%	12%	0%	0%	0.08		2,080	253	
13	Retrofit	17400 Fernway Road	All	Office	Other	Interior	Education - Primary School		Cooled Space	9	Cut Sheet 10	72	0.65	NONE					9	Cut Sheet 2	48	0.43	No	NONE		0.22		57%	34%	12%	0%	0%	0.16		2,080	503	
14	Retrofit	17400 Fernway Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 12	48	0.05	NONE					1	Cut Sheet 13	27	0.03	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	49	
15	Retrofit	17400 Fernway Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 16	72	0.29	NONE					4	Cut Sheet 2	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
16	Retrofit	17400 Fernway Road	All	K-8 School	Copy or Printing Room	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 17	62	0.08	NONE					2	Cut Sheet 15	27	0.05	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	75	
17	Retrofit	17400 Fernway Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 18	112	0.11	NONE					1	Cut Sheet 19	96	0.10	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	37	
18	Retrofit	17400 Fernway Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 20	72	0.43	NONE					6	Cut Sheet 2	48	0.29	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
19	Retrofit	17400 Fernway Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 21	144	0.29	NONE					2	Cut Sheet 19	96	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
20	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	99	1SB	128	12.65	NONE					99	Cut Sheet 23	65	6.37	No	NONE		5.68		57%	34%	12%	0%	0%	4.04		2,080	10,241	
21	Retrofit	17400 Fernway Road	All	K-8 School	Copy or Printing Room	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 24	72	0.22	NONE					3	Cut Sheet 2	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
22	Retrofit	17400 Fernway Road	All	Gymnasium	Stage or Supply Room Between 50 KW and 1,000 kW	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 24	72	0.07	NONE					1	Cut Sheet 2	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
23	Retrofit	17400 Fernway Road	All	Gymnasium	Stage or Supply Room Between 50 KW and 1,000 kW	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 24	144	0.58	NONE					4	Cut Sheet 19	96	0.38	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
24	Retrofit	17400 Fernway Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	35	Cut Sheet 25	144	5.04	NONE					35	Cut Sheet 19	96	3.36	No	NONE		1.68		57%	34%	12%	0%	0%	1.28		2,080	3,914	
25	Retrofit	17400 Fernway Road	All	Foyer	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 26	120	0.12	NONE					1	Cut Sheet 27	19	0.02	No	NONE		0.10		57%	34%	12%	0%	0%	0.08		2,080	235	
26	Retrofit	17400 Fernway Road	All	Office	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 26	120	0.12	NONE					1	Cut Sheet 28	38	0.04	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	191	
27	Retrofit	17400 Fernway Road	All	Exit Sign	Other	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 29	40	0.32	NONE					8	Cut Sheet 30	2	0.02	No	NONE		0.30		57%	34%	12%	0%	0%	0.23		2,080	709	
28	Retrofit	17400 Fernway Road	All	Gymnasium	Other	Interior	Education - Primary School		Cooled Space	9	MH320	458	4.12	NONE					9	MH320	192	1.73	No	NONE		2.39		57%	34%	12%	0%	0%	1.83		2,080	5,577	
29	Retrofit	17400 Fernway Road	All	Office	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 32	100	0.40	NONE					4	Cut Sheet 33	39	0.16	No	NONE		0.24		57%	34%	12%	0%	0%	0.18		2,080	495	
30	Retrofit	17400 Fernway Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	10	Cut Sheet 34	80	0.80	NONE					10	Cut Sheet 35	18	0.18	No	NONE		0.61		57%	34%	12%	0%	0%	0.47		2,080	958	
31	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 36	75	0.15	NONE					2	Cut Sheet 33	39	0.08	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	208	
32	Retrofit	17400 Fernway Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 37	80	0.24	NONE					3	Cut Sheet 40	18	0.05	No	NONE		0.18		57%	34%	12%	0%	0%	0.14		2,080	294	
33													0.00	NONE								0.00				0.00								0
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35													0.00	NONE								0.00				0.00								0
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165													0.00	NONE								0.00				0.00								0
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167													0.00	NONE								0.00				0.00								0
168													0.00	NONE								0.00				0.00								0
169													0.00	NONE								0.00				0.00								0

Lighting Form

	PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations										Post Fixture Cut Sheet Number
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101														0.00	NONE							0.00		NONE		0.00									0	
102														0.00	NONE							0.00		NONE		0.00									0	
103														0.00	NONE							0.00		NONE		0.00									0	
104														0.00	NONE							0.00		NONE		0.00									0	
105														0.00	NONE							0.00		NONE		0.00									0	
106														0.00	NONE							0.00		NONE		0.00									0	
107														0.00	NONE							0.00		NONE		0.00									0	
108														0.00	NONE							0.00		NONE		0.00									0	
109														0.00	NONE							0.00		NONE		0.00									0	
200														0.00	NONE							0.00		NONE		0.00									0	
201														0.00	NONE							0.00		NONE		0.00									0	
202														0.00	NONE							0.00		NONE		0.00									0	
203														0.00	NONE							0.00		NONE		0.00									0	
204														0.00	NONE							0.00		NONE		0.00									0	
205														0.00	NONE							0.00		NONE		0.00									0	
206														0.00	NONE							0.00		NONE		0.00									0	
207														0.00	NONE							0.00		NONE		0.00									0	
208														0.00	NONE							0.00		NONE		0.00									0	
209														0.00	NONE							0.00		NONE		0.00									0	
210														0.00	NONE							0.00		NONE		0.00									0	
211														0.00	NONE							0.00		NONE		0.00									0	
212														0.00	NONE							0.00		NONE		0.00									0	
213														0.00	NONE							0.00		NONE		0.00									0	
214														0.00	NONE							0.00		NONE		0.00									0	
215														0.00	NONE							0.00		NONE		0.00									0	
216														0.00	NONE							0.00		NONE		0.00									0	
217														0.00	NONE							0.00		NONE		0.00									0	
218														0.00	NONE							0.00		NONE		0.00									0	
219														0.00	NONE							0.00		NONE		0.00									0	
220														0.00	NONE							0.00		NONE		0.00									0	
221														0.00	NONE							0.00		NONE		0.00									0	
222														0.00	NONE							0.00		NONE		0.00									0	
223														0.00	NONE							0.00		NONE		0.00									0	
224														0.00	NONE							0.00		NONE		0.00									0	
225														0.00	NONE							0.00		NONE		0.00									0	
226														0.00	NONE							0.00		NONE		0.00									0	
227														0.00	NONE							0.00		NONE		0.00									0	
228														0.00	NONE							0.00		NONE		0.00									0	
229														0.00	NONE							0.00		NONE		0.00									0	
230														0.00	NONE							0.00		NONE		0.00									0	
231														0.00	NONE							0.00		NONE		0.00									0	
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237														0.00	NONE							0.00		NONE		0.00									0	
238														0.00	NONE							0.00		NONE		0.00									0	
239														0.00	NONE							0.00		NONE		0.00									0	
240														0.00	NONE							0.00		NONE		0.00									0	
241														0.00	NONE							0.00		NONE		0.00									0	
242														0.00	NONE							0.00		NONE		0.00									0	
243														0.00	NONE							0.00		NONE		0.00									0	
244														0.00	NONE							0.00		NONE		0.00									0	
245														0.00	NONE							0.00		NONE		0.00									0	
246														0.00	NONE							0.00		NONE		0.00									0	
247														0.00	NONE							0.00		NONE		0.00									0	
248														0.00	NONE							0.00		NONE		0.00									0	
249														0.00	NONE							0.00		NONE		0.00									0	
250														0.00	NONE							0.00		NONE		0.00									0	
Totals											348			43.20					348			20.88				22.14						17.22		2,065	22,319	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

Project Estimated Annual Savings Summary

Lighting

Estimated Annual kWh Savings	52,519
Total Change in Connected Load	22.54

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

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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	17.22

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Shaker Heights High School

Principal Address: 15911 Aldersyde Drive

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	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

Exhibit 2

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	3,316,800	3,316,800	3,316,800
2010	3,318,320	3,318,320	3,318,320
2009	3,219,200	3,219,200	3,219,200
Average	**3,284,773**	**3,284,773**	**3,284,773**

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.

Commitment Payment $
$0

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	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

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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

Name	Description	Value	Units
CLmax	max cooling load	25	ton
CLmin	min cooling load	2.5	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	1.35	kW/ton
CSPprop	Proposed chiller specific power	1.00	kW/ton

Electricity and Cost Savings

Name	Description	Value	Units
Ebase	Baseline energy consumption = sum(Baseline)	34,923	kWh/yr
Eprop	Proposed energy consumption = sum(Proposed)	25,869	kWh/yr
Esav	Energy savings = Ebase - Eprop	9,054	kWh/yr
Ecost	Marginal cost of electricity	0.0785	$/kWh
Csav	Annual Electricity cost savings = Esav x Ecost	$711	$/yr

Bin Temperature Ventilation Energy Consumption

StrTemp (F)	EndTemp (F)	Tavg (F)	hrs1-24	Cooling Load (tons)	Baseline Energy (kWh)	Proposed Energy (kWh)
95	99	95.7	3	25	101	75
90	94	91.9	43	22	1,302	964
85	89	87.5	127	19	3,333	2,469
80	84	82	359	16	7,616	5,642
75	79	76.7	523	12	8,560	6,341
70	74	72.4	617	9	7,671	5,682
65	69	68	754	6	6,339	4,695
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	34,923	25,869
					2,743	2,032

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

Cooling Load and Chiller Parameters			
Name	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	$/kWh
Csav	Annual Electricity cost savings = Esav x Ecost	$10,790	$/yr

Bin Temperature Ventilation Energy Consumption						
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
					19,920	9,130

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		
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.

Schedule Unit Ventilator Fans

Motor Savings			
Name	Description	Value	Units
HPm	motor rating	0.125	hp
PL	percent loaded	0.7	-
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/yr
ACE	Avoided cost of Electricity	0.07854	$/kWh
Csav	Cost Savings = Esav x ACE	$40	$/yr

Ventilation Savings			
Name	Description	Value	Units
CFM	Unit ventilator air flow	1000	ft^3/min
Poa	Percent outdoor air	0.15	-
Qvent	Ventilation load = 1.08 CFM x Poa	162	Btu/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 x WPY	3469.2	hr/yr
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	-
Qng,pot	Potential NG savings = sum of Qng	36.62	mmBtu/yr
Qng,total	Acutal NG savings =Qng,pot x Ft	14.5	mmBtu/yr
Cng	Cost of natural gas	8.12	$/mmBtu
Cng,sav	Annual NG cost savings = Cng x Qng,total	$118	$/yr

Overall Total Savings			
Name	Description	Value	Units
Nv	Number of ventilators	135	-
ElecSav	Total annual electricity savings = Nv x Esav	68,300	kWh/yr
Ecost,sav	Cost Savings = ElecSav x ACE	$5,364	$/yr
NgSav	Total annual natural gas savings = Nv x Qng,total	1,958	mmBtu/yr
NgCostSav	Annual NG cost savings = Cng x NgSav	$15,891	$/yr
Csav,total	Total annual cost savings = Ecost,sav + NgCostSav	$21,256	$/yr

Bin Temperature Ventilation Energy Consumption				
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	1,562,794
55	59	57.2	604	1,565,568
50	54	51.9	631	2,312,773
45	49	47.6	420	1,905,120
40	44	42.8	529	2,913,732
35	39	37.4	904	5,967,756
30	34	32	749	5,763,555
25	29	27.5	497	4,277,306
20	24	23.2	370	3,506,490
15	19	17.5	335	3,561,469
10	14	12.2	155	1,814,198
5	9	7.7	65	820,024
0	4	2.7	22	299,822
-5	-1	-1.5	21	304,054
-10	-6	-5.1	3	45,623
			Total	36,620,282

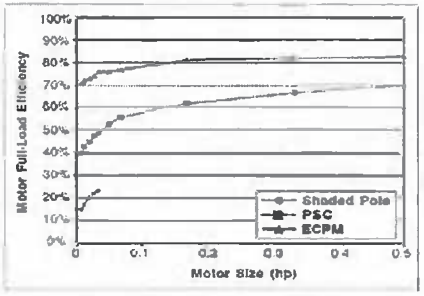

Figure 1: Representative subfractional horsepower motor efficiencies (for refrigerator fan motors).

Lighting Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools
Facility Name: High School # 1
Date: 3/7/2013
Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area
For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.
The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)						BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations											Post Fixture Cut Sheet Number
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.		Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	
e.g.	*Retrofit*	*400 North Street*	*2*	*Office*	*Other*	*Interior*	*Office - Small*		*Cooled Space*	*3*	*F44ILL*	*112*	*0.34*	*NONE*						*3*	*CFT55/1-BX*	*56*	*0.17*	*No*	*OCC*	*3*	*0.17*	*84%*	*84%*	*34%*	*12%*	*0%*	*30%*	*0.19*	*2,808*	*3,435*	*646*	*1*
e.g.	*New Construction*	*Example*	*1*	*Restaurant*	*Conference, Meeting or Training Room*	*Exterior*	*Retail - Small*	*Builing facades (liner ft based)*	*Cooled Space*							*500*	*linear ft*	*3.8*	*1.88*	*5*	*Example Cut Sheet 2*	*25*	*0.13*	*Yes*	*DAY*	*5*	*1.75*	*88%*	*89%*	*34%*	*12%*	*0%*	*0%*	*2.09*	*8,760*	*3,068*	*6,013*	*1A*
1	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	31	Cut Sheet 1	62	1.92	NONE						31	Cut Sheet 3	48	1.49	No	NONE		0.43		57%	34%	12%	0%	0%	0.33		2,080	1,011	
2	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 2	72	0.86	NONE						12	Cut Sheet 3	48	0.58	No	NONE		0.29		57%	34%	12%	0%	0%	0.22		2,080	671	
3	Retrofit	15911 Aldersyde Drive	All	K-12 School	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 1	62	0.12	NONE						2	Cut Sheet 3	48	0.10	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	65	
4	Retrofit	15911 Aldersyde Drive	All	K-12 School	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 2	72	0.07	NONE						1	Cut Sheet 3	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
5	Retrofit	15911 Aldersyde Drive	All	Stairway	Other	Interior	Education - Secondary School		Cooled Space	16	Cut Sheet 2	72	1.15	NONE						16	Cut Sheet 3	48	0.77	No	NONE		0.38		57%	34%	12%	0%	0%	0.29		2,080	895	
6	Retrofit	15911 Aldersyde Drive	All	K-12 School	Other	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 2	72	0.22	NONE						3	Cut Sheet 3	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
7	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	8	Cut Sheet 2	72	0.58	NONE						8	Cut Sheet 3	48	0.38	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
8	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 2	72	0.07	NONE						1	Cut Sheet 3	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
9	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	18	Cut Sheet 2	72	1.30	NONE						18	Cut Sheet 4	65	1.17	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	294	
10	Retrofit	15911 Aldersyde Drive	All	Kitchen	Other	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 2	72	0.22	NONE						3	Cut Sheet 3	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
11	Retrofit	15911 Aldersyde Drive	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	11	Cut Sheet 2	72	0.79	NONE						11	Cut Sheet 3	48	0.53	No	NONE		0.26		57%	34%	12%	0%	0%	0.20		2,080	615	
12	Retrofit	15911 Aldersyde Drive	All	Boiler Room	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 2	72	0.07	NONE						1	Cut Sheet 3	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
13	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	13	Cut Sheet 5	62	0.81	NONE						13	Cut Sheet 6	48	0.62	No	NONE		0.18		57%	34%	12%	0%	0%	0.14		2,080	424	
14	Retrofit	15911 Aldersyde Drive	All	Closet	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 7	72	0.07	NONE						1	Cut Sheet 3	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
15	Retrofit	15911 Aldersyde Drive	All	Stairway	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 7	72	0.14	NONE						2	Cut Sheet 3	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
16	Retrofit	15911 Aldersyde Drive	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	55	Cut Sheet 7	72	3.96	NONE						55	Cut Sheet 3	48	2.64	No	NONE		1.32		57%	34%	12%	0%	0%	1.01		2,080	3,075	
17	Retrofit	15911 Aldersyde Drive	All	K-12 School	Employee Lunch or Break Room	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 7	72	0.29	NONE						4	Cut Sheet 3	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
18	Retrofit	15911 Aldersyde Drive	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	16	Cut Sheet 8	144	2.30	NONE						16	Cut Sheet 9	96	1.54	No	NONE		0.77		57%	34%	12%	0%	0%	0.59		2,080	1,789	
19	Retrofit	15911 Aldersyde Drive	All	K-12 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 10	34	0.07	NONE						2	Cut Sheet 12	33	0.07	No	NONE		0.00		57%	34%	12%	0%	0%	0.00		2,080	5	
20	Retrofit	15911 Aldersyde Drive	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 11	50	0.05	NONE						1	Cut Sheet 12	33	0.03	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	40	
21	Retrofit	15911 Aldersyde Drive	All	K-12 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 13	71	0.14	NONE						2	Cut Sheet 14	41	0.08	No	NONE		0.06		57%	34%	12%	0%	0%	0.05		2,080	140	
22	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 15	55	0.66	NONE						12	Cut Sheet 12	33	0.40	No	NONE		0.26		57%	34%	12%	0%	0%	0.20		2,080	615	
23	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	18	Cut Sheet 16	62	1.12	NONE						18	Cut Sheet 14	41	0.74	No	NONE		0.38		57%	34%	12%	0%	0%	0.29		2,080	881	
24	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 16	62	0.25	NONE						4	Cut Sheet 14	41	0.16	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	196	
25	Retrofit	15911 Aldersyde Drive	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	19	Cut Sheet 17	72	1.37	NONE						19	Cut Sheet 14	41	0.78	No	NONE		0.59		57%	34%	12%	0%	0%	0.45		2,080	1,372	
26	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 17	72	0.07	NONE						1	Cut Sheet 14	41	0.04	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	72	
27	Retrofit	15911 Aldersyde Drive	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	14	Cut Sheet 18	48	0.67	NONE						14	Cut Sheet 19	45	0.63	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	98	
28	Retrofit	15911 Aldersyde Drive	All	Kitchen	Other	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 20	112	1.34	NONE						12	Cut Sheet 22	48	0.58	No	NONE		0.77		57%	34%	12%	0%	0%	0.59		2,080	1,789	
29	Retrofit	15911 Aldersyde Drive	All	Auditorium	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 21	144	0.29	NONE						2	Cut Sheet 22	48	0.10	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
30	Retrofit	15911 Aldersyde Drive	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	38	Cut Sheet 21	144	5.47	NONE						38	Cut Sheet 22	48	1.82	No	NONE		3.65		57%	34%	12%	0%	0%	2.79		2,080	8,498	
31	Retrofit	15911 Aldersyde Drive	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	13	Cut Sheet 21	144	1.87	NONE						13	Cut Sheet 22	48	0.62	No	NONE		1.25		57%	34%	12%	0%	0%	0.95		2,080	2,907	
32	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	32	Cut Sheet 21	144	4.61	NONE						32	Cut Sheet 22	48	1.54	No	NONE		3.07		57%	34%	12%	0%	0%	2.35		2,080	7,157	
33	Retrofit	15911 Aldersyde Drive	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	45	Cut Sheet 23	98	4.41	NONE						45	Cut Sheet 24	71	3.20	No	NONE		1.22		57%	34%	12%	0%	0%	0.93		2,080	2,830	
34	Retrofit	15911 Aldersyde Drive	All	K-12 School	Other	Interior	Education - Secondary School		Cooled Space	25	Cut Sheet 23	98	2.45	NONE						25	Cut Sheet 24	71	1.78	No	NONE		0.68		57%	34%	12%	0%	0%	0.52		2,080	1,572	
35	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	35	Cut Sheet 23	98	3.43	NONE						35	Cut Sheet 24	71	2.49	No	NONE		0.95		57%	34%	12%	0%	0%	0.72		2,080	2,201	
36	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 25	62	0.37	NONE						6	Cut Sheet 3	48	0.29	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	196	
37	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	36	Cut Sheet 25	62	2.23	NONE						36	Cut Sheet 3	48	1.73	No	NONE		0.50		57%	34%	12%	0%	0%	0.38		2,080	1,174	
38	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	16	Cut Sheet 25	62	0.99	NONE						16	Cut Sheet 3	48	0.77	No	NONE		0.22		57%	34%	12%	0%	0%	0.17		2,080	522	
39	Retrofit	15911 Aldersyde Drive	All	K-12 School	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 25	62	0.43	NONE						7	Cut Sheet 3	48	0.34	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	228	
40	Retrofit	15911 Aldersyde Drive	All	K-12 School	Other	Interior	Education - Secondary School		Cooled Space	9	Cut Sheet 26	98	0.88	NONE						9	Cut Sheet 22	48	0.43	No	NONE		0.45		57%	34%	12%	0%	0%	0.34		2,080	1,048	
41	Retrofit	15911 Aldersyde Drive	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	37	Cut Sheet 26	98	3.63	NONE						37	Cut Sheet 24	71	2.63	No	NONE		1.00		57%	34%	12%	0%	0%	0.76		2,080	2,327	
42	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	8	Cut Sheet 27	115	0.92	NONE						8	Cut Sheet 22	48	0.38	No	NONE		0.54		57%	34%	12%	0%	0%	0.41		2,080	1,249	
43	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	45	Cut Sheet 28	112	5.04	NONE						45	Cut Sheet 22	48	2.16	No	NONE		2.88		57%	34%	12%	0%	0%	2.20		2,080	6,709	
44	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	9	Cut Sheet 28	112	1.01	NONE						9	Cut Sheet 22	48	0.43	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,342	
45	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	45	Cut Sheet 29	144	6.48	NONE						45	Cut Sheet 22	48	2.16	No	NONE		4.32		57%	34%	12%	0%	0%	3.30		2,080	10,064	
46	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 29	144	1.73	NONE						12	Cut Sheet 22	48	0.58	No	NONE		1.15		57%	34%	12%	0%	0%	0.88		2,080	2,684	
47	Retrofit	15911 Aldersyde Drive	All	K-12 School	Employee Lunch or Break Room	Interior	Education - Secondary School		Cooled Space	10	Cut Sheet 29	144	1.44	NONE						10	Cut Sheet 22	48	0.48	No	NONE		0.96		57%	34%	12%	0%	0%	0.73		2,080	2,236	
48	Retrofit	15911 Aldersyde Drive	All	Library	Other	Interior	Education - Secondary School		Cooled Space	100	Cut Sheet 29	144	14.40	NONE						100	Cut Sheet 22	48	4.80	No	NONE		9.60		57%	34%	12%	0%	0%	7.33		2,080	22,364	
49	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	26	Cut Sheet 30	72	1.87	NONE						26	Cut Sheet 31	39	1.01	No	NONE		0.86		57%	34%	12%	0%	0%	0.66		2,080	1,999	
50	Retrofit	15911 Aldersyde Drive	All	Compressor Room	Other	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 32	62	0.19	NONE						3	Cut Sheet 3	48	0.14	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	98	
51	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	20	Cut Sheet 32	62	1.24	NONE						20	Cut Sheet 3	48	0.96	No	NONE		0.28		57%	34%	12%	0%	0%	0.21		2,080	652	
52	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 32	62	0.31	NONE						5	Cut Sheet 3	48	0.24	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	163	
53	Retrofit	15911 Aldersyde Drive	All	Kitchen	Other	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 33	72	0.22	NONE						3	Cut Sheet 3	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
54	Retrofit	15911 Aldersyde Drive	All	Boiler Room	Other	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 33	72	0.29	NONE						4	Cut Sheet 3	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
55	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	17	Cut Sheet 33	72	1.22	NONE						17	Cut Sheet 3	48	0.82	No	NONE		0.41		57%	34%	12%	0%	0%	0.31		2,080	950	
56	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 34	43	0.09	NONE						2	Cut Sheet 35	24	0.05	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	89	
57	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 34	43	0.30	NONE						7	Cut Sheet 35	24	0.17	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	310	
58	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 34	43	0.04	NONE						1	Cut Sheet 35	24	0.02	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	44	
59	Retrofit	15911 Aldersyde Drive	All	K-12 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 36	72	0.07	NONE						1	Cut Sheet 3	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
60	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	26	Cut Sheet 36	72	1.87	NONE						26	Cut Sheet 3	48	1.25	No	NONE		0.62		57%	34%	12%	0%	0%	0.48		2,080	1,454	
61	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 37	58	0.17	NONE						3	Cut Sheet 49	27	0.08	No	NONE		0.09		57%	34%	12%	0%	0%	0.07		2,080	217	
62	Retrofit	15911 Aldersyde Drive	All	K-12 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	32	Cut Sheet 37	58	1.86	NONE						32	Cut Sheet 3	48	1.54	No	NONE		0.32		57%	34%	12%	0%	0%	0.24		2,080	745	
63	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 50	72	0.29	NONE						4	Cut Sheet 3	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
64	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	16	Cut Sheet 50	72	1.15	NONE						16	Cut Sheet 3	48	0.77	No	NONE		0.38		57%	34%	12%	0%	0%	0.29		2,080	895	
65	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 50	72	0.07	NONE						1	Cut Sheet 3	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
66	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 38	62	0.43	NONE						7	Cut Sheet 3	48	0.34	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	228	
67	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 38	62	0.06	NONE						1	Cut Sheet 39	96	0.10	No	NONE		-0.03		57%	34%	12%	0%	0%	-0.03		2,080	-79	
68	Retrofit	15911 Aldersyde Drive	All	K-12 School	Other	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 40	72	0.29	NONE						4	Cut Sheet 3	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
69	Retrofit	15911 Aldersyde Drive	All	K-12 School	Other	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 41	43	0.52	NONE						12	Cut Sheet 49	27	0.32	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
70	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 42	62	0.06	NONE						1	Cut Sheet 43	48	0.05	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	33	
71	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	14	Cut Sheet 42	62	0.87	NONE						14	Cut Sheet 3	48	0.67	No	NONE		0.20		57%	34%	12%	0%	0%	0.15		2,080	457	
72	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	48	Cut Sheet 42	62	2.98	NONE						48	Cut Sheet 3	48	2.30	No	NONE		0.67		57%	34%	12%	0%	0%	0.51		2,080	1,565	
73	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	23	Cut Sheet 44	72	1.66	NONE						23	Cut Sheet 45	39	0.90	No	NONE		0.76		57%	34%	12%	0%	0%	0.58		2,080	1,768	
74	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	281	Cut Sheet 44	72	20.23	NONE						281	Cut Sheet 3	48	13.49	No	NONE		6.74		57%	34%	12%	0%	0%	5.15		2,080	15,711	
75	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	40	Cut Sheet 44	72	2.88	NONE						40	Cut Sheet 3	48	1.92	No	NONE		0.96		57%	34%	12%	0%	0%	0.73		2,080	2,236	
76	Retrofit	15911 Aldersyde Drive	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 44	72	0.50	NONE						7	Cut Sheet 3	48	0.34	No	NONE		0.17		57%	34%	12%	0%	0%	0.13		2,080	391	
77	Retrofit	15911 Aldersyde Drive	All	K-12 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	47	Cut Sheet 44	72	3.38	NONE						47	Cut Sheet 3	48	2.26	No	NONE		1.13		57%	34%	12%	0%	0%	0.86		2,080	2,628	
78	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 44	72	0.50	NONE						7	Cut Sheet 3	48	0.34	No	NONE		0.17		57%	34%	12%	0%	0%	0.13		2,080	391	
79	Retrofit	15911 Aldersyde Drive	All	Stairway	Other	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 46	115	0.81	NONE						7	Cut Sheet 43	48	0.34	No	NONE		0.47		57%	34%	12%	0%	0%	0.36		2,080	1,093	
80	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	11	Cut Sheet 46	115	1.27	NONE						11	Cut Sheet 24	71	0.78	No	NONE		0.48		57%	34%	12%	0%	0%	0.37		2,080	1,128	
81	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	112	Cut Sheet 46	115	12.88	NONE						112	Cut Sheet 24	71	7.95	No	NONE		4.93		57%	34%	12%	0%	0%	3.76		2,080	11,480	
82	Retrofit	15911 Aldersyde Drive	All	Hall	Other	Interior	Education - Secondary School		Cooled Space	8	Cut Sheet 46	115	0.92	NONE						8	Cut Sheet 24	71	0.57	No	NONE		0.35		57%	34%	12%	0%	0%	0.27		2,080	820	
83	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	18	Cut Sheet 47	144	2.59	NONE						18	Cut Sheet 9	96	1.73	No	NONE		0.86		57%	34%	12%	0%	0%	0.66		2,080	2,013	
84	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	17	Cut Sheet 47	144	2.45	NONE						24	Cut Sheet 9	96	2.30	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
85	Retrofit	15911 Aldersyde Drive	All	K-12 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 47	144	0.43	NONE						3	Cut Sheet 9	96	0.29	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
86	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 48	230	0.46	NONE						2	Cut Sheet 39	96	0.19	No	NONE		0.27		57%	34%	12%	0%	0%	0.20		2,080	624	
87													0.00	NONE									0.00		NONE		0.00										0	
88													0.00	NONE									0.00		NONE		0.00										0	
89													0.00	NONE									0.00		NONE		0.00										0	
90													0.00	NONE									0.00		NONE		0.00										0	
91													0.00	NONE									0.00		NONE		0.00										0	
92													0.00	NONE									0.00		NONE		0.00										0	
93													0.00	NONE									0.00		NONE		0.00										0	
94													0.00	NONE									0.00		NONE		0.00										0	
95													0.00	NONE									0.00		NONE		0.00										0	
96													0.00	NONE									0.00		NONE		0.00										0	
97													0.00	NONE									0.00		NONE		0.00										0	
98													0.00	NONE									0.00		NONE		0.00										0	
99													0.00	NONE									0.00		NONE		0.00										0	
100													0.00	NONE									0.00		NONE		0.00										0	
101													0.00	NONE									0.00		NONE		0.00										0	
102													0.00	NONE									0.00		NONE		0.00										0	
103													0.00	NONE									0.00		NONE		0.00										0	
104													0.00	NONE									0.00		NONE		0.00										0	
105													0.00	NONE									0.00		NONE		0.00										0	
106													0.00	NONE									0.00		NONE		0.00										0	
107													0.00	NONE									0.00		NONE		0.00										0	
108													0.00	NONE									0.00		NONE		0.00										0	
109													0.00	NONE									0.00		NONE		0.00										0	
110													0.00	NONE									0.00		NONE		0.00										0	
111													0.00	NONE									0.00		NONE		0.00										0	
112													0.00	NONE									0.00		NONE		0.00										0	
113													0.00	NONE									0.00		NONE		0.00										0	
114													0.00	NONE									0.00		NONE		0.00										0	
115													0.00	NONE									0.00		NONE		0.00										0	
116													0.00	NONE									0.00		NONE		0.00										0	
117													0.00	NONE									0.00		NONE		0.00										0	
118													0.00	NONE									0.00		NONE		0.00										0	
119													0.00	NONE									0.00		NONE		0.00										0	
120													0.00	NONE									0.00		NONE		0.00										0	
121													0.00	NONE									0.00		NONE		0.00										0	
122													0.00	NONE									0.00		NONE		0.00										0	
123													0.00	NONE									0.00		NONE		0.00										0	
124													0.00	NONE									0.00		NONE		0.00										0	
125													0.00	NONE									0.00		NONE		0.00										0	
126													0.00	NONE									0.00		NONE		0.00										0	
127													0.00	NONE									0.00		NONE		0.00										0	
128													0.00	NONE									0.00		NONE		0.00										0	
129													0.00	NONE									0.00		NONE		0.00										0	
130													0.00	NONE									0.00		NONE		0.00										0	
131													0.00	NONE									0.00		NONE		0.00										0	
132													0.00	NONE									0.00		NONE		0.00										0	
133													0.00	NONE									0.00		NONE		0.00										0	
134													0.00	NONE									0.00		NONE		0.00										0	
135													0.00	NONE									0.00		NONE		0.00										0	
136													0.00	NONE									0.00		NONE		0.00										0	
137													0.00	NONE									0.00		NONE		0.00										0	
138													0.00	NONE									0.00		NONE		0.00										0	
139													0.00	NONE									0.00		NONE		0.00										0	
140													0.00	NONE									0.00		NONE		0.00										0	
141													0.00	NONE									0.00		NONE		0.00										0	
142													0.00	NONE									0.00		NONE		0.00										0	
143													0.00	NONE									0.00		NONE		0.00										0	
144													0.00	NONE									0.00		NONE		0.00										0	
145													0.00	NONE									0.00		NONE		0.00										0	
146													0.00	NONE									0.00		NONE		0.00										0	
147													0.00	NONE									0.00		NONE		0.00										0	
148													0.00	NONE									0.00		NONE		0.00										0	
149													0.00	NONE									0.00		NONE		0.00										0	
150													0.00	NONE									0.00		NONE		0.00										0	
151													0.00	NONE									0.00		NONE		0.00										0	
152													0.00	NONE									0.00		NONE		0.00										0	
153													0.00	NONE									0.00		NONE		0.00										0	
154													0.00	NONE									0.00		NONE		0.00										0	
155													0.00	NONE									0.00		NONE		0.00										0	
156													0.00	NONE									0.00		NONE		0.00										0	
157													0.00	NONE									0.00		NONE		0.00										0	
158													0.00	NONE									0.00		NONE		0.00										0	
159													0.00	NONE									0.00		NONE		0.00										0	
160													0.00	NONE									0.00		NONE		0.00										0	
161													0.00	NONE									0.00		NONE		0.00										0	
162													0.00	NONE									0.00		NONE		0.00										0	
163													0.00	NONE									0.00		NONE		0.00										0	
164													0.00	NONE									0.00		NONE		0.00										0	
165													0.00	NONE									0.00		NONE		0.00										0	
166													0.00	NONE									0.00		NONE		0.00										0	
167													0.00	NONE									0.00		NONE		0.00										0	
168													0.00	NONE									0.00		NONE		0.00										0	
169													0.00	NONE									0.00		NONE		0.00										0	
170													0.00	NONE									0.00		NONE		0.00										0	
171													0.00	NONE									0.00		NONE		0.00										0	
172													0.00	NONE									0.00		NONE		0.00										0	
173													0.00	NONE									0.00		NONE		0.00										0	
174													0.00	NONE									0.00		NONE		0.00										0	
175													0.00	NONE									0.00		NONE		0.00										0	
176													0.00	NONE									0.00		NONE		0.00										0	
177													0.00	NONE									0.00		NONE		0.00										0	
178													0.00	NONE									0.00		NONE		0.00										0	
179													0.00	NONE									0.00		NONE		0.00										0	
180													0.00	NONE									0.00		NONE		0.00										0	
181													0.00	NONE									0.00		NONE		0.00										0	
182													0.00	NONE									0.00		NONE		0.00										0	
183													0.00	NONE									0.00		NONE		0.00										0	
184													0.00	NONE									0.00		NONE		0.00										0	
185													0.00	NONE									0.00		NONE		0.00										0	
186													0.00	NONE									0.00		NONE		0.00										0	
187													0.00	NONE									0.00		NONE		0.00										0	
188													0.00	NONE									0.00		NONE		0.00										0	
189													0.00	NONE									0.00		NONE		0.00										0	
190													0.00	NONE									0.00		NONE		0.00										0	

Lighting Form

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101												0.00	0.00	NONE							0.00		NONE		0.00								0	
102												0.00	0.00	NONE							0.00		NONE		0.00								0	
103												0.00	0.00	NONE							0.00		NONE		0.00								0	
104												0.00	0.00	NONE							0.00		NONE		0.00								0	
105												0.00	0.00	NONE							0.00		NONE		0.00								0	
106												0.00	0.00	NONE							0.00		NONE		0.00								0	
107												0.00	0.00	NONE							0.00		NONE		0.00								0	
108												0.00	0.00	NONE							0.00		NONE		0.00								0	
109												0.00	0.00	NONE							0.00		NONE		0.00								0	
200												0.00	0.00	NONE							0.00		NONE		0.00								0	
201												0.00	0.00	NONE							0.00		NONE		0.00								0	
202												0.00	0.00	NONE							0.00		NONE		0.00								0	
203												0.00	0.00	NONE							0.00		NONE		0.00								0	
204												0.00	0.00	NONE							0.00		NONE		0.00								0	
205												0.00	0.00	NONE							0.00		NONE		0.00								0	
206												0.00	0.00	NONE							0.00		NONE		0.00								0	
207												0.00	0.00	NONE							0.00		NONE		0.00								0	
208												0.00	0.00	NONE							0.00		NONE		0.00								0	
209												0.00	0.00	NONE							0.00		NONE		0.00								0	
210												0.00	0.00	NONE							0.00		NONE		0.00								0	
211												0.00	0.00	NONE							0.00		NONE		0.00								0	
212												0.00	0.00	NONE							0.00		NONE		0.00								0	
213												0.00	0.00	NONE							0.00		NONE		0.00								0	
214												0.00	0.00	NONE							0.00		NONE		0.00								0	
215												0.00	0.00	NONE							0.00		NONE		0.00								0	
216												0.00	0.00	NONE							0.00		NONE		0.00								0	
217												0.00	0.00	NONE							0.00		NONE		0.00								0	
218												0.00	0.00	NONE							0.00		NONE		0.00								0	
219												0.00	0.00	NONE							0.00		NONE		0.00								0	
220												0.00	0.00	NONE							0.00		NONE		0.00								0	
221												0.00	0.00	NONE							0.00		NONE		0.00								0	
222												0.00	0.00	NONE							0.00		NONE		0.00								0	
223												0.00	0.00	NONE							0.00		NONE		0.00								0	
224												0.00	0.00	NONE							0.00		NONE		0.00								0	
225												0.00	0.00	NONE							0.00		NONE		0.00								0	
226												0.00	0.00	NONE							0.00		NONE		0.00								0	
227												0.00	0.00	NONE							0.00		NONE		0.00								0	
228												0.00	0.00	NONE							0.00		NONE		0.00								0	
229												0.00	0.00	NONE							0.00		NONE		0.00								0	
230												0.00	0.00	NONE							0.00		NONE		0.00								0	
231												0.00	0.00	NONE							0.00		NONE		0.00								0	
232												0.00	0.00	NONE							0.00		NONE		0.00								0	
233												0.00	0.00	NONE							0.00		NONE		0.00								0	
234												0.00	0.00	NONE							0.00		NONE		0.00								0	
235												0.00	0.00	NONE							0.00		NONE		0.00								0	
236												0.00	0.00	NONE							0.00		NONE		0.00								0	
237												0.00	0.00	NONE							0.00		NONE		0.00								0	
238												0.00	0.00	NONE							0.00		NONE		0.00								0	
239												0.00	0.00	NONE							0.00		NONE		0.00								0	
240												0.00	0.00	NONE							0.00		NONE		0.00								0	
241												0.00	0.00	NONE							0.00		NONE		0.00								0	
242												0.00	0.00	NONE							0.00		NONE		0.00								0	
243												0.00	0.00	NONE							0.00		NONE		0.00								0	
244												0.00	0.00	NONE							0.00		NONE		0.00								0	
245												0.00	0.00	NONE							0.00		NONE		0.00								0	
246												0.00	0.00	NONE							0.00		NONE		0.00								0	
247												0.00	0.00	NONE							0.00		NONE		0.00								0	
248												0.00	0.00	NONE							0.00		NONE		0.00								0	
249												0.00	0.00	NONE							0.00		NONE		0.00								0	
250												0.00	0.00	NONE							0.00		NONE		0.00								0	
Totals										1,854			109.19						1,861			87.91			62.39							47.64	2,265	145,316	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

Project Estimated Annual Savings Summary

Lighting

Estimated Annual kWh Savings	145,316
Total Change in Connected Load	62.38

Annual Estimated Cost Savings	$14,531.60
Annual Operating Hours	2,080

Interior Lighting Incentive @ $0.05/kWh (excluding retrofit CFLs, sensors, or LED exit signs)	$7,265.80
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	$7,265.80

Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	1661
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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	47.64

Lighting Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools
Facility Name: High School # 2
Date: 3/7/2013
Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)						BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations											Post Fixture Cut Sheet Number
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.		Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	
e.g.	*Retrofit*	*400 North Street*	*2*	*Office*	*Other*	*Interior*	*Office - Small*		*Cooled Space*	*3*	*F44ILL*	*112*	*0.34*	*NONE*						*3*	*CFT55/1-BX*	*56*	*0.17*	*No*	*OCC*	*3*	*0.17*	*84%*	*84%*	*34%*	*12%*	*0%*	*30%*	*0.19*	*2,808*	*3,435*	*646*	*1*
e.g.	*NewConstruction*	*Example*	*1*	*Restaurant*	*Conference, Meeting or Training Room*	*Exterior*	*Retail - Small*	*Builing facades (liner ft based)*	*Cooled Space*							*500*	*linear ft*	*3.8*	*1.88*	*5*	*Example Cut Sheet 2*	*25*	*0.13*	*Yes*	*DAY*	*5*	*1.75*	*88%*	*89%*	*34%*	*12%*	*0%*	*0%*	*2.09*	*8,760*	*3,068*	*6,013*	*1A*
1	Retrofit	15911 Aldersyde Drive	All	Library	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 1	123	0.25	NONE						2	Cut Sheet 20	65	0.13	No	NONE		0.12		57%	34%	12%	0%	0%	0.09		2,080	270	
2	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 1	123	0.74	NONE						6	Cut Sheet 20	65	0.39	No	NONE		0.35		57%	34%	12%	0%	0%	0.27		2,080	811	
3	Retrofit	15911 Aldersyde Drive	All	Vault	Other	Interior	Education - Secondary School		Cooled Space	10	Cut Sheet 1	123	1.23	NONE						10	Cut Sheet 20	65	0.65	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,351	
4	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	495	Cut Sheet 1	123	60.89	NONE						495	Cut Sheet 20	65	32.18	No	NONE		28.71		57%	34%	12%	0%	0%	21.93		2,080	66,883	
5	Retrofit	15911 Aldersyde Drive	All	Gymnasium	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 1	123	0.25	NONE						2	Cut Sheet 20	65	0.13	No	NONE		0.12		57%	34%	12%	0%	0%	0.09		2,080	270	
6	Retrofit	15911 Aldersyde Drive	All	K-12 School	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 1	123	0.37	NONE						3	Cut Sheet 20	65	0.20	No	NONE		0.17		57%	34%	12%	0%	0%	0.13		2,080	405	
7	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	11	Cut Sheet 2	237	2.61	NONE						11	Cut Sheet 16	131	1.44	No	NONE		1.17		57%	34%	12%	0%	0%	0.89		2,080	2,716	
8	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	56	Cut Sheet 2	237	13.27	NONE						56	Cut Sheet 18	192	10.75	No	NONE		2.52		57%	34%	12%	0%	0%	1.92		2,080	5,871	
9	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 3	123	0.74	NONE						6	Cut Sheet 6	48	0.29	No	NONE		0.45		57%	34%	12%	0%	0%	0.34		2,080	1,048	
10	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 3	123	0.12	NONE						1	Cut Sheet 6	48	0.05	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	175	
11	Retrofit	15911 Aldersyde Drive	All	Boiler Room	Other	Interior	Education - Secondary School		Cooled Space	13	Cut Sheet 3	123	1.60	NONE						13	Cut Sheet 6	48	0.62	No	NONE		0.98		57%	34%	12%	0%	0%	0.74		2,080	2,271	
12	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	11	Cut Sheet 4	112	1.23	NONE						11	Cut Sheet 28	96	1.06	No	NONE		0.18		57%	34%	12%	0%	0%	0.13		2,080	410	
13	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	20	Cut Sheet 5	144	2.88	NONE						20	Cut Sheet 28	96	1.92	No	NONE		0.96		57%	34%	12%	0%	0%	0.73		2,080	2,236	
14	Retrofit	15911 Aldersyde Drive	All	Kitchen	Other	Interior	Education - Secondary School		Cooled Space	17	Cut Sheet 5	144	2.45	NONE						17	Cut Sheet 28	96	1.63	No	NONE		0.82		57%	34%	12%	0%	0%	0.62		2,080	1,901	
15	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 7	83	1.00	NONE						12	Cut Sheet 6	48	0.58	No	NONE		0.42		57%	34%	12%	0%	0%	0.32		2,080	978	
16	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 7	83	0.58	NONE						7	Cut Sheet 21	48	0.34	No	NONE		0.25		57%	34%	12%	0%	0%	0.19		2,080	571	
17	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	141	Cut Sheet 8	72	10.15	NONE						141	Cut Sheet 21	48	6.77	No	NONE		3.38		57%	34%	12%	0%	0%	2.58		2,080	7,883	
18	Retrofit	15911 Aldersyde Drive	All	K-12 School	Employee Lunch or Break Room	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 8	72	0.14	NONE						2	Cut Sheet 27	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
19	Retrofit	15911 Aldersyde Drive	All	K-12 School	Restrooms	Interior	Education - Secondary School		Cooled Space	14	Cut Sheet 8	72	1.01	NONE						14	Cut Sheet 27	48	0.67	No	NONE		0.34		57%	34%	12%	0%	0%	0.26		2,080	783	
20	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 8	72	0.22	NONE						3	Cut Sheet 27	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
21	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 10	112	0.56	NONE						5	Cut Sheet 21	48	0.24	No	NONE		0.32		57%	34%	12%	0%	0%	0.24		2,080	745	
22	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	72	Cut Sheet 11	72	5.18	NONE						72	Cut Sheet 21	48	3.46	No	NONE		1.73		57%	34%	12%	0%	0%	1.32		2,080	4,026	
23	Retrofit	15911 Aldersyde Drive	All	K-12 School	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 11	72	0.07	NONE						1	Cut Sheet 27	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
24	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 12	123	0.12	NONE						1	Cut Sheet 21	48	0.05	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	175	
25	Retrofit	15911 Aldersyde Drive	All	K-12 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 13	144	0.58	NONE						4	Cut Sheet 28	96	0.38	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
26	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	10	Cut Sheet 13	144	1.44	NONE						10	Cut Sheet 28	96	0.96	No	NONE		0.48		57%	34%	12%	0%	0%	0.37		2,080	1,118	
27	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	178	Cut Sheet 13	144	25.63	NONE						178	Cut Sheet 28	96	17.09	No	NONE		8.54		57%	34%	12%	0%	0%	6.53		2,080	19,904	
28	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 14	120	0.12	NONE						1	Cut Sheet 36	38	0.04	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	191	
29	Retrofit	15911 Aldersyde Drive	All	Exit Signs	Other	Interior	Education - Secondary School		Cooled Space	160	Cut Sheet 15	40	6.40	NONE						160	Cut Sheet 22	2	0.32	No	NONE		6.08		57%	34%	12%	0%	0%	4.64		2,080	14,164	
30	Retrofit	15911 Aldersyde Drive	All	Multi Purpose Room	Other	Interior	Education - Secondary School		Cooled Space	12	MH250/1	295	3.54	NONE						12	Cut Sheet 17	171	2.05	No	NONE		1.49		57%	34%	12%	0%	0%	1.14		2,080	3,466	
31	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	16	MH400/1	458	7.33	NONE						16	Cut Sheet 17	171	2.74	No	NONE		4.59		57%	34%	12%	0%	0%	3.51		2,080	10,698	
32	Retrofit	15911 Aldersyde Drive	All	Multi Purpose Room	Other	Interior	Education - Secondary School		Cooled Space	15	MH250/1	295	4.43	NONE						21	Cut Sheet 18	192	4.03	No	NONE		0.39		57%	34%	12%	0%	0%	0.30		2,080	916	
33	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	18	MH400/1	458	8.24	NONE						18	Cut Sheet 19	266	4.79	No	NONE		3.46		57%	34%	12%	0%	0%	2.64		2,080	8,051	
34	Retrofit	15911 Aldersyde Drive	All	Auditorium	Other	Interior	Education - Secondary School		Cooled Space	21	Cut Sheet 23	150	3.15	NONE						21	Cut Sheet 34	42	0.88	No	NONE		2.27		57%	34%	12%	0%	0%	1.73		2,080	5,284	
35	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	24	Cut Sheet 23	150	3.60	NONE						24	Cut Sheet 34	42	1.01	No	NONE		2.59		57%	34%	12%	0%	0%	1.98		2,080	6,038	
36	Retrofit	15911 Aldersyde Drive	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 24	200	2.40	NONE						12	Cut Sheet 35	53	0.64	No	NONE		1.76		57%	34%	12%	0%	0%	1.35		2,080	4,109	
37	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 25	60	0.12	NONE						2	Cut Sheet 32	19	0.04	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	191	
38	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 25	60	0.30	NONE						5	Cut Sheet 32	19	0.10	No	NONE		0.21		57%	34%	12%	0%	0%	0.16		2,080	478	
39	Retrofit	15911 Aldersyde Drive	All	K-12 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	30	Cut Sheet 26	75	2.25	NONE						30	Cut Sheet 33	27	0.81	No	NONE		1.44		57%	34%	12%	0%	0%	1.10		2,080	3,355	
40	Retrofit	15911 Aldersyde Drive	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 26	75	0.90	NONE						12	Cut Sheet 33	27	0.32	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,342	
41	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 29	60	0.30	NONE						5	Cut Sheet 31	18	0.09	No	NONE		0.21		57%	34%	12%	0%	0%	0.16		2,080	489	
42	Retrofit	15911 Aldersyde Drive	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 30	93	0.47	NONE						5	Cut Sheet 34	42	0.21	No	NONE		0.26		57%	34%	12%	0%	0%	0.19		2,080	594	
43													0.00	NONE									0.00		NONE		0.00										0	
44													0.00	NONE									0.00		NONE		0.00										0	
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181													0.00	NONE									0.00		NONE		0.00										0	
182													0.00	NONE									0.00		NONE		0.00										0	
183													0.00	NONE									0.00		NONE		0.00										0	
184													0.00	NONE									0.00		NONE		0.00										0	
185													0.00	NONE									0.00		NONE		0.00										0	
186													0.00	NONE									0.00		NONE		0.00										0	
187													0.00	NONE									0.00		NONE		0.00										0	
188													0.00	NONE									0.00		NONE		0.00										0	
189													0.00	NONE									0.00		NONE		0.00										0	
190													0.00	NONE									0.00		NONE		0.00										0	

Lighting Form

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)						BASELINE (NEW CONSTRUCTION)			POST-INSTALLATION							Energy Calculations											
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
191													0.00	NONE								0.00		NONE		0.00										0	
192													0.00	NONE								0.00		NONE		0.00										0	
193													0.00	NONE								0.00		NONE		0.00										0	
194													0.00	NONE								0.00		NONE		0.00										0	
195													0.00	NONE								0.00		NONE		0.00										0	
196													0.00	NONE								0.00		NONE		0.00										0	
197													0.00	NONE								0.00		NONE		0.00										0	
198													0.00	NONE								0.00		NONE		0.00										0	
199													0.00	NONE								0.00		NONE		0.00										0	
200													0.00	NONE								0.00		NONE		0.00										0	
201													0.00	NONE								0.00		NONE		0.00										0	
202													0.00	NONE								0.00		NONE		0.00										0	
203													0.00	NONE								0.00		NONE		0.00										0	
204													0.00	NONE								0.00		NONE		0.00										0	
205													0.00	NONE								0.00		NONE		0.00										0	
206													0.00	NONE								0.00		NONE		0.00										0	
207													0.00	NONE								0.00		NONE		0.00										0	
208													0.00	NONE								0.00		NONE		0.00										0	
209													0.00	NONE								0.00		NONE		0.00										0	
210													0.00	NONE								0.00		NONE		0.00										0	
211													0.00	NONE								0.00		NONE		0.00										0	
212													0.00	NONE								0.00		NONE		0.00										0	
213													0.00	NONE								0.00		NONE		0.00										0	
214													0.00	NONE								0.00		NONE		0.00										0	
215													0.00	NONE								0.00		NONE		0.00										0	
216													0.00	NONE								0.00		NONE		0.00										0	
217													0.00	NONE								0.00		NONE		0.00										0	
218													0.00	NONE								0.00		NONE		0.00										0	
219													0.00	NONE								0.00		NONE		0.00										0	
220													0.00	NONE								0.00		NONE		0.00										0	
221													0.00	NONE								0.00		NONE		0.00										0	
222													0.00	NONE								0.00		NONE		0.00										0	
223													0.00	NONE								0.00		NONE		0.00										0	
224													0.00	NONE								0.00		NONE		0.00										0	
225													0.00	NONE								0.00		NONE		0.00										0	
226													0.00	NONE								0.00		NONE		0.00										0	
227													0.00	NONE								0.00		NONE		0.00										0	
228													0.00	NONE								0.00		NONE		0.00										0	
229													0.00	NONE								0.00		NONE		0.00										0	
230													0.00	NONE								0.00		NONE		0.00										0	
231													0.00	NONE								0.00		NONE		0.00										0	
232													0.00	NONE								0.00		NONE		0.00										0	
233													0.00	NONE								0.00		NONE		0.00										0	
234													0.00	NONE								0.00		NONE		0.00										0	
235													0.00	NONE								0.00		NONE		0.00										0	
236													0.00	NONE								0.00		NONE		0.00										0	
237													0.00	NONE								0.00		NONE		0.00										0	
238													0.00	NONE								0.00		NONE		0.00										0	
239													0.00	NONE								0.00		NONE		0.00										0	
240													0.00	NONE								0.00		NONE		0.00										0	
241													0.00	NONE								0.00		NONE		0.00										0	
242													0.00	NONE								0.00		NONE		0.00										0	
243													0.00	NONE								0.00		NONE		0.00										0	
244													0.00	NONE								0.00		NONE		0.00										0	
245													0.00	NONE								0.00		NONE		0.00										0	
246													0.00	NONE								0.00		NONE		0.00										0	
247													0.00	NONE								0.00		NONE		0.00										0	
248													0.00	NONE								0.00		NONE		0.00										0	
249													0.00	NONE								0.00		NONE		0.00										0	
250													0.00	NONE								0.00		NONE		0.00										0	
Totals										1,441			178.84						1,447			100.31				78.53							59.98		2,080	182,950	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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 CFLs and LED Exit Signs	1447
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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	59.98

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Lomond Elementary
Principal Address: 17917 Lomond Boulevard

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	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

Exhibit 2

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	347,680	347,680	347,680
2010	307,120	307,120	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
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
		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.

Commitment Payment $
$0

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	65	$ 308	$ 19,959	$ 4,050	$2,428	$647	$ 7,125	**2.8**
Total	**65**	**$ 308**	**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 Form

Lighting Inventory Form

Applicant Name: Shaker Heights High School
Facility Name: Lomond Elementary
Date: 3/7/2013
Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)						BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations											Post Fixture Cut Sheet Number
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.		Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	
e.g.	*Retrofit*	*400 North Street*	*2*	*Office*	*Other*	*Interior*	*Office - Small*		*Cooled Space*	*3*	*F44ILL*	*112*	*0.34*	*NONE*						*3*	*CFT55/1-BX*	*56*	*0.17*	*No*	*OCC*	*3*	*0.17*	*84%*	*84%*	*34%*	*12%*	*0%*	*30%*	*0.19*	*2,808*	*3,435*	*646*	*1*
e.g.	*NewConstruction*	*Example*	*1*	*Restaurant*	*Conference, Meeting or Training Room*	*Exterior*	*Retail - Small*	*Builing facades (liner ft based)*	*Cooled Space*							*500*	*linear ft*	*3.8*	*1.88*	*5*	*Example Cut Sheet 2*	*25*	*0.13*	*Yes*	*DAY*	*5*	*1.75*	*88%*	*89%*	*34%*	*12%*	*0%*	*0%*	*2.09*	*8,760*	*3,068*	*6,013*	*1A*
1	Retrofit	17917 Lomond Blvd	All	Office	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 1	72	0.07	NONE						1	Cut Sheet 2	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
2	Retrofit	17917 Lomond Blvd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 1	72	0.07	NONE						1	Cut Sheet 2	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
3	Retrofit	17917 Lomond Blvd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 1	72	0.14	NONE						2	Cut Sheet 2	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
4	Retrofit	17917 Lomond Blvd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Primary School		Cooled Space	14	Cut Sheet 3	72	1.01	NONE						14	Cut Sheet 4	41	0.57	No	NONE		0.43		57%	34%	12%	0%	0%	0.33		2,080	1,011	
5	Retrofit	17917 Lomond Blvd	All	K-8 School	Conference, Meeting or Training Room	Interior	Education - Primary School		Cooled Space	7	Cut Sheet 3	72	0.50	NONE						7	Cut Sheet 4	41	0.29	No	NONE		0.22		57%	34%	12%	0%	0%	0.17		2,080	506	
6	Retrofit	17917 Lomond Blvd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	23	Cut Sheet 5	144	3.31	NONE						23	Cut Sheet 6	48	1.10	No	NONE		2.21		57%	34%	12%	0%	0%	1.69		2,080	5,144	
7	Retrofit	17917 Lomond Blvd	All	K-8 School	Conference, Meeting or Training Room	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 5	144	0.86	NONE						6	Cut Sheet 6	48	0.29	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,342	
8	Retrofit	17917 Lomond Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	41	Cut Sheet 5	144	5.90	NONE						41	Cut Sheet 6	48	1.97	No	NONE		3.94		57%	34%	12%	0%	0%	3.01		2,080	9,169	
9	Retrofit	17917 Lomond Blvd	All	Storage	Other	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 5	144	0.86	NONE						6	Cut Sheet 6	48	0.29	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,342	
10	Retrofit	17917 Lomond Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	10	Cut Sheet 7	72	0.72	NONE						10	Cut Sheet 8	39	0.39	No	NONE		0.33		57%	34%	12%	0%	0%	0.25		2,080	769	
11	Retrofit	17917 Lomond Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 9	144	0.14	NONE						1	Cut Sheet 10	96	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
12	Retrofit	17917 Lomond Blvd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 11	31	0.03	NONE						1	Cut Sheet 12	27	0.03	No	NONE		0.00		57%	34%	12%	0%	0%	0.00		2,080	9	
13	Retrofit	17917 Lomond Blvd	All	Auditorium	Other	Interior	Education - Primary School		Cooled Space	80	Cut Sheet 13	72	5.76	NONE						86	Cut Sheet 14	65	5.59	No	NONE		0.17		57%	34%	12%	0%	0%	0.13		2,080	396	
14	Retrofit	17917 Lomond Blvd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	7	Cut Sheet 13	72	0.50	NONE						7	Cut Sheet 2	48	0.34	No	NONE		0.17		57%	34%	12%	0%	0%	0.13		2,080	391	
15	Retrofit	17917 Lomond Blvd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 16	144	0.58	NONE						4	Cut Sheet 10	96	0.38	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
16	Retrofit	17917 Lomond Blvd	All	Gymnasium	Other	Interior	Education - Primary School		Cooled Space	30	Cut Sheet 18	123	3.69	NONE						30	Cut Sheet 19	145	4.35	No	NONE		-0.66		57%	34%	12%	0%	0%	-0.50		2,080	-1,538	
17	Retrofit	17917 Lomond Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	171	Cut Sheet 21	144	24.62	NONE						171	Cut Sheet 20	65	11.12	No	NONE		13.51		57%	34%	12%	0%	0%	10.32		2,080	31,471	
18	Retrofit	17917 Lomond Blvd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 22	125	0.25	NONE						2	Cut Sheet 23	65	0.13	No	NONE		0.12		57%	34%	12%	0%	0%	0.09		2,080	280	
19	Retrofit	17917 Lomond Blvd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 21	144	0.29	NONE						2	Cut Sheet 20	65	0.13	No	NONE		0.16		57%	34%	12%	0%	0%	0.12		2,080	368	
20	Retrofit	17917 Lomond Blvd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	44	Cut Sheet 24	144	6.34	NONE						44	Cut Sheet 10	96	4.22	No	NONE		2.11		57%	34%	12%	0%	0%	1.61		2,080	4,920	
21	Retrofit	17917 Lomond Blvd	All	Exit Signs	Other	Interior	Education - Primary School		Cooled Space	15	Cut Sheet 25	40	0.60	NONE						15	Cut Sheet 26	2	0.03	No	NONE		0.57		57%	34%	12%	0%	0%	0.44		2,080	1,328	
22	Retrofit	17917 Lomond Blvd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	27	Cut Sheet 27	100	2.70	NONE						27	Cut Sheet 28	26	0.70	No	NONE		2.00		57%	34%	12%	0%	0%	1.53		2,080	4,655	
23	Retrofit	17917 Lomond Blvd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	7	Cut Sheet 29	200	1.40	NONE						7	Cut Sheet 30	53	0.37	No	NONE		1.03		57%	34%	12%	0%	0%	0.79		2,080	2,397	
24													0.00	NONE									0.00		NONE		0.00										0	
25													0.00	NONE									0.00		NONE		0.00										0	
26													0.00	NONE									0.00		NONE		0.00										0	
27													0.00	NONE									0.00		NONE		0.00										0	
28													0.00	NONE									0.00		NONE		0.00										0	
29													0.00	NONE									0.00		NONE		0.00										0	
30													0.00	NONE									0.00		NONE		0.00										0	
31													0.00	NONE									0.00		NONE		0.00										0	
32													0.00	NONE									0.00		NONE		0.00										0	
33													0.00	NONE									0.00		NONE		0.00										0	
34													0.00	NONE									0.00		NONE		0.00										0	
35													0.00	NONE									0.00		NONE		0.00										0	
36													0.00	NONE									0.00		NONE		0.00										0	
37													0.00	NONE									0.00		NONE		0.00										0	
38													0.00	NONE									0.00		NONE		0.00										0	
39													0.00	NONE									0.00		NONE		0.00										0	
40													0.00	NONE									0.00		NONE		0.00										0	
41													0.00	NONE									0.00		NONE		0.00										0	
42													0.00	NONE									0.00		NONE		0.00										0	
43													0.00	NONE									0.00		NONE		0.00										0	
44													0.00	NONE									0.00		NONE		0.00										0	
45													0.00	NONE									0.00		NONE		0.00										0	
46													0.00	NONE									0.00		NONE		0.00										0	
47													0.00	NONE									0.00		NONE		0.00										0	
48													0.00	NONE									0.00		NONE		0.00										0	
49													0.00	NONE									0.00		NONE		0.00										0	
50													0.00	NONE									0.00		NONE		0.00										0	
51													0.00	NONE									0.00		NONE		0.00										0	
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69													0.00	NONE									0.00		NONE		0.00										0	
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72													0.00	NONE									0.00		NONE		0.00										0	
73													0.00	NONE									0.00		NONE		0.00										0	
74													0.00	NONE									0.00		NONE		0.00										0	
75													0.00	NONE									0.00		NONE		0.00										0	
76													0.00	NONE									0.00		NONE		0.00										0	
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82													0.00	NONE									0.00		NONE		0.00										0	
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137													0.00	NONE									0.00		NONE		0.00										0	
138													0.00	NONE									0.00		NONE		0.00										0	
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140													0.00	NONE									0.00		NONE		0.00										0	
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142													0.00	NONE									0.00		NONE		0.00										0	
143													0.00	NONE									0.00		NONE		0.00										0	
144													0.00	NONE									0.00		NONE		0.00										0	
145													0.00	NONE									0.00		NONE		0.00										0	
146													0.00	NONE									0.00		NONE		0.00										0	
147													0.00	NONE									0.00		NONE		0.00										0	
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150													0.00	NONE									0.00		NONE		0.00										0	
151													0.00	NONE									0.00		NONE		0.00										0	
152													0.00	NONE									0.00		NONE		0.00										0	
153													0.00	NONE									0.00		NONE		0.00										0	
154													0.00	NONE									0.00		NONE		0.00										0	
155													0.00	NONE									0.00		NONE		0.00										0	
156													0.00	NONE									0.00		NONE		0.00										0	
157													0.00	NONE									0.00		NONE		0.00										0	
158													0.00	NONE									0.00		NONE		0.00										0	
159													0.00	NONE									0.00		NONE		0.00										0	
160													0.00	NONE									0.00		NONE		0.00										0	
161													0.00	NONE									0.00		NONE		0.00										0	
162													0.00	NONE									0.00		NONE		0.00										0	
163													0.00	NONE									0.00		NONE		0.00										0	
164													0.00	NONE									0.00		NONE		0.00										0	
165													0.00	NONE									0.00		NONE		0.00										0	
166													0.00	NONE									0.00		NONE		0.00										0	
167													0.00	NONE									0.00		NONE		0.00										0	
168													0.00	NONE									0.00		NONE		0.00										0	
169													0.00	NONE									0.00		NONE		0.00										0	
170													0.00	NONE									0.00		NONE		0.00										0	
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173													0.00	NONE									0.00		NONE		0.00										0	
174													0.00	NONE									0.00		NONE		0.00										0	
175													0.00	NONE									0.00		NONE		0.00										0	
176													0.00	NONE									0.00		NONE		0.00										0	
177													0.00	NONE									0.00		NONE		0.00										0	
178													0.00	NONE									0.00		NONE		0.00										0	
179													0.00	NONE									0.00		NONE		0.00										0	
180													0.00	NONE									0.00		NONE		0.00										0	
181													0.00	NONE									0.00		NONE		0.00										0	
182													0.00	NONE									0.00		NONE		0.00										0	
183													0.00	NONE									0.00		NONE		0.00										0	
184													0.00	NONE									0.00		NONE		0.00										0	
185													0.00	NONE									0.00		NONE		0.00										0	
186													0.00	NONE									0.00		NONE		0.00										0	
187													0.00	NONE									0.00		NONE		0.00										0	
188													0.00	NONE									0.00		NONE		0.00										0	
189													0.00	NONE									0.00		NONE		0.00										0	
190													0.00	NONE									0.00		NONE		0.00										0	

Lighting Form

	PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION								Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling		Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101														0.00	NONE								0.00	NONE		0.00									0	
102														0.00	NONE								0.00	NONE		0.00									0	
103														0.00	NONE								0.00	NONE		0.00									0	
104														0.00	NONE								0.00	NONE		0.00									0	
105														0.00	NONE								0.00	NONE		0.00									0	
106														0.00	NONE								0.00	NONE		0.00									0	
107														0.00	NONE								0.00	NONE		0.00									0	
108														0.00	NONE								0.00	NONE		0.00									0	
109														0.00	NONE								0.00	NONE		0.00									0	
200														0.00	NONE								0.00	NONE		0.00									0	
201														0.00	NONE								0.00	NONE		0.00									0	
202														0.00	NONE								0.00	NONE		0.00									0	
203														0.00	NONE								0.00	NONE		0.00									0	
204														0.00	NONE								0.00	NONE		0.00									0	
205														0.00	NONE								0.00	NONE		0.00									0	
206														0.00	NONE								0.00	NONE		0.00									0	
207														0.00	NONE								0.00	NONE		0.00									0	
208														0.00	NONE								0.00	NONE		0.00									0	
209														0.00	NONE								0.00	NONE		0.00									0	
210														0.00	NONE								0.00	NONE		0.00									0	
211														0.00	NONE								0.00	NONE		0.00									0	
212														0.00	NONE								0.00	NONE		0.00									0	
213														0.00	NONE								0.00	NONE		0.00									0	
214														0.00	NONE								0.00	NONE		0.00									0	
215														0.00	NONE								0.00	NONE		0.00									0	
216														0.00	NONE								0.00	NONE		0.00									0	
217														0.00	NONE								0.00	NONE		0.00									0	
218														0.00	NONE								0.00	NONE		0.00									0	
219														0.00	NONE								0.00	NONE		0.00									0	
220														0.00	NONE								0.00	NONE		0.00									0	
221														0.00	NONE								0.00	NONE		0.00									0	
222														0.00	NONE								0.00	NONE		0.00									0	
223														0.00	NONE								0.00	NONE		0.00									0	
224														0.00	NONE								0.00	NONE		0.00									0	
225														0.00	NONE								0.00	NONE		0.00									0	
226														0.00	NONE								0.00	NONE		0.00									0	
227														0.00	NONE								0.00	NONE		0.00									0	
228														0.00	NONE								0.00	NONE		0.00									0	
229														0.00	NONE								0.00	NONE		0.00									0	
230														0.00	NONE								0.00	NONE		0.00									0	
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245														0.00	NONE								0.00	NONE		0.00									0	
246														0.00	NONE								0.00	NONE		0.00									0	
247														0.00	NONE								0.00	NONE		0.00									0	
248														0.00	NONE								0.00	NONE		0.00									0	
249														0.00	NONE								0.00	NONE		0.00									0	
250														0.00	NONE								0.00	NONE		0.00									0	
Totals											332			60.37						556			32.58			27.79						31.23		2,065	64,742	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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 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	508
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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	21.23

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Mercer Elementary
Principal Address: 23325 Wimbledon Road

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	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

Exhibit 2

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.

Commitment Payment $
$0

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	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			
Name	Description	Value	Units
HPm	motor rating	0.125	hp
PL	percent loaded	0.7	-
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/yr
ACE	Avoided cost of Electricity	0.07854	$/kWh
Csav	Cost Savings = Esav x ACE	$40	$/yr

Ventilation Savings			
Name	Description	Value	Units
CFM	Unit ventilator air flow	1000	ft^3/min
Poa	Percent outdoor air	0	-
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/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 x WPY	3469.2	hr/yr
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	-
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr
Qng,total	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr
Cng	Cost of natural gas	8.12	$/mmBtu
Cng,sav	Annual NG cost savings = Cng x Qng,total	$0	$/yr

Overall Total Savings			
Name	Description	Value	Units
Nv	Number of ventilators	27	-
ElecSav	Total annual electricity savings = Nv x Esav	13,660	kWh/yr
Ecost,sav	Cost Savings = ElecSav x ACE	$1,073	$/yr
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr
NgCostSav	Annual NG cost savings = Cng x NgSav	$0	$/yr
Csav,total	Total annual cost savings = Ecost,sav + NgCostSav	$1,073	$/yr

Bin Temperature Ventilation Energy Consumption				
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	2.7	22	0
-5	-1	-1.5	21	0
-10	-6	-5.1	3	0
			Total	0

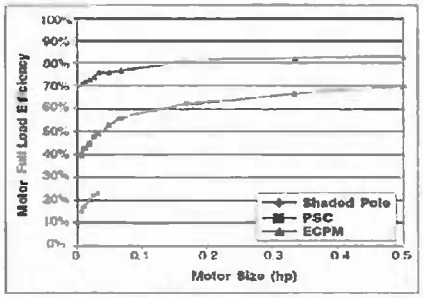

Figure 1: Representative subfractional horsepower motor efficiencies (for refrigerator fan motors).[2]

FirstEnergy®

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 Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools

Facility Name: Mercer Elementary

Date: 5/7/2013

Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupancy Sensor, DAY for photosensor, HI-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total in Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control (drop-down)	Existing Sensor Quantity (When applicable)	Units e.g. Square Feet (ft²) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control (drop-down)	Proposed Sensor Quantity (When applicable)	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
eg.	*Retrofit*	*400 North Street*	*2*	*Office*	*Other*	*Interior*	*Office - Small*		*Cooled Space*	*3*	*FA4ILL*	*112*	*0.34*	*NONE*					*3*	*CFTS2-I-BX*	*56*	*0.17*	*No*	*OCC*	*3*	*0.17*	*84%*	*84%*	*24%*	*12%*	*0%*	*20%*	*0.13*	*2,604*	*3,435*	*440*	*1*
eg.	*New Construction*	*Example*	*1*	*Restaurant*	*Conference, Meeting or Training Room*	*Exterior*	*Retail - Small*	*Building Soapbox (Inter Kitsaco)*	*Cooled Space*							*600*	*Sheet 4*	*3.6*	*9*	*F28T5*	*28*	*0.13*	*Yes*	*DAY*	*6*	*0.76*	*89%*	*89%*	*24%*	*12%*	*0%*	*20%*	*0.09*	*2,028*	*4,797*	*9,243*	*Y4*
1	Retrofit	23325 Wimbledon Rd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 1	72	0.14	NONE					2	Cut Sheet 2	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	113	
2	Retrofit	23325 Wimbledon Rd	All	Storage	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 1	72	0.07	NONE					1	Cut Sheet 2	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	59	
3	Retrofit	23325 Wimbledon Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	5	Cut Sheet 3	72	0.36	NONE					5	Cut Sheet 2	48	0.24	No	NONE		0.12		57%	34%	12%	0%	0%	0.09		2,080	295	
4	Retrofit	23325 Wimbledon Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	52	Cut Sheet 4	123	6.40	NONE					52	Cut Sheet 5	108	5.62	No	NONE		0.78		57%	34%	12%	0%	0%	0.71		2,080	2,131	
5	Retrofit	23325 Wimbledon Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 3	72	0.58	NONE					8	Cut Sheet 2	48	0.38	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	474	
6	Retrofit	23325 Wimbledon Rd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 6	20	0.04	NONE					2	Cut Sheet 7	19	0.04	No	NONE		0.00		57%	34%	12%	0%	0%	0.00		2,080	24	
7	Retrofit	23325 Wimbledon Rd	All	K-8 School	Office	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 8	72	0.22	NONE					3	Cut Sheet 9	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	361	
8	Retrofit	23325 Wimbledon Rd	All	K-8 School	Conference, Meeting or Training Room	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 10	144	0.43	NONE					3	Cut Sheet 11	48	0.14	No	NONE		0.28		57%	34%	12%	0%	0%	0.22		2,080	571	
9	Retrofit	23325 Wimbledon Rd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	24	Cut Sheet 12	96	2.35	NONE					24	Cut Sheet 11	48	1.15	No	NONE		1.20		57%	34%	12%	0%	0%	0.92		2,080	2,796	
10	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	19	Cut Sheet 13	144	2.74	NONE					19	Cut Sheet 14	48	0.91	No	NONE		1.82		57%	34%	12%	0%	0%	1.39		2,080	4,248	
11	Retrofit	23325 Wimbledon Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	13	Cut Sheet 14	72	0.94	NONE					13	Cut Sheet 15	39	0.51	No	NONE		0.43		57%	34%	12%	0%	0%	0.33		2,080	999	
12	Retrofit	23325 Wimbledon Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	9	Cut Sheet 16	144	1.30	NONE					9	Cut Sheet 15	39	0.35	No	NONE		0.95		57%	34%	12%	0%	0%	0.72		2,080	2,201	
13	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	14	Cut Sheet 17	72	1.01	NONE					14	Cut Sheet 2	48	0.67	No	NONE		0.34		57%	34%	12%	0%	0%	0.26		2,080	783	
14	Retrofit	23325 Wimbledon Rd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 18	72	0.14	NONE					2	Cut Sheet 2	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
15	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	5	Cut Sheet 18	72	0.36	NONE					5	Cut Sheet 2	48	0.24	No	NONE		0.12		57%	34%	12%	0%	0%	0.09		2,080	282	
16	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 19	144	0.58	NONE					4	Cut Sheet 20	88	0.34	No	NONE		0.23		57%	34%	12%	0%	0%	0.18		2,080	540	
17	Retrofit	23325 Wimbledon Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	266	Cut Sheet 21	123	32.41	NONE					266	Cut Sheet 22	65	19.24	No	NONE		17.17		57%	34%	12%	0%	0%	12.11		2,080	39,995	
18	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	7	Cut Sheet 23	123	0.86	NONE					7	Cut Sheet 24	48	0.34	No	NONE		0.53		57%	34%	12%	0%	0%	0.40		2,080	1,022	
19	Retrofit	23325 Wimbledon Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 25	72	0.58	NONE					8	Cut Sheet 2	48	0.38	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
20	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	10	Cut Sheet 26	144	1.44	NONE					10	Cut Sheet 27	96	0.96	No	NONE		0.48		57%	34%	12%	0%	0%	0.37		2,080	1,118	
21	Retrofit	23325 Wimbledon Rd	All	Exit Signs	Other	Interior	Education - Primary School		Cooled Space	20	Cut Sheet 28	40	0.80	NONE					20	Cut Sheet 29	2	0.04	No	NONE		0.76		57%	34%	12%	0%	0%	0.59		2,080	1,770	
22	Retrofit	23325 Wimbledon Rd	All	Auditorium	Other	Interior	Education - Primary School		Cooled Space	15	MH400/1	458	6.87	NONE					15	Cut Sheet 30	192	2.88	No	NONE		3.99		57%	34%	12%	0%	0%	3.05		2,080	9,295	
23	Retrofit	23325 Wimbledon Rd	All	Gymnasium	Other	Interior	Education - Primary School		Cooled Space	18	MH400/1	458	8.24	NONE					18	Cut Sheet 30	192	3.46	No	NONE		4.79		57%	34%	12%	0%	0%	3.66		2,080	11,154	
24	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	2	MH400/1	458	0.92	NONE					2	Cut Sheet 30	192	0.38	No	NONE		0.53		57%	34%	12%	0%	0%	0.41		2,080	1,238	
25	Retrofit	23325 Wimbledon Rd	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 31	200	0.60	NONE					3	Cut Sheet 32	53	0.16	No	NONE		0.44		57%	34%	12%	0%	0%	0.34		2,080	1,027	
26													0.00	NONE								0.00		NONE		0.00									0	
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136													0.00	NONE								0.00		NONE		0.00									0	
137													0.00	NONE								0.00		NONE		0.00									0	
138													0.00	NONE								0.00		NONE		0.00									0	
139													0.00	NONE								0.00		NONE		0.00									0	
140													0.00	NONE								0.00		NONE		0.00									0	
141													0.00	NONE								0.00		NONE		0.00									0	
142													0.00	NONE								0.00		NONE		0.00									0	
143													0.00	NONE								0.00		NONE		0.00									0	
144													0.00	NONE								0.00		NONE		0.00									0	
145													0.00	NONE								0.00		NONE		0.00									0	
146													0.00	NONE								0.00		NONE		0.00									0	
147													0.00	NONE								0.00		NONE		0.00									0	
148													0.00	NONE								0.00		NONE		0.00									0	
149													0.00	NONE								0.00		NONE		0.00									0	
150													0.00	NONE								0.00		NONE		0.00									0	
151													0.00	NONE								0.00		NONE		0.00									0	
152													0.00	NONE								0.00		NONE		0.00									0	
153													0.00	NONE								0.00		NONE		0.00									0	
154													0.00	NONE								0.00		NONE		0.00									0	
155													0.00	NONE								0.00		NONE		0.00									0	
156													0.00	NONE								0.00		NONE		0.00									0	
157													0.00	NONE								0.00		NONE		0.00									0	
158													0.00	NONE								0.00		NONE		0.00									0	
159													0.00	NONE								0.00		NONE		0.00									0	
160													0.00	NONE								0.00		NONE		0.00									0	
161													0.00	NONE								0.00		NONE		0.00									0	
162													0.00	NONE								0.00		NONE		0.00									0	
163													0.00	NONE								0.00		NONE		0.00									0	
164													0.00	NONE								0.00		NONE		0.00									0	
165													0.00	NONE								0.00		NONE		0.00									0	
166													0.00	NONE								0.00		NONE		0.00									0	
167													0.00	NONE								0.00		NONE		0.00									0	
168													0.00	NONE								0.00		NONE		0.00									0	
169													0.00	NONE								0.00		NONE		0.00									0	

Lighting Form

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101													0.00	NONE								0.00	NONE		0.00									0	
102													0.00	NONE								0.00	NONE		0.00									0	
103													0.00	NONE								0.00	NONE		0.00									0	
104													0.00	NONE								0.00	NONE		0.00									0	
105													0.00	NONE								0.00	NONE		0.00									0	
106													0.00	NONE								0.00	NONE		0.00									0	
107													0.00	NONE								0.00	NONE		0.00									0	
108													0.00	NONE								0.00	NONE		0.00									0	
109													0.00	NONE								0.00	NONE		0.00									0	
200													0.00	NONE								0.00	NONE		0.00									0	
201													0.00	NONE								0.00	NONE		0.00									0	
202													0.00	NONE								0.00	NONE		0.00									0	
203													0.00	NONE								0.00	NONE		0.00									0	
204													0.00	NONE								0.00	NONE		0.00									0	
205													0.00	NONE								0.00	NONE		0.00									0	
206													0.00	NONE								0.00	NONE		0.00									0	
207													0.00	NONE								0.00	NONE		0.00									0	
208													0.00	NONE								0.00	NONE		0.00									0	
209													0.00	NONE								0.00	NONE		0.00									0	
210													0.00	NONE								0.00	NONE		0.00									0	
211													0.00	NONE								0.00	NONE		0.00									0	
212													0.00	NONE								0.00	NONE		0.00									0	
213													0.00	NONE								0.00	NONE		0.00									0	
214													0.00	NONE								0.00	NONE		0.00									0	
215													0.00	NONE								0.00	NONE		0.00									0	
216													0.00	NONE								0.00	NONE		0.00									0	
217													0.00	NONE								0.00	NONE		0.00									0	
218													0.00	NONE								0.00	NONE		0.00									0	
219													0.00	NONE								0.00	NONE		0.00									0	
220													0.00	NONE								0.00	NONE		0.00									0	
221													0.00	NONE								0.00	NONE		0.00									0	
222													0.00	NONE								0.00	NONE		0.00									0	
223													0.00	NONE								0.00	NONE		0.00									0	
224													0.00	NONE								0.00	NONE		0.00									0	
225													0.00	NONE								0.00	NONE		0.00									0	
226													0.00	NONE								0.00	NONE		0.00									0	
227													0.00	NONE								0.00	NONE		0.00									0	
228													0.00	NONE								0.00	NONE		0.00									0	
229													0.00	NONE								0.00	NONE		0.00									0	
230													0.00	NONE								0.00	NONE		0.00									0	
231													0.00	NONE								0.00	NONE		0.00									0	
232													0.00	NONE								0.00	NONE		0.00									0	
233													0.00	NONE								0.00	NONE		0.00									0	
234													0.00	NONE								0.00	NONE		0.00									0	
235													0.00	NONE								0.00	NONE		0.00									0	
236													0.00	NONE								0.00	NONE		0.00									0	
237													0.00	NONE								0.00	NONE		0.00									0	
238													0.00	NONE								0.00	NONE		0.00									0	
239													0.00	NONE								0.00	NONE		0.00									0	
240													0.00	NONE								0.00	NONE		0.00									0	
241													0.00	NONE								0.00	NONE		0.00									0	
242													0.00	NONE								0.00	NONE		0.00									0	
243													0.00	NONE								0.00	NONE		0.00									0	
244													0.00	NONE								0.00	NONE		0.00									0	
245													0.00	NONE								0.00	NONE		0.00									0	
246													0.00	NONE								0.00	NONE		0.00									0	
247													0.00	NONE								0.00	NONE		0.00									0	
248													0.00	NONE								0.00	NONE		0.00									0	
249													0.00	NONE								0.00	NONE		0.00									0	
250													0.00	NONE								0.00	NONE		0.00									0	
Totals										543			74.40						543			38.76			35.68						27.23		2,065	83,062	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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 CFLs and LED Exit Signs	543
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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	27.23

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

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

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	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

Exhibit 2

Customer Legal Entity Name: Shaker Heights City Schools
Site Address: Shaker Heights Middle School
Principal Address: 20600 Shaker Boulevard

	Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) *Note 1*
2011	991,956	991,956	991,956
2010	1,008,420	1,008,420	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.

Commitment Payment $
$0

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	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

FirstEnergy®

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 Rebate Amount $		**$ 2,064.16**

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

Lighting Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools

Facility Name: Middle School

Date: 3/7/2013

Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable
e.g.	Retrofit	400 North Street	2	Office	Other	Interior	Office - Small		Cooled Space	3	F44ILL	112	0.34	NONE	
e.g.	NewConstruction	Example	1	Restaurant	Conference, Meeting or Training Room	Exterior	Retail - Small	Builing facades (liner ft based)	Cooled Space	[redacted]					
1	Retrofit	20600 Shaker Blvd	All	Hall	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 1	62	0.06	NONE	
2	Retrofit	20600 Shaker Blvd	All	Library	Other	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 1	62	0.19	NONE	
3	Retrofit	20600 Shaker Blvd	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 3	62	0.12	NONE	
4	Retrofit	20600 Shaker Blvd	All	Library	Other	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 3	62	0.37	NONE	
5	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 3	62	0.25	NONE	
6	Retrofit	20600 Shaker Blvd	All	Library	Other	Interior	Education - Secondary School		Cooled Space	34	Cut Sheet 4	112	3.81	NONE	
7	Retrofit	20600 Shaker Blvd	All	Main Office	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 6	34	0.07	NONE	
8	Retrofit	20600 Shaker Blvd	All	Library	Other	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 8	72	0.22	NONE	
9	Retrofit	20600 Shaker Blvd	All	Hall	Other	Interior	Education - Secondary School		Cooled Space	110	Cut Sheet 10	62	6.82	NONE	
10	Retrofit	20600 Shaker Blvd	All	Hallway	Other	Interior	Education - Secondary School		Cooled Space	145	Cut Sheet 10	62	8.99	NONE	
11	Retrofit	20600 Shaker Blvd	All	K-8 School	Restrooms	Interior	Education - Secondary School		Cooled Space	46	Cut Sheet 10	62	2.85	NONE	
12	Retrofit	20600 Shaker Blvd	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	46	Cut Sheet 10	62	2.85	NONE	
13	Retrofit	20600 Shaker Blvd	All	Kitchen	Other	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 10	62	0.37	NONE	
14	Retrofit	20600 Shaker Blvd	All	Clinic	Other	Interior	Education - Secondary School		Cooled Space	15	Cut Sheet 10	62	0.93	NONE	
15	Retrofit	20600 Shaker Blvd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 10	62	0.43	NONE	
16	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	15	Cut Sheet 10	62	0.93	NONE	
17	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	12	Cut Sheet 11	112	1.34	NONE	
18	Retrofit	20600 Shaker Blvd	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	24	Cut Sheet 11	112	2.69	NONE	
19	Retrofit	20600 Shaker Blvd	All	Offices	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 11	112	0.22	NONE	
20	Retrofit	20600 Shaker Blvd	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 13	98	0.20	NONE	
21	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 15	62	0.12	NONE	
22	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	36	Cut Sheet 16	62	2.23	NONE	
23	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 17	72	0.14	NONE	
24	Retrofit	20600 Shaker Blvd	All	Boiler Room	Other	Interior	Education - Secondary School		Cooled Space	14	Cut Sheet 18	62	0.87	NONE	
25	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 18	62	0.12	NONE	
26	Retrofit	20600 Shaker Blvd	All	Office	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 18	62	0.12	NONE	
27	Retrofit	20600 Shaker Blvd	All	Boiler Room	Other	Interior	Education - Secondary School		Cooled Space	3	Cut Sheet 19	72	0.22	NONE	
28	Retrofit	20600 Shaker Blvd	All	K-8 School	Restrooms	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 20	43	0.04	NONE	
29	Retrofit	20600 Shaker Blvd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	7	Cut Sheet 22	58	0.41	NONE	
30	Retrofit	20600 Shaker Blvd	All	K-8 School	Conference, Meeting or Training Room	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 23	62	0.31	NONE	
31	Retrofit	20600 Shaker Blvd	All	Kitchen	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 24	112	0.22	NONE	
32	Retrofit	20600 Shaker Blvd	All	Auditorium	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 26	62	0.06	NONE	
33	Retrofit	20600 Shaker Blvd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Secondary School		Cooled Space	40	Cut Sheet 26	62	2.48	NONE	
34	Retrofit	20600 Shaker Blvd	All	Cafeteria	Other	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 26	62	0.37	NONE	
35	Retrofit	20600 Shaker Blvd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 26	62	0.06	NONE	
36	Retrofit	20600 Shaker Blvd	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 26	62	0.31	NONE	
37	Retrofit	20600 Shaker Blvd	All	Kitchen	Other	Interior	Education - Secondary School		Cooled Space	22	Cut Sheet 26	62	1.36	NONE	
38	Retrofit	20600 Shaker Blvd	All	Office	Other	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 26	62	0.25	NONE	
39	Retrofit	20600 Shaker Blvd	All	Weight Room	Other	Interior	Education - Secondary School		Cooled Space	5	Cut Sheet 26	62	0.31	NONE	
40	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	16	Cut Sheet 27	107	1.71	NONE	
41	Retrofit	20600 Shaker Blvd	All	Library	Other	Interior	Education - Secondary School		Cooled Space	16	Cut Sheet 29	112	1.79	NONE	
42	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	515	Cut Sheet 29	112	57.68	NONE	
43	Retrofit	20600 Shaker Blvd	All	Auditorium	Other	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 31	216	0.86	NONE	
44	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	8	Cut Sheet 33	112	0.90	NONE	
45	Retrofit	20600 Shaker Blvd	All	Auditorium	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 34	144	0.14	NONE	
46	Retrofit	20600 Shaker Blvd	All	Auditorium	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 35	72	0.07	NONE	
47	Retrofit	20600 Shaker Blvd	All	Office	Other	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 36	58	0.23	NONE	
48	Retrofit	20600 Shaker Blvd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 37	112	0.11	NONE	
49	Retrofit	20600 Shaker Blvd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 38	180	0.72	NONE	
50	Retrofit	20600 Shaker Blvd	All	Exit Sign	Other	Interior	Education - Secondary School		Cooled Space	40	Cut Sheet 40	40	1.60	NONE	
51	Retrofit	20600 Shaker Blvd	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	16	MH400/1	458	7.33	NONE	
52	Retrofit	20600 Shaker Blvd	All	Gymnasium	Other	Interior	Education - Secondary School		Cooled Space	12	MH400/1	458	5.50	NONE	
53	Retrofit	20600 Shaker Blvd	All	Auditorium Stairway	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 44	100	0.20	NONE	
54	Retrofit	20600 Shaker Blvd	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 44	100	0.20	NONE	
55	Retrofit	20600 Shaker Blvd	All	Tunnel	Other	Interior	Education - Secondary School		Cooled Space	20	Cut Sheet 44	100	2.00	NONE	
56	Retrofit	20600 Shaker Blvd	All	Auditorium Stage	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 46	150	0.30	NONE	
57	Retrofit	20600 Shaker Blvd	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 46	150	0.30	NONE	
58	Retrofit	20600 Shaker Blvd	All	K-8 School	Restrooms	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 46	150	0.15	NONE	
59	Retrofit	20600 Shaker Blvd	All	Boy's Locker Room	Other	Interior	Education - Secondary School		Cooled Space	2	Cut Sheet 48	60	0.12	NONE	
60	Retrofit	20600 Shaker Blvd	All	Comm Room	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 48	60	0.06	NONE	
61	Retrofit	20600 Shaker Blvd	All	Electrical Room	Other	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 48	60	0.36	NONE	
62	Retrofit	20600 Shaker Blvd	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 48	60	0.06	NONE	
63	Retrofit	20600 Shaker Blvd	All	K-8 School	Restrooms	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 48	60	0.24	NONE	
64	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	6	Cut Sheet 48	60	0.36	NONE	
65	Retrofit	20600 Shaker Blvd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 48	60	0.06	NONE	
66	Retrofit	20600 Shaker Blvd	All	Boiler Room	Other	Interior	Education - Secondary School		Cooled Space	4	Cut Sheet 50	75	0.30	NONE	
67	Retrofit	20600 Shaker Blvd	All	Storage	Other	Interior	Education - Secondary School		Cooled Space	1	Cut Sheet 50	75	0.08	NONE	
68													0.00	NONE	
69													0.00	NONE	
70													0.00	NONE	
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190													0.00	NONE	

Line Item	BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations											Post Fixture Cut Sheet Number
	Units e.g. Square Feet (ft²) If multiple fixture types are used, please only enter the total area/distance/qty once per space.		Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	
e.g.	[redacted]				3	CFT55/1-BX	56	0.17	No	OCC	3	0.17	84%	84%	34%	12%	0%	30%	0.19	2,808	3,435	646	1
e.g.	500	linear ft	3.8	1.88	5	Example Cut Sheet 2	25	0.13	Yes	DAY	5	1.75	88%	89%	34%	12%	0%	0%	2.09	8,760	3,068	6,013	1A
1	[redacted]				1	Cut Sheet 2	48	0.05	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	33	
2	[redacted]				3	Cut Sheet 2	48	0.14	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	98	
3	[redacted]				2	Cut Sheet 2	48	0.10	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	65	
4	[redacted]				6	Cut Sheet 2	48	0.29	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	196	
5	[redacted]				4	Cut Sheet 2	48	0.19	No	NONE		0.06		57%	34%	12%	0%	0%	0.04		2,080	130	
6	[redacted]				34	Cut Sheet 5	96	3.26	No	NONE		0.54		57%	34%	12%	0%	0%	0.42		2,080	1,267	
7	[redacted]				2	Cut Sheet 7	33	0.07	No	NONE		0.00		57%	34%	12%	0%	0%	0.00		2,080	5	
8	[redacted]				3	Cut Sheet 9	41	0.12	No	NONE		0.09		57%	34%	12%	0%	0%	0.07		2,080	217	
9	[redacted]				110	Cut Sheet 9	41	4.51	No	NONE		2.31		57%	34%	12%	0%	0%	1.76		2,080	5,381	
10	[redacted]				145	Cut Sheet 9	41	5.95	No	NONE		3.05		57%	34%	12%	0%	0%	2.33		2,080	7,094	
11	[redacted]				46	Cut Sheet 9	41	1.89	No	NONE		0.97		57%	34%	12%	0%	0%	0.74		2,080	2,250	
12	[redacted]				46	Cut Sheet 9	41	1.89	No	NONE		0.97		57%	34%	12%	0%	0%	0.74		2,080	2,250	
13	[redacted]				6	Cut Sheet 9	41	0.25	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	294	
14	[redacted]				15	Cut Sheet 9	41	0.62	No	NONE		0.32		57%	34%	12%	0%	0%	0.24		2,080	734	
15	[redacted]				7	Cut Sheet 9	41	0.29	No	NONE		0.15		57%	34%	12%	0%	0%	0.11		2,080	342	
16	[redacted]				15	Cut Sheet 9	41	0.62	No	NONE		0.32		57%	34%	12%	0%	0%	0.24		2,080	734	
17	[redacted]				12	Cut Sheet 12	48	0.58	No	NONE		0.77		57%	34%	12%	0%	0%	0.59		2,080	1,789	
18	[redacted]				24	Cut Sheet 12	48	1.15	No	NONE		1.54		57%	34%	12%	0%	0%	1.17		2,080	3,578	
19	[redacted]				2	Cut Sheet 12	48	0.10	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	298	
20	[redacted]				2	Cut Sheet 14	76	0.15	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	103	
21	[redacted]				2	Cut Sheet 2	48	0.10	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	65	
22	[redacted]				36	Cut Sheet 2	48	1.73	No	NONE		0.50		57%	34%	12%	0%	0%	0.38		2,080	1,174	
23	[redacted]				2	Cut Sheet 2	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
24	[redacted]				14	Cut Sheet 2	48	0.67	No	NONE		0.20		57%	34%	12%	0%	0%	0.15		2,080	457	
25	[redacted]				2	Cut Sheet 2	48	0.10	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	65	
26	[redacted]				2	Cut Sheet 2	48	0.10	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	65	
27	[redacted]				3	Cut Sheet 2	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
28	[redacted]				1	Cut Sheet 21	27	0.03	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	37	
29	[redacted]				7	Cut Sheet 2	48	0.34	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	163	
30	[redacted]				5	Cut Sheet 2	48	0.24	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	163	
31	[redacted]				2	Cut Sheet 25	96	0.19	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	75	
32	[redacted]				1	Cut Sheet 2	48	0.05	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	33	
33	[redacted]				40	Cut Sheet 2	48	1.92	No	NONE		0.56		57%	34%	12%	0%	0%	0.43		2,080	1,305	
34	[redacted]				6	Cut Sheet 2	48	0.29	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	196	
35	[redacted]				1	Cut Sheet 2	48	0.05	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	33	
36	[redacted]				5	Cut Sheet 2	48	0.24	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	163	
37	[redacted]				22	Cut Sheet 2	48	1.06	No	NONE		0.31		57%	34%	12%	0%	0%	0.24		2,080	718	
38	[redacted]				4	Cut Sheet 2	48	0.19	No	NONE		0.06		57%	34%	12%	0%	0%	0.04		2,080	130	
39	[redacted]				5	Cut Sheet 2	48	0.24	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	163	
40	[redacted]				16	Cut Sheet 28	65	1.04	No	NONE		0.67		57%	34%	12%	0%	0%	0.51		2,080	1,565	
41	[redacted]				16	Cut Sheet 30	96	1.54	No	NONE		0.26		57%	34%	12%	0%	0%	0.20		2,080	596	
42	[redacted]				515	Cut Sheet 30	96	49.44	No	NONE		8.24		57%	34%	12%	0%	0%	6.29		2,080	19,196	
43	[redacted]				4	Cut Sheet 32	142	0.57	No	NONE		0.30		57%	34%	12%	0%	0%	0.23		2,080	690	
44	[redacted]				8	Cut Sheet 30	96	0.77	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	298	
45	[redacted]				1	Cut Sheet 30	96	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
46	[redacted]				1	Cut Sheet 2	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
47	[redacted]				5	Cut Sheet 2	48	0.24	No	NONE		-0.01		57%	34%	12%	0%	0%	-0.01		2,080	-19	
48	[redacted]				1	Cut Sheet 30	96	0.10	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	37	
49	[redacted]				4	Cut Sheet 39	57	0.23	No	NONE		0.49		57%	34%	12%	0%	0%	0.38		2,080	1,146	
50	[redacted]				40	Cut Sheet 41	2	0.08	No	NONE		1.52		57%	34%	12%	0%	0%	1.16		2,080	3,541	
51	[redacted]				16	Cut Sheet 42	192	3.07	No	NONE		4.26		57%	34%	12%	0%	0%	3.25		2,080	9,915	
52	[redacted]				12	Cut Sheet 43	142	1.70	No	NONE		3.79		57%	34%	12%	0%	0%	2.90		2,080	8,834	
53	[redacted]				2	Cut Sheet 45	26	0.05	No	NONE		0.15		57%	34%	12%	0%	0%	0.11		2,080	345	
54	[redacted]				2	Cut Sheet 45	26	0.05	No	NONE		0.15		57%	34%	12%	0%	0%	0.11		2,080	345	
55	[redacted]				20	Cut Sheet 45	26	0.52	No	NONE		1.48		57%	34%	12%	0%	0%	1.13		2,080	3,448	
56	[redacted]				2	Cut Sheet 47	42	0.08	No	NONE		0.22		57%	34%	12%	0%	0%	0.16		2,080	503	
57	[redacted]				2	Cut Sheet 47	42	0.08	No	NONE		0.22		57%	34%	12%	0%	0%	0.16		2,080	503	
58	[redacted]				1	Cut Sheet 47	42	0.04	No	NONE		0.11		57%	34%	12%	0%	0%	0.08		2,080	252	
59	[redacted]				2	Cut Sheet 49	19	0.04	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	191	
60	[redacted]				1	Cut Sheet 49	19	0.02	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	96	
61	[redacted]				6	Cut Sheet 49	19	0.11	No	NONE		0.25		57%	34%	12%	0%	0%	0.19		2,080	573	
62	[redacted]				1	Cut Sheet 49	19	0.02	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	96	
63	[redacted]				4	Cut Sheet 49	19	0.08	No	NONE		0.16		57%	34%	12%	0%	0%	0.13		2,080	382	
64	[redacted]				6	Cut Sheet 49	19	0.11	No	NONE		0.25		57%	34%	12%	0%	0%	0.19		2,080	573	
65	[redacted]				1	Cut Sheet 49	19	0.02	No	NONE		0.04		57%	34%	12%	0%	0%	0.03		2,080	96	
66	[redacted]				4	Cut Sheet 45	26	0.10	No	NONE		0.20		57%	34%	12%	0%	0%	0.15		2,080	457	
67	[redacted]				1	Cut Sheet 45	26	0.03	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	114	
68								0.00		NONE		0.00										0	
69								0.00		NONE		0.00										0	
70								0.00		NONE		0.00										0	
71								0.00		NONE		0.00										0	
72								0.00		NONE		0.00										0	
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118								0.00		NONE		0.00										0	
119								0.00		NONE		0.00										0	
120								0.00		NONE		0.00										0	
121								0.00		NONE		0.00										0	
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124								0.00		NONE		0.00										0	
125								0.00		NONE		0.00										0	
126								0.00		NONE		0.00										0	
127								0.00		NONE		0.00										0	
128								0.00		NONE		0.00										0	
129								0.00		NONE		0.00										0	
130								0.00		NONE		0.00										0	
131								0.00		NONE		0.00										0	
132								0.00		NONE		0.00										0	
133								0.00		NONE		0.00										0	
134								0.00		NONE		0.00										0	
135								0.00		NONE		0.00										0	
136								0.00		NONE		0.00										0	
137								0.00		NONE		0.00										0	
138								0.00		NONE		0.00										0	
139								0.00		NONE		0.00										0	
140								0.00		NONE		0.00										0	
141								0.00		NONE		0.00										0	
142								0.00		NONE		0.00										0	
143								0.00		NONE		0.00										0	
144								0.00		NONE		0.00										0	
145								0.00		NONE		0.00										0	
146								0.00		NONE		0.00										0	
147								0.00		NONE		0.00										0	
148								0.00		NONE		0.00										0	
149								0.00		NONE		0.00										0	
150								0.00		NONE		0.00										0	
151								0.00		NONE		0.00										0	
152								0.00		NONE		0.00										0	
153								0.00		NONE		0.00										0	
154								0.00		NONE		0.00										0	
155								0.00		NONE		0.00										0	
156								0.00		NONE		0.00										0	
157								0.00		NONE		0.00										0	
158								0.00		NONE		0.00										0	
159								0.00		NONE		0.00										0	
160								0.00		NONE		0.00										0	
161								0.00		NONE		0.00										0	
162								0.00		NONE		0.00										0	
163								0.00		NONE		0.00										0	
164								0.00		NONE		0.00										0	
165								0.00		NONE		0.00										0	
166								0.00		NONE		0.00										0	
167								0.00		NONE		0.00										0	
168								0.00		NONE		0.00										0	
169								0.00		NONE		0.00										0	
170								0.00		NONE		0.00										0	
171								0.00		NONE		0.00										0	
172								0.00		NONE		0.00										0	
173								0.00		NONE		0.00										0	
174								0.00		NONE		0.00										0	
175								0.00		NONE		0.00										0	
176								0.00		NONE		0.00										0	
177								0.00		NONE		0.00										0	
178								0.00		NONE		0.00										0	
179								0.00		NONE		0.00										0	
180								0.00		NONE		0.00										0	
181								0.00		NONE		0.00										0	
182								0.00		NONE		0.00										0	
183								0.00		NONE		0.00										0	
184								0.00		NONE		0.00										0	
185								0.00		NONE		0.00										0	
186								0.00		NONE		0.00										0	
187								0.00		NONE		0.00										0	
188								0.00		NONE		0.00										0	
189								0.00		NONE		0.00										0	
190								0.00		NONE		0.00										0	

Lighting Form

	PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101													0.00	NONE								0.00	NONE		0.00										0	
102													0.00	NONE								0.00	NONE		0.00										0	
103													0.00	NONE								0.00	NONE		0.00										0	
104													0.00	NONE								0.00	NONE		0.00										0	
105													0.00	NONE								0.00	NONE		0.00										0	
106													0.00	NONE								0.00	NONE		0.00										0	
107													0.00	NONE								0.00	NONE		0.00										0	
108													0.00	NONE								0.00	NONE		0.00										0	
109													0.00	NONE								0.00	NONE		0.00										0	
200													0.00	NONE								0.00	NONE		0.00										0	
201													0.00	NONE								0.00	NONE		0.00										0	
202													0.00	NONE								0.00	NONE		0.00										0	
203													0.00	NONE								0.00	NONE		0.00										0	
204													0.00	NONE								0.00	NONE		0.00										0	
205													0.00	NONE								0.00	NONE		0.00										0	
206													0.00	NONE								0.00	NONE		0.00										0	
207													0.00	NONE								0.00	NONE		0.00										0	
208													0.00	NONE								0.00	NONE		0.00										0	
209													0.00	NONE								0.00	NONE		0.00										0	
210													0.00	NONE								0.00	NONE		0.00										0	
211													0.00	NONE								0.00	NONE		0.00										0	
212													0.00	NONE								0.00	NONE		0.00										0	
213													0.00	NONE								0.00	NONE		0.00										0	
214													0.00	NONE								0.00	NONE		0.00										0	
215													0.00	NONE								0.00	NONE		0.00										0	
216													0.00	NONE								0.00	NONE		0.00										0	
217													0.00	NONE								0.00	NONE		0.00										0	
218													0.00	NONE								0.00	NONE		0.00										0	
219													0.00	NONE								0.00	NONE		0.00										0	
220													0.00	NONE								0.00	NONE		0.00										0	
221													0.00	NONE								0.00	NONE		0.00										0	
222													0.00	NONE								0.00	NONE		0.00										0	
223													0.00	NONE								0.00	NONE		0.00										0	
224													0.00	NONE								0.00	NONE		0.00										0	
225													0.00	NONE								0.00	NONE		0.00										0	
226													0.00	NONE								0.00	NONE		0.00										0	
227													0.00	NONE								0.00	NONE		0.00										0	
228													0.00	NONE								0.00	NONE		0.00										0	
229													0.00	NONE								0.00	NONE		0.00										0	
230													0.00	NONE								0.00	NONE		0.00										0	
231													0.00	NONE								0.00	NONE		0.00										0	
232													0.00	NONE								0.00	NONE		0.00										0	
233													0.00	NONE								0.00	NONE		0.00										0	
234													0.00	NONE								0.00	NONE		0.00										0	
235													0.00	NONE								0.00	NONE		0.00										0	
Totals										1,359			107.17						1,359			90.22			16.95							39.22		2,065	84,081	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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

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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	28.22

Schedule Unit Ventilator Fans - Middle School

Motor Savings			
Name	Description	Value	Units
HPm	motor rating	0.125	hp
PL	percent loaded	0.7	-
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/yr
ACE	Avoided cost of Electricity	0.07854	$/kWh
Csav	Cost Savings = Esav x ACE	$40	$/yr

Ventilation Savings			
Name	Description	Value	Units
CFM	Unit ventilator air flow	1000	ft^3/min
Poa	Percent outdoor air	0	-
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/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 x WPY	3469.2	hr/yr
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	-
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr
Qng,total	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr
Cng	Cost of natural gas	8.12	$/mmBtu
Cng,sav	Annual NG cost savings = Cng x Qng,total	$0	$/yr

Overall Total Savings			
Name	Description	Value	Units
Nv	Number of ventilators	51	-
ElecSav	Total annual electricity savings = Nv x Esav	25,802	kWh/yr
Ecost,sav	Cost Savings = ElecSav x ACE	$2,027	$/yr
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr
NgCostSav	Annual NG cost savings = Cng x NgSav	$0	$/yr
Csav,total	Total annual cost savings = Ecost,sav + NgCostSav	$2,027	$/yr

Bin Temperature Ventilation Energy Consumption				
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	2.7	22	0
-5	-1	-1.5	21	0
-10	-6	-5.1	3	0
			Total	0

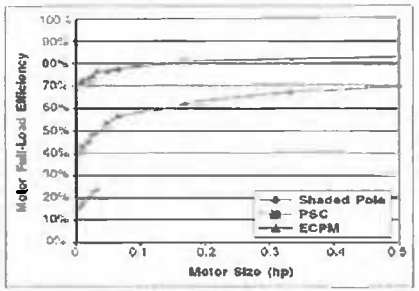

Figure 1: Representative subfractional horsepower motor efficiencies (for refrigerator fan motors).

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

Site Address: Onaway Elementary
Principal Address: 3115 Woodbury Road

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	Onaway Elementray 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

Exhibit 2

Customer Legal Entity Name: Shaker Heights City Schools
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	236,409	236,409	236,409
2009	323,970	323,970	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**

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.

Commitment Payment $
$0

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

Lighting Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools
Facility Name: Onaway Elementary
Date: 3/7/2013
Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area
For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.
The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)						BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations											Post Fixture Cut Sheet Number
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.		Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	
e.g.	*Retrofit*	*400 North Street*	*2*	*Office*	*Other*	*Interior*	*Office - Small*		*Cooled Space*	*3*	*F44ILL*	*112*	*0.34*	*NONE*						*3*	*CFT55/1-BX*	*56*	*0.17*	*No*	*OCC*	*3*	*0.17*	*84%*	*84%*	*34%*	*12%*	*0%*	*30%*	*0.19*	*2,808*	*3,435*	*646*	*1*
e.g.	*NewConstruction*	*Example*	*1*	*Restaurant*	*Conference, Meeting or Training Room*	*Exterior*	*Retail - Small*	*Builing facades (liner ft based)*	*Cooled Space*							*500*	*linear ft*	*3.8*	*1.88*	*5*	*Example Cut Sheet 2*	*25*	*0.13*	*Yes*	*DAY*	*5*	*1.75*	*88%*	*89%*	*34%*	*12%*	*0%*	*0%*	*2.09*	*8,760*	*3,068*	*6,013*	*1A*
1	Retrofit	3115 Woodbury Road	All	Library	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 1	72	0.07	NONE						1	Cut Sheet 2	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
2	Retrofit	3115 Woodbury Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 1	72	0.14	NONE						2	Cut Sheet 2	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
3	Retrofit	3115 Woodbury Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 3	72	0.14	NONE						2	Cut Sheet 2	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
4	Retrofit	3115 Woodbury Road	All	Foyer	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 4	144	0.14	NONE						1	Cut Sheet 5	96	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
5	Retrofit	3115 Woodbury Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 4	144	0.14	NONE						1	Cut Sheet 5	96	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
6	Retrofit	3115 Woodbury Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 6	62	0.06	NONE						1	Cut Sheet 7	41	0.04	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	49	
7	Retrofit	3115 Woodbury Road	All	Media Room	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 6	62	0.06	NONE						1	Cut Sheet 7	41	0.04	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	49	
8	Retrofit	3115 Woodbury Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 8	112	0.22	NONE						2	Cut Sheet 9	48	0.10	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	298	
9	Retrofit	3115 Woodbury Road	All	Offices	Other	Interior	Education - Primary School		Cooled Space	16	Cut Sheet 10	98	1.57	NONE						16	Cut Sheet 11	71	1.14	No	NONE		0.43		57%	34%	12%	0%	0%	0.33		2,080	1,006	
10	Retrofit	3115 Woodbury Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	7	Cut Sheet 12	72	0.50	NONE						7	Cut Sheet 2	48	0.34	No	NONE		0.17		57%	34%	12%	0%	0%	0.13		2,080	391	
11	Retrofit	3115 Woodbury Road	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	7	Cut Sheet 12	72	0.50	NONE						7	Cut Sheet 2	48	0.34	No	NONE		0.17		57%	34%	12%	0%	0%	0.13		2,080	391	
12	Retrofit	3115 Woodbury Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 12	72	0.58	NONE						8	Cut Sheet 2	48	0.38	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
13	Retrofit	3115 Woodbury Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 13	98	0.10	NONE						1	Cut Sheet 9	48	0.05	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	116	
14	Retrofit	3115 Woodbury Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	50	Cut Sheet 13	98	4.90	NONE						50	Cut Sheet 9	48	2.40	No	NONE		2.50		57%	34%	12%	0%	0%	1.91		2,080	5,824	
15	Retrofit	3115 Woodbury Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	141	Cut Sheet 14	144	20.30	NONE						141	Cut Sheet 9	48	6.77	No	NONE		13.54		57%	34%	12%	0%	0%	10.34		2,080	31,533	
16	Retrofit	3115 Woodbury Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	23	Cut Sheet 15	72	1.66	NONE						23	Cut Sheet 16	39	0.90	No	NONE		0.76		57%	34%	12%	0%	0%	0.58		2,080	1,768	
17	Retrofit	3115 Woodbury Road	All	Boiler Room	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 17	72	0.29	NONE						4	Cut Sheet 2	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
18	Retrofit	3115 Woodbury Road	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 17	72	0.07	NONE						1	Cut Sheet 2	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
19	Retrofit	3115 Woodbury Road	All	Hall	Other	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 18	72	0.43	NONE						6	Cut Sheet 2	48	0.29	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
20	Retrofit	3115 Woodbury Road	All	Gymnasium	torage or Supply Room Between 50 ft^2 and 1,000 ft^	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 19	72	0.22	NONE						3	Cut Sheet 2	48	0.14	No	NONE		0.07		57%	34%	12%	0%	0%	0.05		2,080	168	
21	Retrofit	3115 Woodbury Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	9	Cut Sheet 20	43	0.39	NONE						9	Cut Sheet 21	27	0.24	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
22	Retrofit	3115 Woodbury Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 22	112	0.11	NONE						1	Cut Sheet 5	96	0.10	No	NONE		0.02		57%	34%	12%	0%	0%	0.01		2,080	37	
23	Retrofit	3115 Woodbury Road	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 23	62	0.50	NONE						8	Cut Sheet 2	48	0.38	No	NONE		0.11		57%	34%	12%	0%	0%	0.09		2,080	261	
24	Retrofit	3115 Woodbury Road	All	Storage	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 24	72	0.14	NONE						2	Cut Sheet 2	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
25	Retrofit	3115 Woodbury Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	53	Cut Sheet 24	72	3.82	NONE						53	Cut Sheet 2	48	2.54	No	NONE		1.27		57%	34%	12%	0%	0%	0.97		2,080	2,963	
26	Retrofit	3115 Woodbury Road	All	Library	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 25	72	0.29	NONE						4	Cut Sheet 27	65	0.26	No	NONE		0.03		57%	34%	12%	0%	0%	0.02		2,080	65	
27	Retrofit	3115 Woodbury Road	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	121	Cut Sheet 26	123	14.88	NONE						121	Cut Sheet 27	65	7.87	No	NONE		7.02		57%	34%	12%	0%	0%	5.36		2,080	16,349	
28	Retrofit	3115 Woodbury Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	40	Cut Sheet 28	72	2.88	NONE						40	Cut Sheet 2	48	1.92	No	NONE		0.96		57%	34%	12%	0%	0%	0.73		2,080	2,236	
29	Retrofit	3115 Woodbury Road	All	Storage	Other	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 29	144	0.86	NONE						6	Cut Sheet 5	96	0.58	No	NONE		0.29		57%	34%	12%	0%	0%	0.22		2,080	671	
30	Retrofit	3115 Woodbury Road	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	11	Cut Sheet 29	144	1.58	NONE						11	Cut Sheet 5	96	1.06	No	NONE		0.53		57%	34%	12%	0%	0%	0.40		2,080	1,230	
31	Retrofit	3115 Woodbury Road	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 29	144	0.29	NONE						2	Cut Sheet 5	96	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
32	Retrofit	3115 Woodbury Road	All	Library	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 29	144	0.14	NONE						1	Cut Sheet 5	96	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
33	Retrofit	3115 Woodbury Road	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 30	150	0.15	NONE						1	Cut Sheet 31	38	0.04	No	NONE		0.11		57%	34%	12%	0%	0%	0.09		2,080	261	
34	Retrofit	3115 Woodbury Road	All	Exit Signs	Other	Interior	Education - Primary School		Cooled Space	20	Cut Sheet 32	40	0.80	NONE						20	Cut Sheet 33	2	0.04	No	NONE		0.76		57%	34%	12%	0%	0%	0.58		2,080	1,770	
35	Retrofit	3115 Woodbury Road	All	Gymnasium	Other	Interior	Education - Primary School		Cooled Space	12	MH400/1	458	5.50	NONE						12	Cut Sheet 34	192	2.30	No	NONE		3.19		57%	34%	12%	0%	0%	2.44		2,080	7,436	
36	Retrofit	3115 Woodbury Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 35	100	0.20	NONE						2	Cut Sheet 36	26	0.05	No	NONE		0.15		57%	34%	12%	0%	0%	0.11		2,080	345	
37	Retrofit	3115 Woodbury Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 37	60	0.18	NONE						3	Cut Sheet 38	19	0.06	No	NONE		0.12		57%	34%	12%	0%	0%	0.09		2,080	287	
38	Retrofit	3115 Woodbury Road	All	K-8 School	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 39	75	0.15	NONE						2	Cut Sheet 36	26	0.05	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	228	
39	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
40	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
41	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
42	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
43	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
44	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
45	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
46	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
47	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
48	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
49	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
50	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
51	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
52	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
53	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
54	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
55	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
56	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
57	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
58	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
59	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
60	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
61	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
62	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
63	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
64	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
65	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
66	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
67	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
68	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
69	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
70	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
71	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
72	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
73	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
74	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
75	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
76	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
77	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
78	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
79	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
80	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
81	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
82	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
83	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
84	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
85	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
86	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
87	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
88	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
89	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
90	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
91	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
92	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
93	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
94	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
95	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
96	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
97	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
98	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
99	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
100	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
101	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
102	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
103	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
104	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
105	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
106	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
107	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
108	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
109	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
110	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
111	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
112	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
113	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
114	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
115	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
116	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
117	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
118	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
119	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
120	Retrofit	3115 Woodbury Road	All										0.00	NONE									0.00	No	NONE		0.00			0%	0%						0	
121													0.00	NONE									0.00		NONE		0.00										0	
122													0.00	NONE									0.00		NONE		0.00										0	
123													0.00	NONE									0.00		NONE		0.00										0	
124													0.00	NONE									0.00		NONE		0.00										0	
125													0.00	NONE									0.00		NONE		0.00										0	
126													0.00	NONE									0.00		NONE		0.00										0	
127													0.00	NONE									0.00		NONE		0.00										0	
128													0.00	NONE									0.00		NONE		0.00										0	
129													0.00	NONE									0.00		NONE		0.00										0	
130													0.00	NONE									0.00		NONE		0.00										0	
131													0.00	NONE									0.00		NONE		0.00										0	
132													0.00	NONE									0.00		NONE		0.00										0	
133													0.00	NONE									0.00		NONE		0.00										0	
134													0.00	NONE									0.00		NONE		0.00										0	
135													0.00	NONE									0.00		NONE		0.00										0	
136													0.00	NONE									0.00		NONE		0.00										0	
137													0.00	NONE									0.00		NONE		0.00										0	
138													0.00	NONE									0.00		NONE		0.00										0	
139													0.00	NONE									0.00		NONE		0.00										0	
140													0.00	NONE									0.00		NONE		0.00										0	
141													0.00	NONE									0.00		NONE		0.00										0	
142													0.00	NONE									0.00		NONE		0.00										0	
143													0.00	NONE									0.00		NONE		0.00										0	
144													0.00	NONE									0.00		NONE		0.00										0	
145													0.00	NONE									0.00		NONE		0.00										0	
146													0.00	NONE									0.00		NONE		0.00										0	
147													0.00	NONE									0.00		NONE		0.00										0	
148													0.00	NONE									0.00		NONE		0.00										0	
149													0.00	NONE									0.00		NONE		0.00										0	
150													0.00	NONE									0.00		NONE		0.00										0	
151													0.00	NONE									0.00		NONE		0.00										0	
152													0.00	NONE									0.00		NONE		0.00										0	
153													0.00	NONE									0.00		NONE		0.00										0	
154													0.00	NONE									0.00		NONE		0.00										0	
155													0.00	NONE									0.00		NONE		0.00										0	
156													0.00	NONE									0.00		NONE		0.00										0	
157													0.00	NONE									0.00		NONE		0.00										0	
158													0.00	NONE									0.00		NONE		0.00										0	
159													0.00	NONE									0.00		NONE		0.00										0	
160													0.00	NONE									0.00		NONE		0.00										0	
161													0.00	NONE									0.00		NONE		0.00										0	
162													0.00	NONE									0.00		NONE		0.00										0	
163													0.00	NONE									0.00		NONE		0.00										0	
164													0.00	NONE									0.00		NONE		0.00										0	
165													0.00	NONE									0.00		NONE		0.00										0	
166													0.00	NONE									0.00		NONE		0.00										0	
167													0.00	NONE									0.00		NONE		0.00										0	
168													0.00	NONE									0.00		NONE		0.00										0	
169													0.00	NONE									0.00		NONE		0.00										0	
170													0.00	NONE									0.00		NONE		0.00										0	
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173													0.00	NONE									0.00		NONE		0.00										0	
174													0.00	NONE									0.00		NONE		0.00										0	
175													0.00	NONE									0.00		NONE		0.00										0	
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Lighting Form

	PROJECT BASIC INFORMATION									PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity Where applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity Where applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101													0.00	NONE									NONE		0.00										
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103													0.00	NONE									NONE		0.00										
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250													0.00	NONE									NONE		0.00										
Totals										576			64.48							576			31.46			33.02							33.02	2,080	76,084	

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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 CFLs and LED Exit Signs	576
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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	25.60

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

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

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	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

Exhibit 2

Customer Legal Entity Name: Shaker Heights City Schools
Site Address: Shaker Heights Service Center
Principal Address: 3654 Lee Road

	Unadjusted Usage, kwh (A)	Weather Adjusted Usage, kwh (B)	Weather Adjusted Usage with Energy Efficiency Addbacks, kwh (c) *Note 1*
2011	38,426	38,426	38,426
2010	39,760	39,760	39,760
2009	42,300	42,300	42,300
Average	**40,162**	**40,162**	**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
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
					-	-	-		
		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.

Commitment Payment $
$0

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	30	$ 308	$ 9,238	$ 4,050	$1,124	$300	$ 5,473	**1.7**
Total	**30**	**$ 308**	**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 Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools
Facility Name: Garage
Date: 3/7/2013
Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area
For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.
The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)						BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations											Post Fixture Cut Sheet Number
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.		Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	
e.g.	Retrofit	400 North Street	2	Office	Other	Interior	Office - Small		Cooled Space	3	F44ILL	112	0.34	NONE						3	CFT55/1-BX	56	0.17	No	OCC	3	0.17	84%	84%	34%	12%	0%	30%	0.19	2,808	3,435	646	1
e.g.	NewConstruction	Example	1	Restaurant	Conference, Meeting or Training Room	Exterior	Retail - Small	Builing facades (liner ft based)	Cooled Space							500	linear ft	3.8	1.88	5	Example Cut Sheet 2	25	0.13	Yes	DAY	5	1.75	88%	89%	34%	12%	0%	0%	2.09	8,760	3,068	6,013	1A
1	Retrofit	3654 Lee Road	All	Garage	Other	Interior	Warehouse		Cooled Space	1	Cut Sheet 1	72	0.07	NONE						1	Cut Sheet 2	48	0.05	No	NONE		0.02		85%	34%	12%	0%	0%	0.03		2,388	64	
2	Retrofit	3654 Lee Road	All	Garage	Restrooms	Interior	Warehouse		Cooled Space	3	Cut Sheet 3	98	0.29	NONE						3	Cut Sheet 4	48	0.14	No	NONE		0.15		85%	34%	12%	0%	0%	0.17		2,388	401	
3	Retrofit	3654 Lee Road	All	Office	Other	Interior	Warehouse		Cooled Space	23	Cut Sheet 5	112	2.58	NONE						23	Cut Sheet 4	48	1.10	No	NONE		1.47		85%	34%	12%	0%	0%	1.68		2,388	3,937	
4	Retrofit	3654 Lee Road	All	Garage	Other	Interior	Warehouse		Cooled Space	3	Cut Sheet 6	218	0.65	NONE						3	Cut Sheet 7	0	0.00	No	NONE		0.65		85%	34%	12%	0%	0%	0.74		2,388	1,749	
5	Retrofit	3654 Lee Road	All	Garage	Restrooms	Interior	Warehouse		Cooled Space	3	Cut Sheet 8	72	0.22	NONE						3	Cut Sheet 2	48	0.14	No	NONE		0.07		85%	34%	12%	0%	0%	0.08		2,388	193	
6	Retrofit	3654 Lee Road	All	Garage	Other	Interior	Warehouse		Cooled Space	2	Cut Sheet 8	72	0.14	NONE						1	Cut Sheet 2	48	0.05	No	NONE		0.10		85%	34%	12%	0%	0%	0.11		2,388	257	
7	Retrofit	3654 Lee Road	All	Garage	Restrooms	Interior	Warehouse		Cooled Space	2	Cut Sheet 9	62	0.12	NONE						2	Cut Sheet 2	48	0.10	No	NONE		0.03		85%	34%	12%	0%	0%	0.03		2,388	75	
8	Retrofit	3654 Lee Road	All	Office	Other	Interior	Warehouse		Cooled Space	5	Cut Sheet 10	62	0.31	NONE						5	Cut Sheet 2	48	0.24	No	NONE		0.07		85%	34%	12%	0%	0%	0.08		2,388	187	
9	Retrofit	3654 Lee Road	All	Garage	Restrooms	Interior	Warehouse		Cooled Space	1	Cut Sheet 11	72	0.07	NONE						1	Cut Sheet 2	48	0.05	No	NONE		0.02		85%	34%	12%	0%	0%	0.03		2,388	64	
10	Retrofit	3654 Lee Road	All	Garage	Other	Interior	Warehouse		Cooled Space	43	Cut Sheet 12	237	10.19	NONE						43	Cut Sheet 13	131	5.63	No	NONE		4.56		85%	34%	12%	0%	0%	5.19		2,388	12,191	
11	Retrofit	3654 Lee Road	All	Garage	Other	Interior	Warehouse		Cooled Space	6	Cut Sheet 14	123	0.74	NONE						6	Cut Sheet 15	131	0.79	No	NONE		-0.05		85%	34%	12%	0%	0%	-0.05		2,388	-128	
12	Retrofit	3654 Lee Road	All	Exit Signs	Other	Interior	Warehouse		Cooled Space	3	Cut Sheet 16	40	0.12	NONE						3	Cut Sheet 17	2	0.01	No	NONE		0.11		85%	34%	12%	0%	0%	0.13		2,388	305	
13	Retrofit	3654 Lee Road	All	Garage	Other	Interior	Warehouse		Cooled Space	15	MH400/1	458	6.87	NONE						15	Cut Sheet 18	192	2.88	No	NONE		3.99		85%	34%	12%	0%	0%	4.54		2,388	10,671	
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Lighting Form

	PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101													0.00	NONE								0.00	NONE		0.00										0	
102													0.00	NONE								0.00	NONE		0.00										0	
103													0.00	NONE								0.00	NONE		0.00										0	
104													0.00	NONE								0.00	NONE		0.00										0	
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246													0.00	NONE								0.00	NONE		0.00										0	
247													0.00	NONE								0.00	NONE		0.00										0	
248													0.00	NONE								0.00	NONE		0.00										0	
249													0.00	NONE								0.00	NONE		0.00										0	
250													0.00	NONE								0.00	NONE		0.00										0	
Totals										110			22.38						109			11.18			11.20						12.76		2,368	29,666		

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

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

Total Fixture Quantity excluding retrofit CFLs and LED Exit Signs	109
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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	12.76

Exhibit 1

Customer Legal Entity Name: Shaker Heights City Schools

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

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	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

Exhibit 2

Customer Legal Entity Name: Shaker Heights City Schools
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	1,421,196	1,421,196	1,421,196
2010	1,369,452	1,369,452	1,369,452
2009	1,358,868	1,358,868	1,358,868
Average	**1,383,172**	**1,383,172**	**1,383,172**

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**

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.

Commitment Payment $
$0

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	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

Schedule Unit Ventilator Fans - **Woodbury**

Motor Savings			
Name	Description	Value	Units
HPm	motor rating	0.125	hp
PL	percent loaded	0.7	-
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/yr
ACE	Avoided cost of Electricity	0.07854	$/kWh
Csav	Cost Savings = Esav x ACE	$40	$/yr

Ventilation Savings			
Name	Description	Value	Units
CFM	Unit ventilator air flow	1000	ft^3/min
Poa	Percent outdoor air	0	-
Qvent	Ventilation load = 1.08 CFM x Poa	0	Btu/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 x WPY	3469.2	hr/yr
Ft	Fraction time OA damper closed = HPY / 8,760	0.396	-
Qng,pot	Potential NG savings = sum of Qng	0.00	mmBtu/yr
Qng,total	Acutal NG savings =Qng,pot x Ft	0.0	mmBtu/yr
Cng	Cost of natural gas	8.12	$/mmBtu
Cng,sav	Annual NG cost savings = Cng x Qng,total	$0	$/yr

Overall Total Savings			
Name	Description	Value	Units
Nv	Number of ventilators	52	-
ElecSav	Total annual electricity savings = Nv x Esav	26,308	kWh/yr
Ecost,sav	Cost Savings = ElecSav x ACE	$2,066	$/yr
NgSav	Total annual natural gas savings = Nv x Qng,total	0	mmBtu/yr
NgCostSav	Annual NG cost savings = Cng x NgSav	$0	$/yr
Csav,total	Total annual cost savings = Ecost,sav + NgCostSav	$2,066	$/yr

Bin Temperature Ventilation Energy Consumption				
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	2.7	22	0
-5	-1	-1.5	21	0
-10	-6	-5.1	3	0
			Total	0

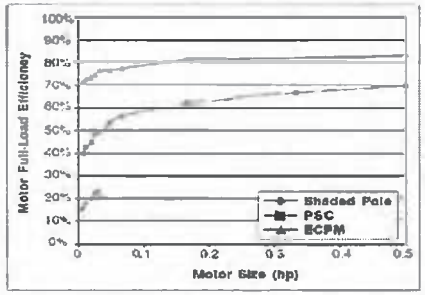

Figure 1: Representative subfractional horsepower motor efficiencies (for refrigerator fan motors).[1]

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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 Form

Lighting Inventory Form

Applicant Name: Shaker Heights City Schools

Facility Name: Woodbury Elementary

Date: 3/7/2013

Lighting Zone (exterior only): Lighting Zone 3

Instructions: Please use one line for each fixture type in a room or area

For existing or proposed control, choose OCC for Occupany Sensor, DAY for photosensor, Hi-Lo for bi-level sensors or NONE for none. Controls in spaces where existing controls exist do not qualify.

The total of Column S, the quantities of CFLs and exit signs in Column M, and the quantities of sensors in Column R, will be used to calculate your incentive on the NonStandard Lighting form.

PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)						BASELINE (NEW CONSTRUCTION)			POST-INSTALLATION							Energy Calculations											
Line Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (ft^2) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts/ Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
e.g.	*Retrofit*	*400 North Street*	*2*	*Office*	*Other*	*Interior*	*Office - Small*		*Cooled Space*	*3*	*F44ILL*	*112*	*0.34*	*NONE*					*3*	*CFT55/1-BX*	*56*	*0.17*	*No*	*OCC*	*3*	*0.17*	*84%*	*84%*	*34%*	*12%*	*0%*	*30%*	*0.19*	*2,808*	*3,435*	*646*	*1*
e.g.	*NewConstruction*	*Example*	*1*	*Restaurant*	*Conference, Meeting or Training Room*	*Exterior*	*Retail - Small*	*Builing facades (liner ft based)*	*Cooled Space*							*500 linear ft*	*3.8*	*1.88*	*5*	*Example Cut Sheet 2*	*25*	*0.13*	*Yes*	*DAY*	*5*	*1.75*	*88%*	*89%*	*34%*	*12%*	*0%*	*0%*	*2.09*	*8,760*	*3,068*	*6,013*	*1A*
1	Retrofit	15400 S Woodland Rd	All	Library	Other	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 1	160	1.28	NONE					8	Cut Sheet 2	142	1.14	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
2	Retrofit	15400 S Woodland Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	18	Cut Sheet 3	72	1.30	NONE					18	Cut Sheet 4	48	0.86	No	NONE		0.43		57%	34%	12%	0%	0%	0.33		2,080	1,006	
3	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	55	Cut Sheet 3	72	3.96	NONE					55	Cut Sheet 4	48	2.64	No	NONE		1.32		57%	34%	12%	0%	0%	1.01		2,080	3,075	
4	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 3	72	0.07	NONE					1	Cut Sheet 4	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
5	Retrofit	15400 S Woodland Rd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 3	72	0.14	NONE					2	Cut Sheet 4	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
6	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 5	72	0.29	NONE					4	Cut Sheet 4	48	0.19	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
7	Retrofit	15400 S Woodland Rd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 6	110	0.44	NONE					4	Cut Sheet 7	41	0.16	No	NONE		0.28		57%	34%	12%	0%	0%	0.21		2,080	643	
8	Retrofit	15400 S Woodland Rd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	26	Cut Sheet 8	72	1.87	NONE					26	Cut Sheet 7	41	1.07	No	NONE		0.81		57%	34%	12%	0%	0%	0.62		2,080	1,878	
9	Retrofit	15400 S Woodland Rd	All	K-8 School	Restrooms	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 9	48	0.38	NONE					8	Cut Sheet 7	41	0.33	No	NONE		0.06		57%	34%	12%	0%	0%	0.04		2,080	130	
10	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 9	48	0.10	NONE					2	Cut Sheet 7	41	0.08	No	NONE		0.01		57%	34%	12%	0%	0%	0.01		2,080	33	
11	Retrofit	15400 S Woodland Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 10	144	0.29	NONE					2	Cut Sheet 11	48	0.10	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
12	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 10	144	0.58	NONE					4	Cut Sheet 11	48	0.19	No	NONE		0.38		57%	34%	12%	0%	0%	0.29		2,080	895	
13	Retrofit	15400 S Woodland Rd	All	Cafeteria	Other	Interior	Education - Primary School		Cooled Space	55	Cut Sheet 12	98	5.39	NONE					55	Cut Sheet 11	48	2.64	No	NONE		2.75		57%	34%	12%	0%	0%	2.10		2,080	6,406	
14	Retrofit	15400 S Woodland Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	5	Cut Sheet 12	98	0.49	NONE					5	Cut Sheet 11	48	0.24	No	NONE		0.25		57%	34%	12%	0%	0%	0.19		2,080	582	
15	Retrofit	15400 S Woodland Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	14	Cut Sheet 13	112	1.57	NONE					14	Cut Sheet 11	48	0.67	No	NONE		0.90		57%	34%	12%	0%	0%	0.68		2,080	2,087	
16	Retrofit	15400 S Woodland Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	12	Cut Sheet 14	144	1.73	NONE					12	Cut Sheet 11	48	0.58	No	NONE		1.15		57%	34%	12%	0%	0%	0.88		2,080	2,684	
17	Retrofit	15400 S Woodland Rd	All	Kitchen	Private Office less than 250 ft^2	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 14	144	0.29	NONE					2	Cut Sheet 11	48	0.10	No	NONE		0.19		57%	34%	12%	0%	0%	0.15		2,080	447	
18	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	43	Cut Sheet 14	144	6.19	NONE					43	Cut Sheet 11	48	2.06	No	NONE		4.13		57%	34%	12%	0%	0%	3.15		2,080	9,617	
19	Retrofit	15400 S Woodland Rd	All	K-8 School	Employee Lunch or Break Room	Interior	Education - Primary School		Cooled Space	10	Cut Sheet 15	72	0.72	NONE					10	Cut Sheet 16	39	0.39	No	NONE		0.33		57%	34%	12%	0%	0%	0.25		2,080	769	
20	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	24	Cut Sheet 15	72	1.73	NONE					24	Cut Sheet 16	39	0.94	No	NONE		0.79		57%	34%	12%	0%	0%	0.60		2,080	1,845	
21	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 17	144	0.43	NONE					3	Cut Sheet 18	65	0.20	No	NONE		0.24		57%	34%	12%	0%	0%	0.18		2,080	552	
22	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 17	144	0.29	NONE					2	Cut Sheet 18	65	0.13	No	NONE		0.16		57%	34%	12%	0%	0%	0.12		2,080	368	
23	Retrofit	15400 S Woodland Rd	All	Storage	Other	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 19	72	0.14	NONE					2	Cut Sheet 11	48	0.10	No	NONE		0.05		57%	34%	12%	0%	0%	0.04		2,080	112	
24	Retrofit	15400 S Woodland Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	10	Cut Sheet 20	43	0.43	NONE					10	Cut Sheet 21	27	0.27	No	NONE		0.16		57%	34%	12%	0%	0%	0.12		2,080	373	
25	Retrofit	15400 S Woodland Rd	All	Library	Other	Interior	Education - Primary School		Cooled Space	17	Cut Sheet 20	43	0.73	NONE					17	Cut Sheet 21	27	0.46	No	NONE		0.27		57%	34%	12%	0%	0%	0.21		2,080	634	
26	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 22	72	0.43	NONE					6	Cut Sheet 11	48	0.29	No	NONE		0.14		57%	34%	12%	0%	0%	0.11		2,080	335	
27	Retrofit	15400 S Woodland Rd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Primary School		Cooled Space	22	Cut Sheet 22	72	1.58	NONE					22	Cut Sheet 11	48	1.06	No	NONE		0.53		57%	34%	12%	0%	0%	0.40		2,080	1,230	
28	Retrofit	15400 S Woodland Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	13	Cut Sheet 23	112	1.46	NONE					13	Cut Sheet 24	96	1.25	No	NONE		0.21		57%	34%	12%	0%	0%	0.16		2,080	485	
29	Retrofit	15400 S Woodland Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	6	Cut Sheet 25	62	0.37	NONE					6	Cut Sheet 11	48	0.29	No	NONE		0.08		57%	34%	12%	0%	0%	0.06		2,080	196	
30	Retrofit	15400 S Woodland Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	30	Cut Sheet 26	72	2.16	NONE					30	Cut Sheet 27	27	0.81	No	NONE		1.35		57%	34%	12%	0%	0%	1.03		2,080	3,145	
31	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	41	Cut Sheet 26	72	2.95	NONE					41	Cut Sheet 11	48	1.97	No	NONE		0.98		57%	34%	12%	0%	0%	0.75		2,080	2,292	
32	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	28	Cut Sheet 26	72	2.02	NONE					28	Cut Sheet 11	48	1.34	No	NONE		0.67		57%	34%	12%	0%	0%	0.51		2,080	1,565	
33	Retrofit	15400 S Woodland Rd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 26	72	0.07	NONE					1	Cut Sheet 11	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
34	Retrofit	15400 S Woodland Rd	All	Kitchen	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 26	72	0.07	NONE					1	Cut Sheet 11	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
35	Retrofit	15400 S Woodland Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 28	144	0.14	NONE					1	Cut Sheet 29	48	0.05	No	NONE		0.10		57%	34%	12%	0%	0%	0.07		2,080	224	
36	Retrofit	15400 S Woodland Rd	All	Kitchen	Other	Interior	Education - Primary School		Cooled Space	12	Cut Sheet 28	144	1.73	NONE					12	Cut Sheet 30	96	1.15	No	NONE		0.58		57%	34%	12%	0%	0%	0.44		2,080	1,342	
37	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	21	Cut Sheet 28	144	3.02	NONE					21	Cut Sheet 30	96	2.02	No	NONE		1.01		57%	34%	12%	0%	0%	0.77		2,080	2,348	
38	Retrofit	15400 S Woodland Rd	All	Orchestra	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	14	Cut Sheet 28	144	2.02	NONE					14	Cut Sheet 30	96	1.34	No	NONE		0.67		57%	34%	12%	0%	0%	0.51		2,080	1,565	
39	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	294	Cut Sheet 31	123	36.16	NONE					294	Cut Sheet 32	65	19.11	No	NONE		17.05		57%	34%	12%	0%	0%	13.02		2,080	39,724	
40	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 31	123	0.98	NONE					8	Cut Sheet 32	65	0.52	No	NONE		0.46		57%	34%	12%	0%	0%	0.35		2,080	1,081	
41	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	4	Cut Sheet 33	246	0.98	NONE					4	Cut Sheet 34	131	0.52	No	NONE		0.46		57%	34%	12%	0%	0%	0.35		2,080	1,072	
42	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	17	Cut Sheet 33	246	4.18	NONE					17	Cut Sheet 34	131	2.23	No	NONE		1.96		57%	34%	12%	0%	0%	1.49		2,080	4,554	
43	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 35	144	0.43	NONE					3	Cut Sheet 36	65	0.20	No	NONE		0.24		57%	34%	12%	0%	0%	0.18		2,080	552	
44	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	2	Cut Sheet 35	144	0.29	NONE					2	Cut Sheet 36	65	0.13	No	NONE		0.16		57%	34%	12%	0%	0%	0.12		2,080	368	
45	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	1	Cut Sheet 37	72	0.07	NONE					1	Cut Sheet 11	48	0.05	No	NONE		0.02		57%	34%	12%	0%	0%	0.02		2,080	56	
46	Retrofit	15400 S Woodland Rd	All	Auditorium	Other	Interior	Education - Primary School		Cooled Space	3	Cut Sheet 38	144	0.43	NONE					3	Cut Sheet 40	48	0.14	No	NONE		0.29		57%	34%	12%	0%	0%	0.22		2,080	671	
47	Retrofit	15400 S Woodland Rd	All	Hallway	Other	Interior	Education - Primary School		Cooled Space	159	Cut Sheet 38	144	22.90	NONE					159	Cut Sheet 40	48	7.63	No	NONE		15.26		57%	34%	12%	0%	0%	11.66		2,080	35,559	
48	Retrofit	15400 S Woodland Rd	All	Stairway	Other	Interior	Education - Primary School		Cooled Space	17	Cut Sheet 38	144	2.45	NONE					17	Cut Sheet 40	48	0.82	No	NONE		1.63		57%	34%	12%	0%	0%	1.25		2,080	3,802	
49	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	10	Cut Sheet 38	144	1.44	NONE					10	Cut Sheet 39	131	1.31	No	NONE		0.13		57%	34%	12%	0%	0%	0.10		2,080	303	
50	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	50	Cut Sheet 38	144	7.20	NONE					50	Cut Sheet 30	96	4.80	No	NONE		2.40		57%	34%	12%	0%	0%	1.83		2,080	5,591	
51	Retrofit	15400 S Woodland Rd	All	Kitchen	Other	Interior	Education - Primary School		Cooled Space	26	Cut Sheet 38	144	3.74	NONE					26	Cut Sheet 30	96	2.50	No	NONE		1.25		57%	34%	12%	0%	0%	0.95		2,080	2,907	
52	Retrofit	15400 S Woodland Rd	All	Exit	Other	Interior	Education - Primary School		Cooled Space	20	Cut Sheet 41	40	0.80	NONE					20	Cut Sheet 42	2	0.04	No	NONE		0.76		57%	34%	12%	0%	0%	0.58		2,080	1,770	
53	Retrofit	15400 S Woodland Rd	All	Gymnasium	Other	Interior	Education - Primary School		Cooled Space	47	MH400/1	458	21.53	NONE					47	Cut Sheet 43	192	9.02	No	NONE		12.50		57%	34%	12%	0%	0%	9.55		2,080	29,125	
54	Retrofit	15400 S Woodland Rd	All	Pool	Other	Interior	Education - Primary School		Cooled Space	16	MH400/1	458	7.33	NONE					16	Cut Sheet 44	375	6.00	No	NONE		1.33		57%	34%	12%	0%	0%	1.01		2,080	3,094	
55	Retrofit	15400 S Woodland Rd	All	Boiler Room	Other	Interior	Education - Primary School		Cooled Space	11	Cut Sheet 45	100	1.10	NONE					11	Cut Sheet 46	26	0.29	No	NONE		0.81		57%	34%	12%	0%	0%	0.62		2,080	1,896	
56	Retrofit	15400 S Woodland Rd	All	K-8 School	Dressing, Locker or Fitting Room	Interior	Education - Primary School		Cooled Space	23	Cut Sheet 45	100	2.30	NONE					23	Cut Sheet 46	26	0.60	No	NONE		1.70		57%	34%	12%	0%	0%	1.30		2,080	3,965	
57	Retrofit	15400 S Woodland Rd	All	Orchestra	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	47	Cut Sheet 45	100	4.70	NONE					47	Cut Sheet 46	26	1.22	No	NONE		3.48		57%	34%	12%	0%	0%	2.66		2,080	8,102	
58	Retrofit	15400 S Woodland Rd	All	Office	Other	Interior	Education - Primary School		Cooled Space	9	Cut Sheet 45	100	0.90	NONE					9	Cut Sheet 46	26	0.23	No	NONE		0.67		57%	34%	12%	0%	0%	0.51		2,080	1,552	
59	Retrofit	15400 S Woodland Rd	All	Kitchen	Other	Interior	Education - Primary School		Cooled Space	8	Cut Sheet 45	100	0.80	NONE					8	Cut Sheet 46	26	0.21	No	NONE		0.59		57%	34%	12%	0%	0%	0.45		2,080	1,379	
60	Retrofit	15400 S Woodland Rd	All	K-8 School	University Classroom (excluding Shop or Labs)	Interior	Education - Primary School		Cooled Space	18	Cut Sheet 47	300	5.40	NONE					18	Cut Sheet 48	65	1.17	No	NONE		4.23		57%	34%	12%	0%	0%	3.23		2,080	9,854	
61													0.00	NONE								0.00		NONE		0.00										0	
62													0.00	NONE								0.00		NONE		0.00										0	
63													0.00	NONE								0.00		NONE		0.00										0	
64													0.00	NONE								0.00		NONE		0.00										0	
65													0.00	NONE								0.00		NONE		0.00										0	
66													0.00	NONE								0.00		NONE		0.00										0	
67													0.00	NONE								0.00		NONE		0.00										0	
68													0.00	NONE								0.00		NONE		0.00										0	
69													0.00	NONE								0.00		NONE		0.00										0	
70													0.00	NONE								0.00		NONE		0.00										0	
71													0.00	NONE								0.00		NONE		0.00										0	
72													0.00	NONE								0.00		NONE		0.00										0	
73													0.00	NONE								0.00		NONE		0.00										0	
74													0.00	NONE								0.00		NONE		0.00										0	
75													0.00	NONE								0.00		NONE		0.00										0	
76													0.00	NONE								0.00		NONE		0.00										0	
77													0.00	NONE								0.00		NONE		0.00										0	
78													0.00	NONE								0.00		NONE		0.00										0	
79													0.00	NONE								0.00		NONE		0.00										0	
80													0.00	NONE								0.00		NONE		0.00										0	
81													0.00	NONE								0.00		NONE		0.00										0	
82													0.00	NONE								0.00		NONE		0.00										0	
83													0.00	NONE								0.00		NONE		0.00										0	
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Lighting Form

	PROJECT BASIC INFORMATION										PRE-INSTALLATION (RETROFIT)					BASELINE (NEW CONSTRUCTION)				POST-INSTALLATION							Energy Calculations									
Table Item	New Construction or Retrofit	Building Address	Floor	Area Description	Space Description	Interior or Exterior Fixture	Predominant Space Type	Exterior Lighting Description (Exterior Lighting Only)	Area Cooling	Pre Fixture Qty	Pre Fixture Code	Pre Watts / Fixture (W)	Pre kW / Space (kW)	Existing Control drop-down	Existing Sensor Quantity When applicable	Units e.g. Square Feet (sf) If multiple fixture types are used, please only enter the total area/distance/qty once per space.	Lighting Power Density (W/unit)	Baseline kW / Space (kW)	Post Fixture Qty	Post Fixture Code	Post Watts / Fixture (W)	Post kW / Space (kW)	Are Occupancy Sensors Required by Code?	Proposed Control drop-down	Proposed Sensor Quantity When applicable	Change in Connected Load (kW)	Applicant Coincidence Factor (CF) Estimate	Coincidence Factor	Interactive Factor (demand)	Interactive Factor (energy)	Pre Controls Factor	Post Controls Factor	Demand Savings (kW)	Applicant Equivalent Full-Load Hours (EFLH) Estimate	Prescribed Equivalent Full Load Hours	Annual kWh Saved	Post Fixture Cut Sheet Number
101													0.00	NONE								0.00	NONE		0.00										0	
102													0.00	NONE								0.00	NONE		0.00										0	
103													0.00	NONE								0.00	NONE		0.00										0	
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250													0.00	NONE								0.00	NONE		0.00										0	
Totals										1,333			174.87						1,333			88.96			85.91						67.01		2,065	297,157		

Note: If your total change in connected load is greater than or equal to 50 kW the cell above will be red. Please see row 4 on the Instructions tab for information on adjusting the predominant space type to "Other" and estimating CF and EFLH values.

Project Estimated Annual Savings Summary

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

Please briefly describe how you estimated your coincidence factor (CF) and applicant equivalent full-load hours (EFLH) for facility type “Other” indicated on the Lighting Form tab

Demand Savings (For Internal Use Only)	67.91

Mercantile Customer Project Commitment Agreement
Cash Rebate Option

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: vmnofziger@firstenergycorp.com

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.

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)

By: John C. Lasky

Title: V.P. Of Energy Efficiency

Date: 9-19-13

Shaker Heights City Schools
(Customer)

By: Robert P. Kreiner

Title: Business Administrator

Date: February 19, 2013

Affidavit of Shaker Heights City Schools – Exhibit _A _

STATE OF OHIO)
) SS:
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 19th day of Feb, 2013

Karen E. Dunbar
Notary

KAREN E DUNBAR
NOTARY PUBLIC - OHIO
MY COMMISSION EXPIRES 12-28-2016
RECORDED IN CUYAHOGA COUNTY

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