



Case No.: 13-1353 -EL-EEC

Mercantile Customer: Miller Coors LLC

Electric Utility: Duke Energy

**Program Title or
Description: VFD's (Air Handler)**

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: **Miller Coors LLC**

Principal address: **2525 Wayne Madison Road Trenton, Ohio 45067**

Address of facility for which this energy efficiency program applies:

2525 Wayne Madison Road Trenton, Ohio 45067

Name and telephone number for responses to questions:

Megan Fox 513-287-3367

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. (**Refer to Appendix A for 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: **Duke Energy**

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)).

The following equipment was installed starting in January 2012 and was fully installed by December 2012.

5 VFDs 100 HP air handlers

- ☐ 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: 424,004 kWh
Refer to Appendix B for calculations and supporting document

- 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?

The new equipment was installed by December 2012

C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

51.8 kW

Refer to Appendix B for calculations and supporting documentation.

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 **\$16,750.00. Refer to Appendix C for documentation.** (Rebate shall not exceed 50% project cost.

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 7.19** (Skip to Subsection 2.) **Refer to Appendix D for calculations and supporting documents.**

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 **\$199,039**.

The utility's program costs were **\$10,924**.

The utility's incentive costs/rebate costs were **\$16,750**.

Refer to Appendix D for calculations and supporting documents.

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.

Refer to Offer Letter following this application

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.



DUKE ENERGY
Mercantile Self Direct Program
139 East Fourth Street
Cincinnati, OH 45202
513 629 5572 fax

May 29, 2013

Mr. Mark Koch
Miller Coors LLC
2525 Wayne Madison Road
Trenton, Ohio 45067

Subject: Your **Custom VFD Air Handler** Application for a Duke Energy Mercantile Self-Direct Rebate

Dear Mr. Koch:

Thank you for your Duke Energy Mercantile Self Direct rebate application. As noted in the Energy Conservation Measure (ECM) chart on page two, a total rebate of \$16,750.00 has been proposed for your VFD project completed in the 2013 calendar year. **All Self Direct Rebates are contingent upon approval by the Public Utilities Commission of Ohio (PUCO).**

At your earliest convenience, please indicate if you accept this rebate by

- providing your signature on page two
- completing the PUCO-required affidavit on page three.

Please return the documents to my attention via fax at 513-629-5572 or e-mail to SelfDirect@Duke-Energy.com. Upon receipt, Duke Energy will submit the necessary documentation to PUCO. Following PUCO's approval, Duke Energy will remit payment.

At Duke Energy, we value your business and look forward to working with you on this and future energy efficiency projects. We hope you will consider our Smart \$aver® incentives, when applicable. Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Grady Reid, Jr.'.

Grady Reid, Jr
Product Manager
Mercantile Self Direct Rebates

cc: Bob Bandenburg, Duke Energy
Rob Jung, Ecova
Doug Niehaus, Century Mechanical

Please indicate your response to this rebate offer within 30 days of receipt.

☒ Rebate is accepted.

☐ Rebate is declined.

By accepting this rebate Miller Coors LLC affirms its intention to commit and integrate the energy efficiency projects listed on the following pages into Duke Energy's peak demand reduction, demand response and/or energy efficiency programs.

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

Finally, Miller Coors LLC affirms that all application information submitted to Duke Energy pursuant to this rebate offer is true and accurate. Information in question would include, but not be limited to, project scope, equipment specifications, equipment operational details, project costs, project completion dates, and the quantity of energy conservation measures installed.

If rebate is accepted, will you use the monies to fund future energy efficiency and/or demand reduction projects?

☒ YES

☐ NO

If rebate is declined, please indicate reason (optional):

Denise A. Quinn

Denise A. Quinn 5-29-13

Customer Signature

Printed Name

Date

Proposed Rebate Amounts

Measure ID	Energy Conservation Measure (ECM)	Proposed Rebate Amount
ECM-1	100 HP HVAC VFDs (Qty 5)	\$16,750.00
Total		\$16,750.00



Public Utilities Commission

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

Case No.: ____ - ____ -EL-EEC

State of Ohio :

Denise A. Quinn, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

MillerCoors LLC

[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.
3. I am aware of fines and penalties which may be imposed under Ohio Revised Code Sections 2921.11, 2921.31, 4903.02, 4903.03, and 4903.99 for submitting false information.

Denise A. Quinn V.P. / Brewery Plant Manager
Signature of Affiant & Title

Sworn and subscribed before me this 28th day of May,
2013 Month/Year

Wanda D. Gibson
Signature of official administering oath

Wanda D. Gibson
Print Name and Title

WANDA D. GIBSON
Notary Public, State of Ohio
My Commission Expires 08-03-2015

My commission expires on _____

24400870 01		
MILLER BREWING CO		
2525 WAYNE MADISON RD		
TRENTON, OH 45067		
Date	Days	Actual KWH
3/5/2013	29	7,783,972
2/4/2013	31	7,914,194
1/4/2013	32	7,995,876
12/3/2012	33	8,808,918
10/31/2012	29	8,125,096
10/2/2012	32	8,350,116
8/31/2012	29	5,592,868
8/2/2012	30	6,660,680
7/3/2012	29	5,239,043
6/4/2012	32	5,847,160
5/3/2012	30	4,896,092
4/3/2012	29	4,812,526
Total		82,026,541

Appendix B - MillerCoors LLC VFD Air Handler Energy Savings Achieved

	Baseline Used			Post Project Actual			Hours of Operation	Savings	
	Description	Annual kWh	Summer Coincident kW	Description	Annual kWh	Summer Coincident kW		Annual kWh	Summer Coincident kW
ECM - 1	100 HP HVAC VFDs	10,748,452	1,679	Installed 5 VFDs on 100HP HVAC	10,353,450	1,630	8,760	395,002	49.0
Notes:	Energy consumption baseline, demand baseline and post project energy consumption basis are outlined in the following pages.								
After consideration of line losses, total energy savings are 424,004 kWh and 51.8 summer coincident kW . These values may also reflect minor DSMore modeling software rounding error.									

Mar 2013 V1

Salesforce Opportunity Name
Project Name

0

MillerCoors - MSD Custom - Air Handler VFDs

Application #

CMO13-1390667

MillerCoors - 100 HP HVAC VFDs

Rev.

0

State

OH

Measure Description
The measure includes the addition of Variable Frequency Drives (VFDs) on five 100-HP fan motors. The fan motors are located in air handlers in the packaging building and glass warehouse at the MillerCoors facility.

Baseline
The baseline is the previously existing fan motors with single speed drives. The baseline energy could not be compared to the annual usage because no billing data was provided.

Savings Calculation Methodology
Savings were originally calculated using a Duke Energy online VFD calculator, however the results from this tool provide only an annual savings estimate with no monthly detail. In response to the reviewer’s request the customer submitted a more detailed model using the the eQuest EEM wizard, which is an acceptable method providing monthly kW and kWh savings estimates. The baseline system in the eQuest model is a variable air volume system with a chilled water loop, hot water reheat and single speed centrifugal fans with discharge dampers. The EEM changes the fan control to variable speed.

Incremental Measure Cost (IMC)
Since the alternative is to leave the system unchanged the incremental cost is the full measure cost.

IMC Calculation	IMC (\$)	Baseline Cost (\$)	Measure Cost (\$)
	\$69,200.00	\$0.00	\$69,200.00

References to source documents/back up files as appropriate

Attached Files


☒ Equipment Specs

☒ Calculations

☒ Cost Documentation

CMO13-1390667
eQuest Results.xlsx

CMO13-1390667
Specifications.pdf

CMO13-1390667
Invoices.pdf

Savings Calculations (insert all appropriate calculations or simulation results below)

Baseline

Electric Consumption (kWh)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Space Cool		26,657	24,058	40,414	63,063	97,317	201,144	242,610	227,269	146,124	54,945	34,106	26,693	1,184,399
Heat Reject.		0	0	2,156	6,200	11,775	30,222	37,474	35,064	21,044	4,294	1,389	2	149,619
Refrigeration		0	0	0	0	0	0	0	0	0	0	0	0	0
Space Heat		0	0	0	0	0	0	0	0	0	0	0	0	0
HP Supp.		0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Water		0	0	0	0	0	0	0	0	0	0	0	0	0
Vent. Fans		43,419	40,300	49,489	51,226	53,888	51,406	52,837	53,565	52,458	53,465	49,972	45,957	597,981
Pumps & Aux.		60,220	54,393	60,220	58,278	60,220	62,032	64,865	63,864	59,668	60,220	58,278	60,220	722,479
Ext. Usage		0	0	0	0	0	0	0	0	0	0	0	0	0
Misc. Equip.		312,726	282,461	312,726	302,638	312,726	302,638	312,726	312,726	302,638	312,726	302,638	312,726	3,682,096
Task Lights		1,878	1,696	1,878	1,818	1,878	1,818	1,878	1,818	1,878	1,818	1,878	1,878	22,115
Area Lights		372,829	336,748	372,829	360,802	372,829	360,802	372,829	372,829	360,802	372,829	360,802	372,829	4,389,763
Total		817,730	739,657	839,713	844,026	910,634	1,010,061	1,085,219	1,067,195	944,552	860,358	809,003	820,305	10,748,452

Electric Demand (kW)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space Cool		62	36	287	321	326	517	507	514	465	297	288	86
Heat Reject.		0	0	51	55	53	85	81	85	71	49	49	2
Refrigeration		0	0	0	0	0	0	0	0	0	0	0	0
Space Heat		0	0	0	0	0	0	0	0	0	0	0	0
HP Supp.		0	0	0	0	0	0	0	0	0	0	0	0
Hot Water		0	0	0	0	0	0	0	0	0	0	0	0
Vent. Fans		57	71	70	67	69	71	71	70	70	69	71	72
Pumps & Aux.		81	81	81	81	81	95	95	95	95	81	81	81
Ext. Usage		0	0	0	0	0	0	0	0	0	0	0	0
Misc. Equip.		420	420	420	420	420	420	420	420	420	420	420	420
Task Lights		3	3	3	3	3	3	3	3	3	3	3	3
Area Lights		501	501	501	501	501	501	501	501	501	501	501	501
Total		1,124	1,112	1,412	1,448	1,453	1,692	1,679	1,688	1,625	1,421	1,413	1,164

Proposed

Electric Consumption (kWh)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Space Cool		26,593	24,001	39,472	60,815	93,681	194,473	233,758	218,794	140,456	53,251	33,484	26,603	1,145,381
Heat Reject.		0	0	2,047	5,904	11,294	29,715	36,979	34,514	20,595	4,057	1,304	0	146,409
Refrigeration		0	0	0	0	0	0	0	0	0	0	0	0	0
Space Heat		0	0	0	0	0	0	0	0	0	0	0	0	0
HP Supp.		0	0	0	0	0	0	0	0	0	0	0	0	0
Hot Water		0	0	0	0	0	0	0	0	0	0	0	0	0
Vent. Fans		8,778	9,153	18,024	23,989	27,058	24,421	24,494	26,217	27,005	26,009	21,204	12,545	248,897
Pumps & Aux.		60,083	54,269	60,083	58,145	60,083	61,516	64,023	63,079	59,199	60,083	58,145	60,083	718,791
Ext. Usage		0	0	0	0	0	0	0	0	0	0	0	0	0

Misc. Equip.	312,726	282,461	312,726	302,638	312,726	302,638	312,726	312,726	302,638	312,726	302,638	312,726	3,682,095
Task Lights	1,878	1,696	1,878	1,818	1,878	1,818	1,878	1,878	1,818	1,878	1,818	1,878	22,114
Area Lights	372,829	336,748	372,829	360,802	372,829	360,802	372,829	372,829	360,802	372,829	360,802	372,829	4,389,759
Total	782,888	708,329	807,059	814,111	879,549	975,383	1,046,687	1,030,038	912,513	830,834	779,394	786,665	10,353,450
Saved	34,842	31,328	32,654	29,915	31,085	34,678	38,532	37,157	32,039	29,524	29,609	33,640	395,002

Electric Demand (kW)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Space Cool	62	36	277	311	315	508	499	505	457	288	279	60	
Heat Reject.	0	0	50	54	53	85	81	84	70	49	48	0	
Refrigeration	0	0	0	0	0	0	0	0	0	0	0	0	
Space Heat	0	0	0	0	0	0	0	0	0	0	0	0	
HP Supp.	0	0	0	0	0	0	0	0	0	0	0	0	
Hot Water	0	0	0	0	0	0	0	0	0	0	0	0	
Vent. Fans	10	31	29	24	28	32	32	31	30	29	32	35	
Pumps & Aux.	81	81	81	81	81	95	95	95	95	81	81	81	
Ext. Usage	0	0	0	0	0	0	0	0	0	0	0	0	
Misc. Equip.	420	420	420	420	420	420	420	420	420	420	420	420	
Task Lights	3	3	3	3	3	3	3	3	3	3	3	3	
Area Lights	501	501	501	501	501	501	501	501	501	501	501	501	
Total	1,077	1,071	1,361	1,394	1,401	1,643	1,630	1,638	1,576	1,370	1,364	1,099	
Saved	47	40	51	54	52	49	48	50	49	51	49	65	

Appendix C -Cash Rebate Calculation

MillerCoors LLC VFD Air Handler

Measure	Quantity	Cash Rebate Rate	Cash Rebate
VFD (Qty - 5)	1	50% of incentive that would be offered by the Smart \$aver Custom program	\$16,750
			\$16,750

Appendix D -UCT Value

MillerCoors LLC VFD Air Handler

Measure	Total Avoided Cost	Program Cost	Incentive	Quantity	Measure UCT
VFD (Qty - 5)	\$199,039	\$10,924	\$16,750	1	7.19
Totals	\$199,039	\$10,924	\$16,750	1	

Total Avoided Supply Costs \$199,039

Total Program Costs \$10,924

Total Incentive \$16,750

Aggregate Application UCT

7.19

Mercantile Self Direct Application Cover Sheet**Transmittal date: March 8, 2013**

MillerCoors LLC - Trenton Brewery

Contact Mark S. Koch, PE

email: mark.koch@millercoors.com

Telephone: 513-844-4238

2012 projects	Description	Details	Cost	Savings (kwh)	Savings	Rebate
1. Lighting	Can Lines Lighting	This project replaced HPS sodium fixture with qualified fluorescent fixtures.	per application	prescriptive	prescriptive	\$14,882.50
2. VFDs	HVAC Project	This project replaced air hadler motors with VFD motors.	\$ 73,000.00	448,568.00	\$ 21,083.00	per Duke
3. Process	Ammonia Purger	This replaced existng purgers with more efficient purgers.	\$ 180,000.00	971,233.00	\$ 54,389.05	per Duke

There have been no other applications for these projects submited to Duke Energy.

2. Air Handler VFD Project

**Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1**



1. Contact Information (Required)

Duke Energy Customer Contact Information					
Company Name	MillerCoors LLC				
Address	2525 Wayne Madison Rd				
City	Trenton	State	OH	Zip Code	45067
Project Contact					
Title	Sustainability and Environmental Engineer				
Office Phone	513-844-4238	Mobile Phone	513-464-6418	Fax	513-844-4155
E-mail Address					

Equipment Vendor / Contractor / Architect / Engineer Contact Information					
Company Name	DeBra Keumpel				
Address	3976 Southern Ave				
City	Cinti	State	OH	Zip Code	45227
Project Contact	Steve Yockey				
Title	Automation Sales Estimator				
Office Phone	513-527-8011	Mobile Phone	513-678-2978	Fax	none
E-mail Address	steve_yockey@emcoregroup.com				
Primary Contact for Technical Questions	Steve Yockey				

Payment Information					
Payee Legal Company Name (as shown on Federal income tax return):	MillerCoors LLC				
Mailing Address	2525 Wayne Madison Rd				
City	Trenton	State	OH	Zip Code	45067
Type of organization (check one) <input type="checkbox"/> Individual/Sole Proprietor <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Unit of Government <input type="checkbox"/> Non-Profit (non-corporation)					
Payee Federal Tax ID # of Legal Company Name Above:	26-8387410				
If the customer (Duke Energy account holder) is not the payment recipient, indicate who is: <input type="checkbox"/> Vendor <input type="checkbox"/> Other, type:					
If the vendor is to receive payment, customer must sign below. I hereby authorize payment of incentive directly to vendor or other:					
Customer Signature	Date 3 / 8 / 2013 (mm/dd/yyyy)				

**Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1**



2. Project Information (Required)

A. Please indicate project type:

- ☒ New Construction
- ☐ Expansion at an existing facility (existing Duke Energy account number)
- ☐ Replacing equipment due to equipment failure
- ☐ Replacing equipment that is estimated to have remaining useful life of 2 years or less
- ☐ Replacing equipment that is estimated to have remaining useful life of more than 2 years
- ☐ Behavioral, operational and/or procedural programs/projects

B. Please describe your project, or attach a detailed project description that describes the project.

This is a project to add VFD controls to five 100 HP fans.

C. When did you start and complete implementation?

Start date 01/2012 (mm/yyyy) End date 12/2012 (mm/yyyy)

D. Are you also applying for Self-Direct Prescriptive rebates and, if so, which one(s)¹?

~~Not at this time.~~

yes-lighting only
purger and VFD projects are custom only

E. Please indicate which worksheet(s) you are submitting for this application (check all that apply):

- ☒ Lighting
- ☒ Variable Frequency Drive (VFD)
- ☐ Compressed Air
- ☐ Energy Management System (EMS)
- ☒ General (for projects not easily submitted using one of the above worksheets)

F. List all assumptions about the baseline and proposed equipment energy use and operation schedule, or attach a document listing that information. Attach specification sheets for all proposed new equipment.

ABB ACH 550 VFD info attached

Required: Attach a supplier or contractor invoice or other equivalent information documenting the Implementation Cost for each project listed in your application. (Note: self-install costs cannot be included in the Implementation Cost)

¹ If your project involves some equipment that is eligible for prescriptive rebates and some equipment that is likely eligible for custom rebates, and if it is feasible to separate the equipment for the energy analysis, then the equipment will be evaluated separately. If it is not feasible to separate the equipment for analysis, then the equipment will be evaluated together in the custom application.

**Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1**



3. Signature (Required – must be signed by Duke Energy customer)

Customer Consent to Release of Personal Information

I, (insert name) Mark S. Koch, do hereby consent to Duke Energy disclosing my Duke Energy Ohio, Inc Account Number and Federal Tax ID Number to its subcontractors solely for the purpose of administering Duke Energy Ohio's Mercantile Self-Direct Program. I understand that such subcontractors are contractually bound to otherwise maintain my Duke Energy Ohio, Inc Account Number and Federal Tax ID Number in the strictest of confidence.

I realize that under the rules and regulations of the public utilities commission, I may refuse to allow Duke Energy Ohio, Inc to release the information set forth above. By my signature, I freely give Duke Energy Ohio, Inc permission to release the information designated above.

Application Signature

I certify that I meet the eligibility requirements of the Duke Energy Ohio, Inc Mercantile Self Direct Custom Rebates Program and that all information provided within this application is correct to the best of my knowledge. I agree to the terms and conditions set forth for this program. I certify that the numbers, energy savings, and responses shown on this form are correct. Further, I certify that the taxpayer identification number is current and correct. I am not subject to backup withholding because: (a) I am exempt from backup withholding; or (b) I have not been notified by the IRS that I am subject to backup withholding as a result of a failure to report all interest or dividends; or (c) the IRS has notified me that I am no longer subject to backup withholding. I am a U.S. citizen (includes a U.S. resident alien).

A handwritten signature in blue ink that reads 'Mark S. Koch'.

Duke Energy Ohio, Inc Customer Signature

Print Name Mark S. Koch

Date 3-8-2013

Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1



Checklist for completing the Application

INCOMPLETE APPLICATIONS WILL RESULT IN DELAYS IN DUKE ENERGY PROCESSING YOUR APPLICATION AND NOTIFYING YOU CONCERNING ANY REBATES. Before submitting the application and the required supplementary information, use the following checklist to ensure that your application is complete and the information in the application is accurate. (Note: this checklist is for your use only – do not submit this checklist with your application)

Section No. & Title	Have You:
1. Contact Information	<input checked="" type="checkbox"/> Completed the contact information for the Duke Energy customer? <input checked="" type="checkbox"/> Completed the contact information for the equipment vendor / project engineer that can answer questions about the technical aspects of the project, if that is a different person than above?
2. Project Information	<input checked="" type="checkbox"/> Answered the questions A-E, including providing a description of your project. <input checked="" type="checkbox"/> Completed and attached the lighting, compressed air, VFD, EMS and/or General worksheet(s)? <i>(Submitted online calc from Duke website instructions)</i>
3. Signature	<input checked="" type="checkbox"/> Signed your name? <input checked="" type="checkbox"/> Printed your name? <input checked="" type="checkbox"/> Entered the date?
Supplementary information (Required)	<input checked="" type="checkbox"/> Attached a supplier or contractor's invoice or other equivalent information documenting the Implementation Cost for projects listed in your application? (Note: self-install costs cannot be included in the Implementation Cost) <input checked="" type="checkbox"/> (If submitting the General Worksheet) attached calculations documenting the energy usage and energy savings for each project listed in your application?

If you have any questions concerning how to complete any portion of the application or what supplementary information is required, please contact:

- your Duke Energy account manager
- or,
- the Duke Energy Smart \$aver® team at 1-866-380-9580.

**Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1**



Preferred Customized Calculation Tools

Please refer to the list below of the preferred software tools to use when calculating the baseline electrical usage and the electrical usage of the proposed high-efficiency equipment or system. Click on each software tool to learn more.

Software Tool	Category
eQuest	Nonresidential retrofits and new construction
EnergyPlus	Nonresidential retrofits and new construction; Whole building simulation
Carrier® HAP	HVAC
Trane® Trace™	HVAC
DOE OIT Pumping System Assessment Tool (PSAT)	Pumps
MotorMaster+	Motors
AirMaster	Air compressor systems
Emerson™ Product Selection & Energy Analysis	Refrigeration compressor retrofits using BIN analysis. ² For projects of approximately 250,000 kWh or less.
DOE2.2R	Refrigeration measures
SkyCalc™	Skylighting
BinMaker®	Weather data analysis tool
AFT Fathom	Fluid flow analysis for industrial systems

Mercantile Self Direct Nonresidential Custom Rebate Application PART 1



Instructions/Terms/Conditions

Note: Please keep for your records- do not submit with the application

1. Energy service companies or contractors may assist in preparing the application, but an authorized representative of the customer must sign this application to be eligible to participate in the Mercantile Self Direct Program. Completion of this application does not guarantee the approval of a Self Direct Custom Rebate.
2. Once all documentation requested in this application is received by *Duke Energy Ohio, Inc*, and any follow-up information requested by *Duke Energy* is received, the rebate amount for each Energy Conservation Measure (ECM) will be communicated to the customer. The rebate amount will be based on ECM energy savings and ECM incremental installation cost.
3. All rebates require approval by the Public Utilities Commission of Ohio. *Duke Energy Ohio, Inc* will submit an application for rebate on the customer's behalf upon customer attestation to program terms, conditions and requirements as outlined in the rebate offer letter and upon customer completion of attestation documents required by the Public Utilities Commission of Ohio.
4. *Duke Energy Ohio, Inc* will issue a Self Direct Custom Rebate check, based on the approved rebate amount for each ECM, upon receiving approval from the Public Utilities Commission of Ohio. *Duke Energy Ohio, Inc* does not guarantee PUCO approval.
5. With the application, the customer must provide a list of all sites where the ECMs were installed. *Duke Energy Ohio, Inc* requests that sites of similar size, hours of operation and energy consuming characteristics be grouped together in one application for the determination of the rebate amount. The application should identify the site where each unique ECM was installed.
6. Based on the information submitted with the application and the information gathered both before and after the initial installation of the ECM, *Duke Energy Ohio, Inc* will calculate the rebate amount for each ECM.
7. *Duke Energy Ohio, Inc* may conduct random site inspections of a sample of the locations where the ECMs are installed to verify installation and operability of the ECMs and to obtain information needed to calculate the Approved Rebate Amount.
8. Customers are encouraged to retain copies of all forms, invoices and supporting documentation for their records.
9. Approved rebates are valid for 6 months from the date communicated to the customer by *Duke Energy Ohio, Inc*, subject to the expiration of measure eligibility based on project completion dates and application submission deadlines as defined by PUCO. Customers are encouraged to execute their rebate offer contracts and PUCO-required affidavits promptly to ensure eligibility is not forfeited.

**Mercantile Self Direct
Nonresidential Custom Rebate Application
PART 1**



10. *Duke Energy Ohio, Inc* reserves the right to recover all unrecoverable costs associated with the project approval if the customer decides not to execute the rebate contract, after the project is approved by *Duke Energy Ohio, Inc*.
11. Projects financially supported by other funding sources will be evaluated on a case-by-case basis for potential partial funding from *Duke Energy Ohio, Inc*.
12. Participants must be *Duke Energy Ohio, Inc* nonresidential, mercantile customers with the project sites in the *Duke Energy Ohio, Inc* service territory.
13. Customers or trade allies may not use any *Duke Energy* logo without prior written permission.
14. Only trade allies registered with *Duke Energy* are eligible to participate.
15. All equipment must be new. Used or rebuilt equipment is not eligible for rebates. All old existing equipment must be removed on retrofit projects.
16. Disclaimers: *Duke Energy Ohio, Inc*
 - a. does not endorse any particular manufacturer, product or system design within the program;
 - b. will not be responsible for any tax liability imposed on the customer as a result of the payment of rebates;
 - c. does not expressly or implicitly warrant the performance of installed equipment. (Contact your contractor for details regarding equipment warranties.);
 - d. is not responsible for the proper disposal/recycling of any waste generated or obsolete or old equipment as a result of this project;
 - e. is not liable for any damage caused by the installation of the equipment nor for any damage caused by the malfunction of the installed equipment; and
 - f. reserves the right to change or discontinue this program at any time. The acceptance of program applications is determined solely by *Duke Energy Ohio, Inc*.

Ohio Mercantile Self Direct Program

Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit www.duke-energy.com.

Email this form along with completed Mercantile Self Direct Prescriptive or Custom applications, proof of payment, energy savings calculations and spec sheets to SelfDirect@Duke-Energy.com. You may also fax to 1-513-629-5572.

Mercantile customers, defined as using at least 700,000 kWh annually are eligible for the Mercantile Self Direct program. Please indicate mercantile qualification:

- ☒ a single Duke Energy Ohio account
☐ multiple accounts in Ohio (energy usage with other utilities may be counted toward the total)

Please list Duke Energy account numbers below (attach listing of multiple accounts and/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
2440-0870-01-9	over 50,000,000 kwh		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart Saver® Custom Incentive. Self Direct rebates are applicable to Prescriptive measures that were installed more than 90 days prior to submission to Duke Energy and have not previously received a Duke Energy Prescriptive rebate.

Self Direct Program requirements dictate that certain projects that may be Prescriptive in nature under the Smart Saver program must be evaluated using the Custom process. Use the table on page two as a guide to determine which Self Direct program fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet. Where Mercantile Self Direct Prescriptive applications are listed, please refer to the measure list on that application. If your measure is not listed, you may be eligible for a Self Direct Custom rebate. Self Direct Custom applications, like Smart Saver Custom applications, should include detailed analysis of pre-project and post-project energy usage and project costs. Please indicate which type of rebate applications are included in the table provided on page two.

Please check each box to indicate completion of the following program requirements:

<input checked="" type="checkbox"/> All sections of appropriate application(s) are completed	<input checked="" type="checkbox"/> Proof of payment.*	<input checked="" type="checkbox"/> Manufacturer's Spec sheets	<input checked="" type="checkbox"/> Energy model/calculations and detailed inputs for Custom applications
--	--	--	---

* If a single payment record is intended to demonstrate the costs of both Prescriptive & Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

Application Type	Replaced equipment at end of lifetime or because equipment failed**	Replaced fully operational equipment to improve efficiency***	New Construction
Lighting <i>can lines</i>	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet	<input checked="" type="checkbox"/> MSD Prescriptive Lighting <input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet	<input type="checkbox"/> MSD Prescriptive Lighting <input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet
Heating & Cooling	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Prescriptive Heating & Cooling <input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet
Window Films, Programmable Thermostats, & Guest Room Energy Management Systems	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s)	<input type="checkbox"/> MSD Prescriptive Heating & Cooling	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General and/or EMS Worksheet(s)
Chillers & Thermal Storage	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Prescriptive Chillers & Thermal Storage <input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet
Motors & Pumps	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet
VFDs <i>VFD project</i>	Not Applicable	<input type="checkbox"/> MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/> MSD Custom Part 1 <input checked="" type="checkbox"/> MSD Custom VFD Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet
Food Service	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Prescriptive Food Service <input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet
Air Compressors	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet	<input type="checkbox"/> MSD Prescriptive Process <input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom Compressed Air Worksheet
Process <i>(purger)</i>	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Prescriptive Process <input checked="" type="checkbox"/> MSD Custom Part 1 <input checked="" type="checkbox"/> MSD Custom General Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet
Energy Management Systems	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom EMS Worksheet
Chiller Tune-ups	<input type="checkbox"/> MSD Prescriptive Chiller Tune-ups		
Behavioral*** & No/Low Cost	<input type="checkbox"/> MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet		

** Under the Self Direct program, failed equipment and equipment at the end of its useful life are evaluated differently than early replacement of fully functioning equipment. **All equipment replacements due to failure or old age will be evaluated via the Custom program.**

*** Please ensure that you include the age of the replaced equipment for measures classified as "Early Replacement" in your application as well as the estimated date that you would have otherwise replaced the existing equipment if you had not chosen a more energy efficient option.

**** Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application.

Mercantile Self Direct Nonresidential Custom Rebate Application PART 1



Proposed energy efficiency measures may be eligible for Self-Direct Custom rebates if they clearly reduce electrical consumption and/or demand as compared to the appropriate baseline.

Before you complete this application, please note the following important criteria:

- Submitting this application does not guarantee a rebate will be approved.
- Rebates are based on electricity conservation only.
- Electric demand and/or energy reductions must be well documented with auditable calculations.
- Incomplete applications cannot be reviewed; all fields are required.

Refer to the complete list of Instructions and Disclaimers, beginning on page 6.

Notes on the Application Process

If you have any questions concerning how to complete any portion of the application or what supplementary information is required, please contact your Duke Energy Ohio, Inc account manager or the Duke Energy Smart Saver® team at 1-866-380-9580.

Every application must include calculations of the baseline electrical usage and the electrical usage of the proposed high-efficiency equipment/system. These calculations are performed and submitted by the Duke Energy Ohio customer, or your designated equipment vendor / engineer. Application Part 2 worksheets and page 6 of this application contain additional guidance on acceptable calculations. *Complex or unique projects may require the use, at the applicant's expense, of modeling software.* Please contact the Duke Energy Smart Saver® with questions about these requirements.

If you do not receive an acknowledgement email within 1 day of submitting an application via online, email, or fax, or within 1 week of sending an application via mail, please call 1-866-380-9580. The acknowledgement email will provide with an estimated response time based on an initial assessment of your application. The application review may include some communication to resolve any questions about the project or to request additional information. Applications that are received complete without missing information have a faster review time.

There are three ways to submit your completed application form and excel worksheets.

Email: Complete, sign, scan and send this application form and attachments to:
SelfDirect@duke-energy.com (Note attachment size limit is applicable)

Fax: 513-629-5572

Mail: Duke Energy Mercantile Self Direct Custom Rebate
PO Box 2445
Spokane, WA 99210-2445



Variable Frequency Drive Calculator

Prepared for:

Name: Mark Koch
Title: Env. Engr

Company: MillerCoors
Email: mark.koch@millercoors.com

Phone: 513-844-4238
Fax:

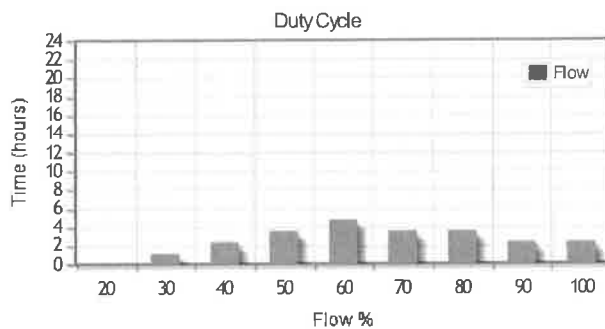
Project Name: MillerCoors
Region: OH

3. Energy Savings

Annual Energy Saved: 448,568 kWh
Available Incentives: \$0

Annual Energy Cost Savings: \$21,083
Simple Payback: 3 years 4 months

Existing System Data



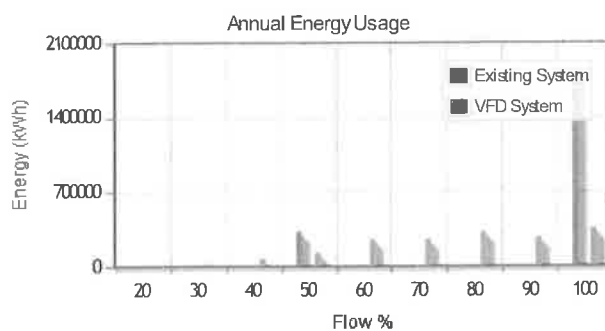
Existing System Data

Cost Per kWh: \$0.047

Type: HVAC Fan

Motor Efficiency: 94%

Estimated Annual Energy Usage



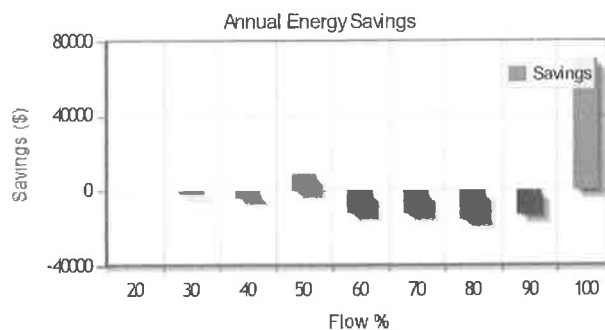
Estimated Annual Energy Usage

Existing System: 2,183,560 kWh

VFD System: 1,734,993 kWh

Annual Energy Saved: 448,568 kWh

Estimated Annual Costs



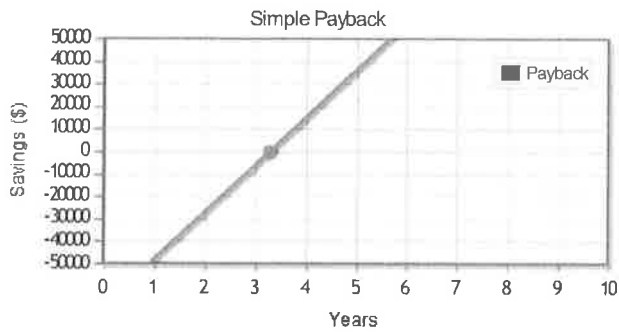
Estimated Annual Costs

Existing System Costs: \$102,627

VFD System Costs: \$81,545

Annual Energy Cost Savings: \$21,083

VFD Investment Costs & Incentives



VFD Investment Costs & Incentives

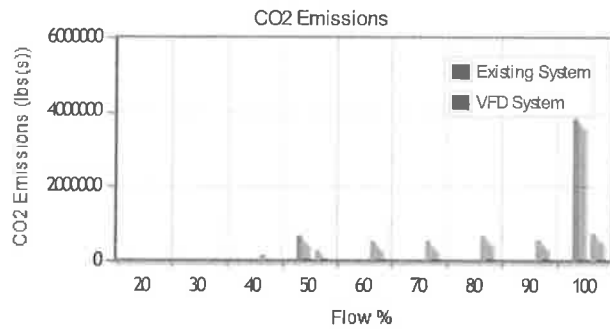
Equipment Cost: \$69,200

Install Cost: \$0

Available Incentives: \$0

Simple Payback: 3 years 4 months

Estimated Annual Carbon Footprint



Estimated Annual Carbon Footprint

Existing System: 4,495,951 lbs CO2

VFD System: 3,572,350 lbs CO2

Carbon Savings: 923,601 lbs CO2

This calculator provides an estimate of potential energy and cost savings based on the information entered. Actual energy savings are dependent on a host of variables that differ from facility to facility and your results may vary. Custom Incentives may be available for this installation. Custom Incentives may not be applied to a project with simple payback below 1 year.

[Privacy Policy](#)



The VFD Worksheet is part 2 of the application. Do not submit this file without submitting a completed Part1 Custom Application document file, which can be found at www.duke-energy.com.

Before you complete this application, please note the following important criteria:

- Submitting this application does not guarantee an rebate will be approved.
- Rebates are based on electricity conservation only.
- Electric demand and/or energy reductions must be well documented with auditable calculations.
- Incomplete applications will not be reviewed; all fields are required.

Refer to the complete list of Instructions and Disclaimers, found in the Mercantile Self Custom Application Part 1 document.

Please enter your information and data into the cells that are shaded.
Cells in white are locked and cannot be written over.

Duke Energy Customer Contact Information (Match the information in Application Part 1):

Name	Mark S. Koch, PE
Company	MillerCoors LLC

Equipment Vendor / Project Engineer Contact Information

Name	Tyler Owens
Company	Triton

Location of Proposed VFD Project

Site Name	MillerCoors LLC
Electric Account Number(s)	2440-0870-01-9
Site Address	2525 Wayne Madison Rd Trenton OH 45067

Before proceeding with the custom application, please verify that your project is not on the Self-Direct Prescriptive application.

The prescriptive rebate applications can be found at:

<http://www.duke-energy.com/ohio-large-business/smart-saver/mercantile-self-direct.asp>

Prescriptive rebate amounts are pre-approved.

Use one worksheet for each type of motor or fan that is being evaluated for a VFD

Driven Equipment Name ABB VFD modification of existing Sieman
Quantity 5
Brake HP (BHP) at Full Load (see note 1) 100.0
Nameplate HP 100.0

Type Fan

App No.
Rev.

Current Equipment Operation without VFD - Input values for ONE driven equipment and its motor.

% of Full Load BHP of Driven Equipment	BHP of Driven Equipment @ Actual Load (BHP)	Motor output HP as % of Nameplate HP	Motor Efficiency @ Motor Output HP (%)	Motor Electrical Power Draw (kw)	Annual hours that motor runs (see note 2)	Monthly hours that each motor runs (see note 3)												Yearly Total (hr)
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
100	%	100.0	100%	%	#DIV/0!													0
	%	0.0	0%	%	#DIV/0!													0
44	%	44.0	44%	%	#DIV/0!	744	672	744	720	744	720	744	744	720	744	720	744	8,760
	%	0.0	0%	%	#DIV/0!													0
Not Running		0.0	0%	NA	%	0.00	8,760	0	0	0	0	0	0	0	0	0	0	0
Totals						8,760	744	672	744	720	744	720	744	744	720	744	720	8,760

Proposed Equipment Operation with VFD - Input values for ONE driven equipment and its motor.

Efficiency of VFD 0.94 %

% of Full Load BHP of Driven Equipment	BHP of Driven Equipment @ Actual Load (BHP)	Motor output HP as % of Nameplate	Motor Efficiency @ Motor Output HP (%)	Motor Electrical Power Draw (kw)	Annual hours that motor runs (see note 2)	Monthly hours that each motor runs (see note 3)												Yearly Total (hr)
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
100	%	100.0	100%	%	#DIV/0!													0
90	%	90.0	90%	%	#DIV/0!													0
80	%	80.0	80%	%	#DIV/0!													0
70	%	70.0	70%	%	#DIV/0!													0
60	%	60.0	60%	%	#DIV/0!				720	744	720	744	744	720				4392
50	%	50.0	50%	%	#DIV/0!													0
40	%	40.0	40%	%	#DIV/0!													0
30	%	30.0	30%	%	#DIV/0!													0
20	%	20.0	20%	%	#DIV/0!	744	672	744							744	720	744	4368
10	%	10.0	10%	%	#DIV/0!													0
Not Running		0.0	0%	NA	%	0.00	8,760	0	0	0	0	0	0	0	0	0	0	0
Totals						8,760	744	672	744	0	0	0	0	0	744	720	744	4,368

Detailed Project Description Attached? Yes (Required)

1 Brake HP (BHP) at Full Load

The "full load" operating condition is the condition at which the driven equipment operates for the base condition (i.e., without the VFD)

2 Annual hours that motor runs

If the % operating loads do not vary between months, then enter the total annual hours that the motor will run at full load, partial load and hours not operating.

3 Monthly hours that each motor runs

If the % operating loads vary between months (due to weather conditions or seasonal load), fill in the expected hours that the motor will run each month at full load, partial load and hours not operating.

see Duke Energy online calculator, enclosed



App No.	0
Rev.	0

Operating Hours (see note 4)

24 x 7	Weekday		Saturday		Sunday		Weeks of Use in Year (see note 5)	Total Annual Hours of Use
	Start Hour	End Hour	Start Hour	End Hour	Start Hour	End Hour		
							52	2,080

Energy Savings

	Existing (no VFD)	Proposed (VFD)	Savings	Describe how energy numbers were calculated
Annual Electric Energy	0 kWh	0 kWh	0 kWh	
Electric Demand (kilowatts)	0 kW	0 kW	0 kW	
Calculations attached	Yes	Yes		

Simple Payback

Average electric rate (\$/kWh) on the applicable accounts (see note 6)	\$0.05
Estimated annual electric savings	\$0
Other annual savings in addition to electric savings, such as operations, maintenance, other fuels	
Incremental cost to implement the project (equipment & installation) (see note 7)	\$70,000.00
Copy of vendor proposal is attached (see note 8)	Yes
Simple Electric Payback in years (see note 9)	
Total Payback in years	

4 Operating Hours

Describe when the equipment is typically used. If the project is proposed for more than one site, provide any variations in operating hours between the sites on a separate sheet.

5 Weeks of Use in Year

If the equipment is not in use 52 weeks during the year (for example, during holiday or summer break), provide an explanation of when usage is not expected and why:

6 Average electric rate (\$/kWh)

If you do not know your average electric rate, use \$0.10/kWh.

7 Incremental cost to implement the project

Costs exclude self installation costs.

Retrofit projects, incremental cost is the total cost of the proposed project. New construction or where the existing equipment must be replaced anyway, then incremental cost is the premium of the proposed high efficiency project over baseline.

8 Copy of vendor invoice is attached

Vendor invoices detailing costs of the project are always required.

New construction projects or where the existing equipment must be replaced anyway, vendor proposal of baseline must also be attached.

9 Simple Electric Payback

If the simple payback on the project is less than 1 year, the rebate structure is affected.

Please check that the electric rate is accurate based on history.

Spreadsheet is locked - unable to edit.

MK

Information within this application contains adequate information to verify elig

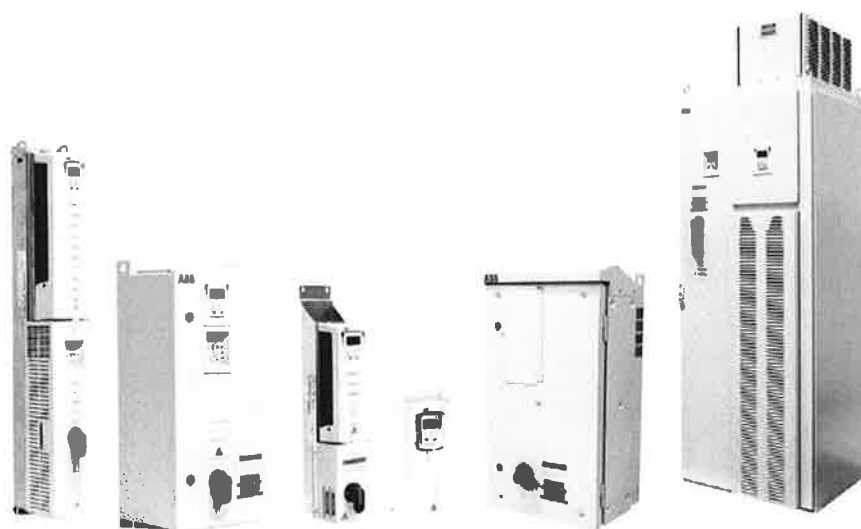
ACH550

Installation, Operation and Maintenance Manual (I, O & M)

ACH550-UH HVAC Drives (1...550 HP)

ACH550-BCR/BDR/VCR/VDR E-Clipse Bypass Drives (1...400 HP)

ACH550-PCR/PDR Packaged Drives with Disconnect (1...550 HP)



ABB

WSPCert Certificate

No. BAC-0001-05

WSPCert attests the conformance of the following BACnet implementation to the BACnet standard ISO 16484-5:2007. The attested conformance refers to the BACnet Interoperability Building Blocks (BIBBs) listed in the annex of this certificate.

The BACnet Application Specific Controller (B-ASC)

**ABB Standard Drive for HVAC
ACH550**

with the software version:

050F

of

ABB Oy, Drives

P.O.Box 184, 00381 Helsinki, Finland

has fulfilled the requirements according to the test standard ISO 16484-6, the BTL/WSP*Lab* Test Plan 1.0 and the Certification Rules of the BACnet Interest Group Europe, see **WSP*Lab* Test Report No. 08.61.ABB.001.1.**

The certificate is valid
until 2013/04/06

Date of renewal
2012/03/30



2008/04/06

Date of initial certification

A handwritten signature in dark ink, appearing to be 'G. Weinmann', is written over a horizontal line.

Dipl.-Ing. G. Weinmann
Head of Certification Body

WSPCert is accredited by
DGA mbH according to EN 45011



Payment Record

Check Edit Goto Extras Environment System Help



Display Check Information



Check recipient

Check issuer...



Accompanying docs



Payment document

Paying company code 0100

Payment document no. 2001914971

Bank details

House bank	1ST01	Bank Key	075911603
Account ID	CH101	Bank Account	000000162173
Bank name	US Bank		
City	Wausau		

Check information

Check number	11399761	Currency	USD
Payment date	11/09/2012	Amount paid	39,762.00
Check encashment	11/14/2012	Cash discount amount	0.00

Check recipient

Name	DEBRA KUEMPEL
City	CINCINNATI
Payee's country	US
Regional code	OH





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[Check issuer...](#)
[Accompanying docs](#)
[Payment document](#)

Paying company code
 Payment document no.

Bank details

House bank	<input type="text" value="1ST01"/>	Bank Key	<input type="text" value="075911603"/>
Account ID	<input type="text" value="CH101"/>	Bank Account	<input type="text" value="000000162173"/>
Bank name	<input type="text" value="US Bank"/>		
City	<input type="text" value="Wausau"/>		

Check information

Check number	<input type="text" value="11393414"/>	Currency	<input type="text" value="USD"/>
Payment date	<input type="text" value="10/04/2012"/>	Amount paid	<input type="text" value="27,680.00"/>
Check encashment	<input type="text" value="10/09/2012"/>	Cash discount amount	<input type="text" value="0.00"/>

Check recipient

Name	<input type="text" value="DEBRA KUEMPEL"/>
City	<input type="text" value="CINCINNATI"/>
Payee's country	<input type="text" value="US"/>
Regional code	<input type="text" value="OH"/>



Display Check Information

Check recipient Check issuer... Accompanying docs Payment document

Paying company code 0100 Payment document no. 2001906532

Bank details

House bank	1ST01	Bank Key	075911603
Account ID	CH101	Bank Account	000000162173
Bank name	US Bank		
City	Wausau		

Check information

Check number	11394158	Currency	USD
Payment date	10/09/2012	Amount paid	54,870.00
Check encashment	10/15/2012	Cash discount amount	0.00

Check recipient

Name	DEBRA KUEMPEL
City	CINCINNATI
Payee's country	US
Regional code	OH

Packaging and Glass Warehouse Project Verification

By: Mark Koch

4/25/2013

Project description: The packaging building and glasswarehouse air handling fans were retrofitted with VFD drives

Methodology: The eQuest building simulation tool is useful for building envelopes for commercial buildings. However for manufacturing facility, there are many features for which eQuest may not be appropriate. Therefore it was not selected as an proper tool. Furthermore, the eQuest tool is for predicting a future change, whereas in this situation, the work has actually occurred. Therefore the most accurate approach is to calculate the savings based on the old system setting and the new system settings, as found after project implementation.

This sheet calculates the actual savings from the VFD project for the packaging building and glass warehouse. The fans were originally two speed fans. One was always set at 100% and the others were set to 50%. The annual electric consumption was 2,449,656 kwh (calculation below)

Number of fans	Setpoint	HP	overall efficiency	kw	Annual kwh consumption
1	100%	100	0.8	93.2125	816,542
4	50%	100	0.8	186.425	1,633,083
				Total	2,449,625

Project Verification

After implementation of the project, the minimum set point was established at 30% and the maximum as 50%

Actual consumption at min setpoint of 30% (maximum savings)

Number of fans	Setpoint	HP	overall efficiency	kw	Min annual kwh consumption	Max savings (kwh)	Max Savings (\$)
5	30%	100	0.79	141.5886	1,240,316	1,209,308	\$ 45,953.72

Actual consumption at min setpoint of 50% (maximum savings)

Number of fans	Setpoint	HP	overall efficiency	kw	Max annual kwh consumption	Min. Savings (kwh)	Min Savings (\$)
5	50%	100	0.79	235.981	2,067,194	382,431	\$ 14,532.37

Actual savings after installation

Number of fans	Average Setpoint	HP	overall efficiency	kw	Max annual kwh consumption	Actual savings (kwh)	Min Savings (\$)
5	36%	100	0.79	169.9063	1,488,379	961,245	\$ 36,527.31

The minimum kwh saved in actual service conditions, and not determined by computer model, is 382,431 kwh and the maximum saved is 1,209,308 kwh. Based on actual operating conditions, the most accurate and representative figure was verified as 961,245 kwh.