



Public Utilities Commission

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

Case No.: 1 - 046-EL-EEC

Mercantile Customer: The University of Toledo

Electric Utility: Toledo Edison

Program Title or
Description: Main Campus Relamping

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: The University of Toledo

Principal address: 2801 W Bancroft St Mail Stop 216 Attn: Brooke Mason Toledo, OH 43606

Address of facility for which this energy efficiency program applies: 2801 W Bancroft St Toledo, OH 43606

Name and telephone number for responses to questions: Dan Dumond 614-949-5203

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: _____

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):

- X 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)).

The customer replaced lamps in 540 4 lamp 32 watt T8 fluorescent fixtures with T8 28 watt lamps. The customer would have replaced with the same inefficient equipment when it failed. Estimated useful life of the equipment is typically 8 years, and the equipment was last replaced within the past 3-4 years. Estimated future replacement date would have been about 2/2019

- ☐ 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: 38,880 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.

- 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.

- 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

X 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 \$_____. (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.

X An exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for 19 days (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: 1.29 (Continue to Subsection 1, then skip Subsection 2)
- ☐ Utility Cost Test (UCT). The calculated UCT value is: _____ (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 \$14,985.19.

Our program costs were \$5,535.

The incremental measure costs were \$6,097.92.

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 _____.

The utility's program costs were _____.

The utility's incentive costs/rebate costs were _____.

Section 7: Additional Information

Please attach the following supporting documentation to this application:

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

Ohio | Public Utilities Commission

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

Case No.: 1 - 045 -EL-EEC

State of Ohio :

MICHAEL GREEN, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

THE UNIVERSITY OF TOLEDO
[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.

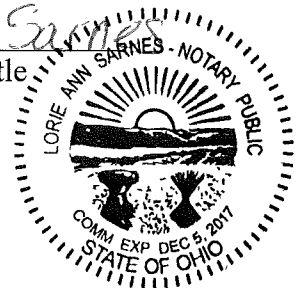
X M Green DIRECTOR, ENERGY MANAGEMENT
Signature of Affiant & Title

Sworn and subscribed before me this 5th day of March, 2015 Month/Year

Lorrie Ann Sarnes
Signature of official administering oath

Lorrie Ann Sarnes
Print Name and Title

My commission expires on 12.5.17



The University of Toledo Energy Efficiency Rider Exemption

Overview and Commitment Form:

Commitment of Savings: By signing and accepting this application The University of Toledo affirms its intention to commit and integrate the energy efficiency projects contained within this application towards Toledo Edison's peak demand reduction, demand response and/or energy efficiency programs for the life of the lighting equipment.

Additionally, The University of Toledo agrees to serve as joint applicant in any future filings necessary to secure approval of this arrangement as required by the PUCO and to comply with any information and reporting requirements imposed by rule or as part of that approval.

Finally, The University of Toledo affirms that all application information submitted as part of this application pursuant to this rider exemption application is true and accurate. Information in question would include, but not be limited to, project scope, equipment specification, equipment operation details, project costs, project completion dates, and the quantity of energy conservation measures installed.

Committed Project Overview: The University of Toledo agrees to commit the energy savings generated from the energy efficient lighting upgrade equal to 38,880 kWh per year for the life of the equipment. Expected life is equal to 8 years.

Confidentiality: The University of Toledo requests that the PUCO, Toledo Edison and all other parties keep all relevant parts of this application strictly confidential.

Non Compliance: The University of Toledo agrees that if for any reason the kWh promised as part of this application and measured per the requirements outlined in this application are not delivered during the stated delivery year The University of Toledo will be liable for the rider value associated with the kWh shortfall. This shortfall would be paid to the Toledo Edison by the 3rd month after the end of the delivery year and after the shortfall is certified and agreed upon by Toledo Edison, the PUCO and The University of Toledo.

Measurement and Verification Methodologies: The University of Toledo agrees to an International Performance Measurement and Verification Protocol (IPMVP) standard based measurement and verification protocol for this rider exemption eligible project. For the project in question The University of Toledo will provide all calculations to support the efficiency gains of the pre to post lighting project and to include all the documentation to support these calculations.

Project Timeline/Rider Exemption Timeline: (see addendum C1) The project was placed in commercial operation by February 23rd, 2015.

Annual Report: The University of Toledo agrees to provide the Utility Company and the PUCO a formal annual report that documents the energy savings and electric utility peak-demand reductions achieved for this project. This report shall be submitted electronically to the Utility Company and the PUCO no

The University of Toledo Energy Efficiency Rider Exemption

Overview and Commitment Form:

later than 15 days after the end of the delivery year and will contain all calculations and measurements to document and support the installed system's performance.

Permission to Measure: The University of Toledo agrees to allow the Utility, the PUCO Staff and any associated consultants access to data and access to the proposed project for inspection and verification as long as they can meet AK Steel's, confidentiality, safety and insurance requirements and that a written request for access is provided by USPS or electronically 10 business days prior to desired access date.

Signature:

I, MICHAEL GREEN, certify that I am eligible to sign and certify this document on behalf of The University of Toledo.

MG
Customer Signature

2-3-15
Date

This project replaces the lamps of 540 32 watt T8 fluorescent fixtures with 28 watt T8 lamps to reduce energy usage during runtime.

Savings are calculated by taking the wattage of the fixture multiplied by the runtime to determine kilowatt hours of usage before and after the project.

Savings = (Current kW x Existing Runtime) – (Proposed kW x Proposed Runtime)

Current kW = Existing Input Wattage x Existing Quantity / 1000

Proposed kW = Proposed Input Wattage x Proposed Quantity / 1000

Annual usage preproject	
4 Lamp F32T8 fixtures	
Quantity	540
Wattage	122
Annual runtime hours	4,500
kWh annual usage	296,460

Annual usage post project	
4 Lamp F28T8 Fixtures	
Quantity	540
Wattage	106
Annual runtime hours	4,500
kWh annual usage	257,580

Savings = 38,880 kWh annually

Annual usage for the facility is 71,779,587, and this project qualifies the university to apply for an exemption period of 19 days from the DSE2 Rider, meeting .054% of the annual savings target.

Cost of installing the project was \$5,535.00 in labor. Cost for the bulbs was \$6,069.00. The bulbs have a conservatively estimated useful life of ten years. Project estimated lifetime avoided supply cost is estimated by calculating

kWh saved * kWh rate x minimum useful life = lifetime supply cost avoided.

Total Resource Cost (TRC) is calculated by dividing the Lifetime supply cost avoided by the Installation and incremental cost of the project.

Cost of the bulbs	\$6,069.00
Labor cost to relamp	\$5,535.00
Minimum life in years	8
kWh savings	38880
Average annual facility kWh usage	71,779,587
Average annual costs	\$3,458,176.00
Average annual rate per kWh	\$0.048
Cost savings annually	\$1,873.15
Lifetime cost savings	\$14,985.19
Total resource cost	1.29

Ultra Energy Saving 4' T8 Ecolux® 28 Watt Lamp

Low Operating Cost*

- Relamp existing F32T8 with F28T8 and save up to 15% in energy
- Retrofit existing T12 fixture with GE UltraMax® System and save up to 36% in energy
- Additional energy savings available in low ballast factor and GE UltraStart® systems
- UL Type CC, parallel operation and anti striation control

Up to 50% Longer Life than Standard T8*

- 80,000 hours for 3hrs/start cycle
- 84,000 hours for 12hrs/start cycle
- Extend group relamp cycles by over 8 years compared to a standard T8 lamp
- Significantly reduce spot relamping costs

Nearly the same Lumen Output

- 2,600 initial lumens vs. 2,800 lumens for standard T8
- Increased light output available in high ballast factor systems

Reduced Mercury

- Ecolux® low mercury products pass Federal TCLP tests

GE Express Lamp & Ballast Warranty Service Program

- Warranty based on GE Lamps operating on GE Ballast. See program documents for full details.

Requires Open Circuit Voltage >550 Volts



DOE LPW Regulation:

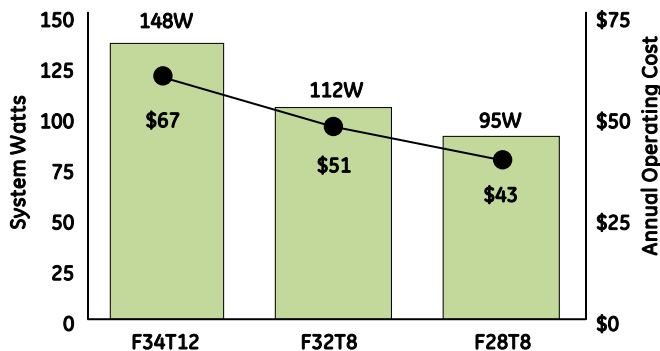
Meets new minimum efficiency standard, effective July 14, 2012

For more information, log on to:
www.gelighting.com/legislation

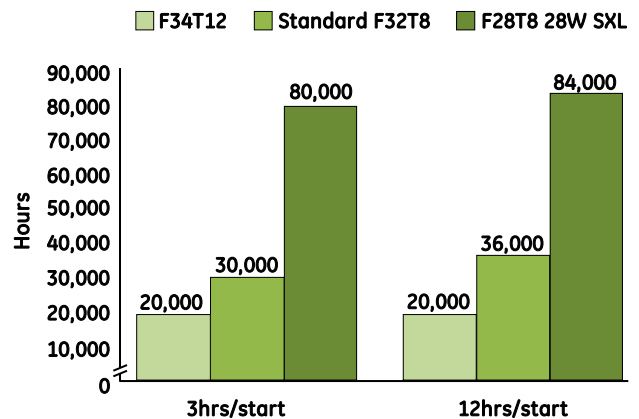


Energy Savings*

Save over \$24 a year or \$466 over the life of the lamp compared to F34T12!



Programmed Start Life Ratings



*Energy saving based on 4-lamp system life rating, programmed start ballasts \$0.11 kWh energy cost, group relamp cycle at 70% rated life, and 4,100 annual burn hours.



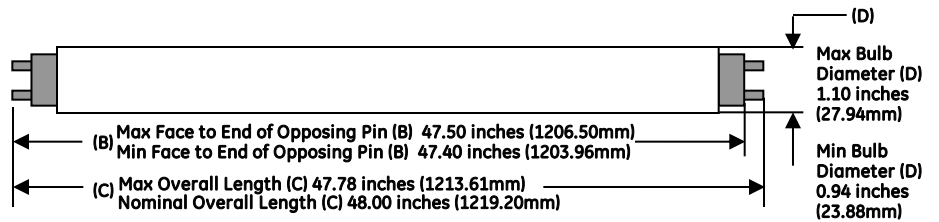
imagination at work



4' T8 Ecolux® UltraMax® 28 Watt Lamp Specs

Lamp Characteristics – F28T8/SXL/SPX41/ECO Product Code 93903

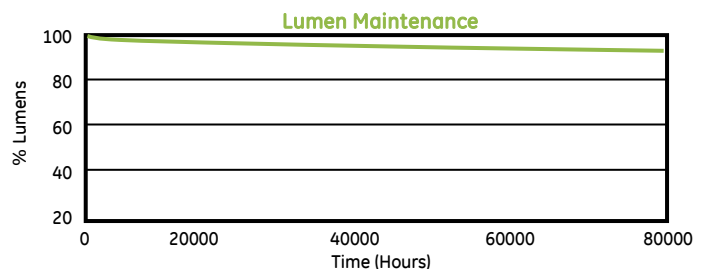
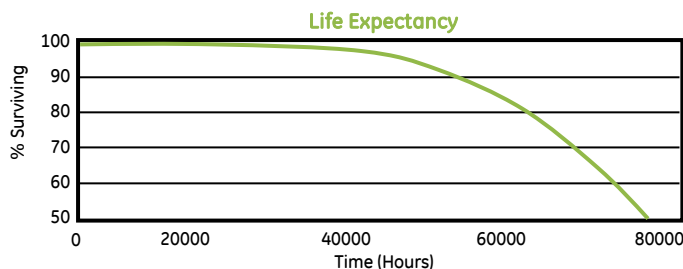
Nominal Lamp Watts (W)	28
Nominal Lamp Voltage (V)	---
Bulb Designation	T8
Bulb Material	Soda Lime
Base Type	Medium Bi-Pin (G13)
TCLP Compliant	Yes
LEED – EB MR Credit	20 picograms Hg per mean lumen hour



Products

Product Code	Description	Case Qty.	Nominal Lamp Watts (W)	Initial Lumens	Mean Lumens	Initial Nominal Efficacy (Lumens/Watt)	Instant Start (IS)		Programmed Rapid Start (PRS)		Color Temp (K)	CRI	IS/PRS System Warranty (months)*
							Rated Life (3hr/Start)	Rated Life (12hr/Start)	Rated Life (3hr/Start)	Rated Life (12hr/Start)			
66471	F28T8/XL/SPP35/ECO	36	28	2,600	2,440	93	20,000	28,000	40,000	45,000	3500	80	36/48
66472	F28T8/XL/SPP41/ECO	36	28	2,600	2,440	93	20,000	28,000	40,000	45,000	4100	80	36/48
66473	F28T8/XL/SPP50/ECO	36	28	2,600	2,440	93	20,000	28,000	40,000	45,000	5000	80	36/48
72863	F28T8/XL/SPX30/ECO	36	28	2,675	2,515	96	24,000	34,000	45,000	50,000	3000	85	48/60
72864	F28T8/XL/SPX35/ECO	36	28	2,675	2,515	96	24,000	34,000	45,000	50,000	3500	85	48/60
72866	F28T8/XL/SPX41/ECO	36	28	2,675	2,515	96	24,000	34,000	45,000	50,000	4100	82	48/60
72867	F28T8/XL/SPX50/ECO	36	28	2,675	2,515	96	24,000	34,000	45,000	50,000	5000	80	48/60
66346	F28T8/XL/SPX65/ECO	36	28	2,600	2,440	93	24,000	34,000	45,000	50,000	6500	78	48/60
93902	F28T8/SXL/SPX35/ECO	36	28	2,600	2,440	93	40,000	55,000	80,000	84,000	3500	82	60/84
93903	F28T8/SXL/SPX41/ECO	36	28	2,600	2,440	93	40,000	55,000	80,000	84,000	4100	82	60/84
93904	F28T8/SXL/SPX50/ECO	36	28	2,600	2,440	93	40,000	55,000	80,000	84,000	5000	80	60/84
With covRguard®													
73292	F28T8/XLSPX30ECO/CVG	36	28	2,595	2,440	93	24,000	34,000	45,000	50,000	3000	85	48/60
73293	F28T8/XLSPX35ECO/CVG	36	28	2,595	2,440	93	24,000	34,000	45,000	50,000	3500	85	48/60
73294	F28T8/XLSPX41ECO/CVG	36	28	2,595	2,440	93	24,000	34,000	45,000	50,000	4100	82	48/60
73295	F28T8/XLSPX50ECO/CVG	36	28	2,595	2,440	93	24,000	34,000	45,000	50,000	5000	80	48/60

*After date of purchase or hours of operation, whichever comes first; Time period from date of manufacture; Linear fluorescent operating at 4,000 hours per year, high intensity discharge at 5,000 hours per year.



*Operating hours on 3hr/start cycle on Programmed Start Ballast

System Information using F28T8/SXL/SPX41/ECO

Ballast	Ballast Product Code	Ballast Description	# of Lamps	Line Volts	System Watts	System Ballast Factor	Ballast Efficacy Factor	Min. Starting Temp (°F/°C)	System Initial Lumens	System Mean Lumens	Initial System LPW	Lamp Warranty with GE System	Ballast Warranty
UltraMax®	72266	GE232MAX-N/Ultra	2	277	48	.87	1.81	60° / 16°	4,741	4,457	98	48 Months	5 Years
	78627	GE432MAX-N/Ultra	4	277	92	.87	0.95	60° / 16°	9,483	8,915	103	48 Months	5 Years
UltraStart®	96714	GE232MVPS-N/Ultra	2	277	50	.88	1.76	60° / 16°	4,697	4,509	95	84 Months	5 Years
	96716	GE432MVPS-N/Ultra	4	277	95	.83	0.87	60° / 16°	9,047	8,505	95	84 Months	5 Years

For additional product and application information, please consult GE's Website: www.gelighting.com

Information provided is subject to change without notice. Please verify all details with GE. All values are design or typical values when measured under laboratory conditions, and GE makes no warranty or guarantee, express or implied, that such performance will be obtained under end-use conditions.



\$11,604.00

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Commission of Ohio Docketing Information System on

3/11/2015 4:23:35 PM

in

Case No(s). 15-0489-EL-EEC

Summary: Application Energy Efficiency Rider Exemption electronically filed by Mr. Lucas M Dixon on behalf of Plug Smart and University of Toledo