



**Case No.:** \_\_\_\_-\_\_\_\_-EL-EEC

**Mercantile Customer:** KAO USA Inc

**Electric Utility:** Duke Energy

**Program Title or  
Description:** VFD

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](mailto:ee-pdr@puc.state.oh.us).

## Section 1: Mercantile Customer Information

Name: **KAO USA Inc**

Principal address: **2535 Spring Grove Avenue Cincinnati, Ohio 45214**

Address of facility for which this energy efficiency program applies:

**2535 Spring Grove Avenue Cincinnati, Ohio 45214**

Name and telephone number for responses to questions:

**Grady Reid Jr 513-287-1038**

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 new equipment was installed starting February 2010 and was finished May 2010.**

#### **1 - VFD on 125 HP HVAC Fan**

- ☐ 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: **523,644 kWh (Refer to Appendix B for calculations and supporting documents).**

- 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?

**New equipment was installed starting February 2010 and was finished May 2010.**

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

**32 kW**

**Refer to Appendix B for calculations and supporting documents.**

## **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 \$ [REDACTED] **Refer to Appendix C for documentation.** (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 **14.43** (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 **\$294,298**.

The utility's program costs were **\$8,400**.

The utility's incentive costs/rebate costs were \$ 

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

January 18, 2012

Mr. Bill Schulte  
KAO Brands  
2535 Spring Grove Avenue  
Cincinnati, Ohio 45214

Subject: Your Application for a Duke Energy Mercantile Self-Direct Rebate

Dear Mr. Schulte:

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 [REDACTED] has been proposed for your VFD project completed in the 2010 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 Saver® 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, WECC  
Richard Schock, Triton Services Inc



Public Utilities  
Commission

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

Case No.: \_\_\_\_-\_\_\_\_-EL-EEC

State of OHIO :

Stephen C. Cagle, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

Kao USA Inc.

[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.

Stephen C. Cagle VP-SEM, BC, Americas  
Signature of Affiant & Title

Sworn and subscribed before me this 2<sup>nd</sup> day of February,  
2012 Month/Year

Beverly A. Wegman  
Signature of official administering oath

Beverly A. Wegman  
Print Name and Title  
Notary Public

My commission expires on 6/7/2014



Beverly A. Wegman  
Notary Public, State of Ohio  
My Commission Expires 06-07-2014

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

☒ Rebate is accepted.

☐ Rebate is declined.

By accepting this rebate, KAO USA, Inc. 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, KAO USA, Inc. 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, KAO USA, Inc. 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):

  
Customer Signature

STEPHEN C. CAGLE  
VP- SCM, BC, AMERICAS  
Printed Name

2/2/2012  
Date

### Proposed Rebate Amounts

Measure ID	Energy Conservation Measure (ECM)	Proposed Rebate Amount
ECM-1	125 HP VFD HVAC Fan (Qty – 1)	
Total		

Appendix A		
48300673 01		
KAO BRANDS COMPANY		
2535 SPRING GROVE		
CINCINNATI, OH 45214		
Date	Days	Actual KWH
11/2/2011	29	1,142,995
10/4/2011	32	1,298,174
9/2/2011	29	1,319,352
8/4/2011	29	1,390,925
7/6/2011	30	1,296,394
6/6/2011	32	1,260,739
5/5/2011	30	1,100,131
4/5/2011	29	1,106,270
3/7/2011	31	1,170,312
2/4/2011	29	1,126,651
1/6/2011	34	1,208,251
1/6/2011	34	1,208,251
<b>Total</b>		<b>14,628,445</b>

**See Appendix B At The End**

## Appendix C -Cash Rebate Calculation

Measure	Quantity	Commitment Payment/Rebate Rate	Rebate	Total Cash Rebate
Installed VFD on 125 HP AHU Fan	1	50% of incentive that would be offered by the Smart \$aver Custom program	\$ 12,000.00	\$ <span style="background-color: black; color: black;">[REDACTED]</span>

Appendix D KAO - USA Inc -UCT Value

VFD

Measure	Total Avoided Cost	Program Cost	Incentive	Quantity	Measure UCT
125 HP VFD	\$294,298	\$8,400	\$	1	14.43
Totals	\$294,298	\$8,400	\$	1	

Total Avoided Supply Costs	\$294,298		UCT	14.43
Total Program Costs	\$8,400			
Total Incentive	\$			

## Appendix B – Energy Savings Achieved

	Pre-Project (at the meter)			Post-Project (at the meter)			Savings (at the meter)	
ECM	As-Found Equipment	Total Annual kWh <sup>1</sup>	Summer Coincident kW <sup>1</sup>	New Equipment	Total Annual kWh <sup>1</sup>	Summer Coincident kW <sup>2</sup>	Energy Savings (kWh)	Demand Savings (kW)
ECM1	125 HP AHU Fan	887,453	101	VFD Added	399,066	72	488,387	29

### Notes:

1. Energy consumption baseline, demand baseline and post-project energy consumption basis are outlined in the following pages.

Application of 7.43% line losses yields **523,644 kWh** savings and **32 coincident kW** savings at the plant. This value also reflects minor rounding error resulting from the analytical mode of DSMore software used to model the projects.

## Calculations

Salesforce Opportunity Name

KAO Brands - 125 HP VFD

Rev. 0

Project Name

KAO Brands - 125 HP VFD

State

OH

### NOTE:

Calculations based on those submitted with app, but were edited to remove un-necessary information, better label occupied and unoccupied columns, and allocate savings across the months of the year.

### Baseline Energy Use without VFD

Original calcs from application listed 104 kW, which was measured after VFD installed and running at 100%.

VFD product data indicates VFD is 97.5% efficient, so deduct these efficiency losses from the baseline Draw kW to get true kW w/o VFD.

Temp Bin °(F)			Draw kW	% Speed			Hours	Energy Usage (kWh)
95=>99			101.4	100			8	811
90=>94			101.4	100			78	7,909
85=>89			101.4	100			241	24,437
80=>84			101.4	100			434	44,008
75=>79			101.4	100			620	62,868
70=>74			101.4	100			866	87,812
65=>69			101.4	100			855	86,697
60=>64			101.4	100			759	76,963
55=>59			101.4	100			657	66,620
50=>54			101.4	100			625	63,375
45=>49			101.4	100			602	61,043
40=>44			101.4	100			624	63,274
35=>39			101.4	100			683	69,256
30=>34			101.4	100			693	70,270
25=>29			101.4	100			446	45,224
20=>24			101.4	100			255	25,857
15=>19			101.4	100			140	14,196
10=>14			101.4	100			79	8,011
5=>9			101.4	100			47	4,766
0=>4			101.4	100			40	4,056
Total/Avg:			101.4				8752	887,453

## Calculations

Salesforce Opportunity Name

KAO Brands - 125 HP VFD

Rev. 0

Project Name

KAO Brands - 125 HP VFD

State

OH

### NOTE:

Calculations based on those submitted with app, but were edited to remove un-necessary information, better label occupied and unoccupied columns, and allocate savings across the months of the year.

### Proposed Energy Use with VFD

Temp Bin °(F)	Occupied Draw kW	Occupied % Speed	Un-occupied Draw kW	Unoccupied % Speed	Occupied Hours	Un-Occupied Hours	Annual Hours @ Temp Bin	Occupied Energy Usage (kWh)	Unoccupied Energy Usage (kWh)	Total Energy Usage (kWh)
95=>99	72	85.00	72.0	85	6.0	2.0	8	430	146	576
90=>94	72	85.00	72.0	85	58.3	19.7	78	4,195	1,421	5,616
85=>89	72	85.00	72.0	85	180.0	61.0	241	12,962	4,390	17,352
80=>84	72	85.00	7.5	20	324.2	109.8	434	23,343	823	24,166
75=>79	72	85.00	7.5	20	463.2	156.8	620	33,347	1,176	34,523
70=>74	55	70.00	7.5	20	646.9	219.1	866	35,581	1,643	37,224
65=>69	55	70.00	7.5	20	638.7	216.3	855	35,129	1,622	36,751
60=>64	55	70.00	7.5	20	567.0	192.0	759	31,185	1,440	32,625
55=>59	55	70.00	7.5	20	490.8	166.2	657	26,994	1,247	28,240
50=>54	55	70.00	7.5	20	466.9	158.1	625	25,679	1,186	26,865
45=>49	55	70.00	7.5	20	449.7	152.3	602	24,734	1,142	25,876
40=>44	55	70.00	7.5	20	466.1	157.9	624	25,638	1,184	26,822
35=>39	55	70.00	7.5	20	510.2	172.8	683	28,062	1,296	29,358
30=>34	55	70.00	7.5	20	517.7	175.3	693	28,473	1,315	29,788
25=>29	55	70.00	7.5	20	333.2	112.8	446	18,324	846	19,171
20=>24	55	70.00	7.5	20	190.5	64.5	255	10,477	484	10,961
15=>19	55	70.00	7.5	20	104.6	35.4	140	5,752	266	6,018
10=>14	55	70.00	7.5	20	59.0	20.0	79	3,246	150	3,396
5=>9	55	70.00	7.5	20	35.1	11.9	47	1,931	89	2,020
0=>4	55	70.00	7.5	20	29.9	10.1	40	1,643	76	1,719
Total/Avg:					6,538.0	2,214.0	8,752	377,125	21,941	399,066
Occupied kWh 70-74 Temp Bin and Less:								302,847		
Unoccupied kWh 80-84 Temp Bin and Less:									15,985	

## Calculations

Salesforce Opportunity Name

KAO Brands - 125 HP VFD

Rev. 0

Project Name

KAO Brands - 125 HP VFD

State

OH

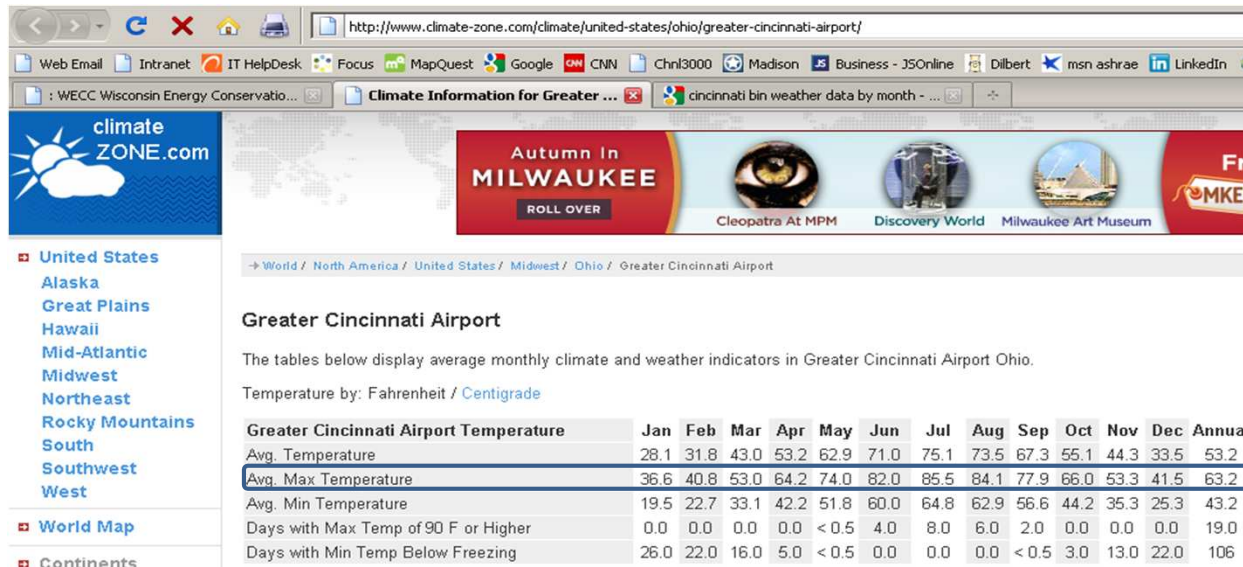
### NOTE:

Calculations based on those submitted with app, but were edited to remove un-necessary information, better label occupied and unoccupied columns, and allocate savings across the months of the year.

Based on Avg. Max Temperature data below, will allocate savings as follows:

Allocate unoccupied energy use when VFD remains at 85% across June, July, and August as these months have avg. max. temp. near 85 deg. F.

Allocate occupied energy use when VFD is at 85% across May thru September, as these months have avg. max. temp near 75 deg. F.



Greater Cincinnati Airport

The tables below display average monthly climate and weather indicators in Greater Cincinnati Airport Ohio.

Temperature by: Fahrenheit / Centigrade

Greater Cincinnati Airport Temperature	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg. Temperature	28.1	31.8	43.0	53.2	62.9	71.0	75.1	73.5	67.3	55.1	44.3	33.5	53.2
Avg. Max Temperature	36.6	40.8	53.0	64.2	74.0	82.0	85.5	84.1	77.9	66.0	53.3	41.5	63.2
Avg. Min Temperature	19.5	22.7	33.1	42.2	51.8	60.0	64.8	62.9	56.6	44.2	35.3	25.3	43.2
Days with Max Temp of 90 F or Higher	0.0	0.0	0.0	0.0	< 0.5	4.0	8.0	6.0	2.0	0.0	0.0	0.0	19.0
Days with Min Temp Below Freezing	26.0	22.0	16.0	5.0	< 0.5	0.0	0.0	0.0	< 0.5	3.0	13.0	22.0	106

## Calculations

Salesforce Opportunity Name

KAO Brands - 125 HP VFD

Rev. 0

Project Name

KAO Brands - 125 HP VFD

State

OH

### NOTE:

Calculations based on those submitted with app, but were edited to remove un-necessary information, better label occupied and unoccupied columns, and allocate savings across the months of the year.

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
Hours Per Month	744	672	744	720	744	720	744	744	720	744	720	744	8,760
Occupied Hours per Month	556	502	556	538	556	538	556	556	538	556	538	556	6,544
Unoccupied Hours per Month	188	170	188	182	188	182	188	188	182	188	182	188	2,216

### Baseline

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
Existing Consumption, kWh	75,373	68,079	75,373	72,941	75,373	72,941	75,373	75,373	72,941	75,373	72,941	75,373	887,453
Existing Demand, kW	101	101	101	101	101	101	101	101	101	101	101	101	101

### Proposed

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
95 to 99 Occupied kWh	0	0	0	0	86	86	86	86	86	0	0	0	430
95 to 99 Occupied Hours	0	0	0	0	1.2	1.2	1.2	1.2	1.2	0	0	0	6
90 to 94 Occupied kWh	0	0	0	0	839	839	839	839	839	0	0	0	4,195
90 to 94 Occupied Hours	0	0	0	0	11.7	11.7	11.7	11.7	11.7	0	0	0	58
85 to 89 Occupied kWh	0	0	0	0	2,592	2,592	2,592	2,592	2,592	0	0	0	12,962
85 to 89 Occupied Hours	0	0	0	0	36.0	36.0	36.0	36.0	36.0	0	0	0	180
80 to 84 Occupied kWh	0	0	0	0	4,669	4,669	4,669	4,669	4,669	0	0	0	23,343
80 to 84 Occupied Hours	0	0	0	0	64.8	64.8	64.8	64.8	64.8	0	0	0	324
75 to 79 Occupied kWh	0	0	0	0	6,669	6,669	6,669	6,669	6,669	0	0	0	33,347
75 to 79 Occupied Hours	0	0	0	0	92.6	92.6	92.6	92.6	92.6	0	0	0	463
All other Occupied kWh	30,535	27,580	30,535	29,550	19,199	18,214	19,199	19,199	18,214	30,535	29,550	30,535	302,847
All other Occupied Hours	556	502	556	538	349	332	349	349	332	556	538	556	5,512
95 to 99 Unoccupied kWh	0	0	0	0	0	49	49	49	0	0	0	0	146
95 to 99 Unoccupied Hours	0	0	0	0	0	0.7	0.7	0.7	0	0	0	0	2
90 to 94 Unoccupied kWh	0	0	0	0	0	474	474	474	0	0	0	0	1,421
90 to 94 Unoccupied Hours	0	0	0	0	0	6.6	6.6	6.6	0	0	0	0	20
85 to 89 Unoccupied kWh	0	0	0	0	0	1,463	1,463	1,463	0	0	0	0	4,390
85 to 89 Unoccupied Hours	0	0	0	0	0	20.3	20.3	20.3	0	0	0	0	61
All other Unoccupied kWh	1,410	1,274	1,410	1,365	1,410	1,158	1,204	1,204	1,365	1,410	1,365	1,410	15,985
All other Unoccupied Hours	188	170	188	182	188	155	161	161	182	188	182	188	2,133
Total Proposed kWh	31,945	28,854	31,945	30,915	35,465	36,213	37,244	37,244	34,435	31,945	30,915	31,945	399,066
Proposed kW demand	55	55	55	55	72	72	72	72	72	55	55	55	72

### Savings

	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
Consumption Savings, kWh	43,427	39,225	43,427	42,026	39,907	36,728	38,129	38,129	38,507	43,427	42,026	43,427	488,387
Demand Savings, kW	46	46	46	46	29	29	29	29	29	46	46	46	46
On-Peak Demand Savings (June-August):							29						

# Ohio Mercantile Self Direct Program

## Application Guide & Cover Sheet

Questions? Call 1-866-380-9580 or visit [www.duke-energy.com](http://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](mailto:SelfDirect@Duke-Energy.com). You may also fax to 1-513-419-5572.

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 an/or billing history for other utilities as required):

Account Number	Annual Usage	Account Number	Annual Usage
48300673-01	14,500,000		

Self Direct rebates are available for completed Custom projects that have not previously received a Duke Energy Smart Saver® Custom Incentive. Self Direct incentives 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	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>	MSD Prescriptive Lighting <input type="checkbox"/>
		MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> Custom Lighting Worksheet <input type="checkbox"/>
Heating & Cooling	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 <input type="checkbox"/>
Window Films, Programmable Thermostats, & Guest Room Energy Management Systems	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 checked="" type="checkbox"/> MSD Custom General and/or EMS Worksheet(s) <input type="checkbox"/>
Chillers & Thermal Storage	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 <input type="checkbox"/>
Motors & Pumps	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 <input type="checkbox"/>
VFDs	Not Applicable	MSD Prescriptive Motors, Pumps & Drives <input type="checkbox"/>	MSD Custom Part 1 <input type="checkbox"/> MSD Custom VFD Worksheet <input type="checkbox"/>
		MSD Custom Part 1 <input checked="" type="checkbox"/> MSD Custom VFD Worksheet <input checked="" type="checkbox"/>	
Food Service	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 <input type="checkbox"/>
Process	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>	MSD Prescriptive Process <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"/>	
Energy Management Systems	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 <input type="checkbox"/>
Behavioral*** & No/Low Cost	MSD Custom Part 1 <input type="checkbox"/> MSD Custom General Worksheet <input type="checkbox"/>		

\*\* 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 \$aver® 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. Monthly calculations are best. You, the Duke Energy Ohio customer, or your equipment vendor / engineer should perform these calculations and submit them to Duke Energy for review. *We strongly encourage the use of modeling software (such as eQuest or comparable) for complex projects.*

Upon receipt of your application, an acknowledgement email will be sent to you 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 two ways to submit your completed application.

Email your scanned form to: [SelfDirect@duke-energy.com](mailto:SelfDirect@duke-energy.com)

Or, fax your form to 513-419-5572

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



**1. Contact Information (Required)**

Duke Energy Customer Contact Information					
Company Name	KAO Brands				
Address	2535 Spring Grove Avenue				
Project Contact	Bill Schulte				
City	Cincinnati	State	OH	Zip Code	45214
Title	Project Engineer				
Office Phone	(513) 455-7974	Mobile Phone	513-608-5764	Fax	513-263-7974
E-mail Address	bill.schulte@kaobrand.com				

Equipment Vendor / Contractor / Architect / Engineer Contact Information					
Company Name	Triton Services, Inc.				
Address	8162 Duke Blvd.				
City	Mason	State	Ohio	Zip Code	45040
Project Contact	Richard Schock				
Title	VP Sales & Marketing				
Office Phone	513-679-6800	Mobile Phone		Fax	
E-mail Address					
Describe Role	Sales				

Payment Information					
Payee Legal Company Name (as shown on Federal income tax return):	KAO Brands				
Mailing Address	2535 Spring Grove Avenue				
City	Cincinnati	State	Ohio	Zip Code	45214
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:	31-0332880				
Who should receive incentive payment? (select one) <input checked="" type="checkbox"/> Customer <input type="checkbox"/> Vendor (Customer must sign below)					
If the vendor is to receive payment, please sign below: I hereby authorize payment of incentive directly to vendor:					
Customer Signature _____ Date ____/____/____ (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
- ☐ 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.

Replaced an older fixed speed motor with a new motor and added a vfd where one did not previously exist.

C. When did you start and complete implementation?

Start date / (mm/yyyy) End date (mm/yyyy)

D. Are you also applying for Self-Direct Prescriptive incentives and, if so, which one(s)<sup>1</sup>?  
No

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. Please tell us if there is anything about your electrical energy projections (either for the baseline or the proposed project) that you are either unsure about or for which you have made significant assumptions. Attach additional sheets as needed.

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)

<sup>1</sup> If your project involves some equipment that is eligible for prescriptive incentives and some equipment that is likely eligible for custom incentives, 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) Bill Schulte, 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 Incentives 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).

Bill Schulte 11-16-11

Duke Energy Ohio, Inc Customer Signature

Print Name Bill Schulte

Date 11/16/11

**KAO Brands**  
**Account 48300673-01**

Peak Demand 2,515.20  
 KWh usage 1,370,061 based on bill from summer of '10

Supplier Generation Demand Charge  
 1,000.00 KW @ 7.77840  
 > 1,000.00 KW @ 6.13610

Supplier Generation Energy Charge  
 754,560.00 KWh @ 0.0200530  
 > 754,560.00 KWh @ 0.0075490 0.0075490

Supplier FPP	46,229.97	0.033743
Supplier AAC	8,626.88	0.006297
Supplier TCR	4,645.57	0.003391
Delivery Riders	11870.39	0.008664
Generation Charge No Demand	Total	0.052095

Distribution Demand Charge  
 Demand KW @ 3.77  
 Total Demand KW Greater than 754,560 KWh \$9.91

Total Savings per Year \$36,816.82

## 125 HP VFD HVAC ADMIN.

125 HP VFD HVAC FAN ADMIN						Annual Energy Cost					Draw KW @100% - Draw KW VFD	KW x Demand Charge
Temp Bin °(F)	Draw kW	% Speed	Draw kW	% Speed	Hours	Hours	Annual Hours @ Temp Bin	Energy Usage (kWh)	Cost of Operation (\$)	Cost/Hour (\$)		
95=>99	72	85.00	72.0	85	5.976	2.024	8	576	\$41.13	\$5.14	32	\$317.00
90=>94	72	85.00	72.0	85	58.27	19.73	78	5,616	\$400.98	\$5.14	32	\$317.00
85=>89	72	85.00	72.0	85	180	60.97	241	17,352	\$1,238.93	\$5.14	32	\$317.00
80=>84	72	85.00	7.5	20	324.2	109.8	434	24,166	\$1,708.93	\$3.94	32	\$317.00
75=>79	72	85.00	7.5	20	463.2	156.8	620	34,523	\$2,441.33	\$3.94	32	\$317.00
70=>74	55	70.00	7.5	20	646.9	219.1	866	37,224	\$2,624.76	\$3.03	49	\$485.40
65=>69	55	70.00	7.5	20	638.7	216.3	855	36,751	\$2,591.42	\$3.03	49	\$485.40
60=>64	55	70.00	7.5	20	567	192	759	32,625	\$2,300.45	\$3.03	49	\$485.40
55=>59	55	70.00	7.5	20	490.8	166.2	657	28,240	\$1,991.30	\$3.03	49	\$485.40
50=>54	55	70.00	7.5	20	466.9	158.1	625	26,865	\$1,894.31	\$3.03	49	\$485.40
45=>49	55	70.00	7.5	20	449.7	152.3	602	25,876	\$1,824.60	\$3.03	49	\$485.40
40=>44	55	70.00	7.5	20	466.1	157.9	624	26,822	\$1,891.28	\$3.03	49	\$485.40
35=>39	55	70.00	7.5	20	510.2	172.8	683	29,358	\$2,070.10	\$3.03	49	\$485.40
30=>34	55	70.00	7.5	20	517.7	175.3	693	29,788	\$2,100.41	\$3.03	49	\$485.40
25=>29	55	70.00	7.5	20	333.2	112.8	446	19,171	\$1,351.78	\$3.03	49	\$485.40
20=>24	55	70.00	7.5	20	190.5	64.51	255	10,961	\$772.88	\$3.03	49	\$485.40
15=>19	55	70.00	7.5	20	104.6	35.42	140	6,018	\$424.33	\$3.03	49	\$485.40
10=>14	55	70.00	7.5	20	59.01	19.99	79	3,396	\$239.44	\$3.03	49	\$485.40
5=>9	55	70.00	7.5	20	35.11	11.89	47	2,020	\$142.45	\$3.03	49	\$485.40
0=>4	55	70.00	7.5	20	29.88	10.12	40	1,719	\$121.24	\$3.03	49	\$485.40
Total/Avg:					6538	2214	8752	399,066	\$28,172.03	\$3.44		

EXISTING 125 HP HVAC FAN ADMIN							Annual Energy Cost			
Temp Bin °(F)			Draw kW	% Speed			Hours	Energy Usage (kWh)	Cost of Operation (\$)	Cost/Hour (\$)
95=>99			104.0	100			8	832	\$59.40	\$7.43
90=>94			104.0	100			78	8,112	\$579.20	\$7.43
85=>89			104.0	100			241	25,064	\$1,789.57	\$7.43
80=>84			104.0	100			434	45,136	\$3,222.71	\$7.43
75=>79			104.0	100			620	64,480	\$4,603.87	\$7.43
70=>74			104.0	100			866	90,064	\$6,430.57	\$7.43
65=>69			104.0	100			855	88,920	\$6,348.89	\$7.43
60=>64			104.0	100			759	78,936	\$5,636.03	\$7.43
55=>59			104.0	100			657	68,328	\$4,878.62	\$7.43
50=>54			104.0	100			625	65,000	\$4,641.00	\$7.43
45=>49			104.0	100			602	62,608	\$4,470.21	\$7.43
40=>44			104.0	100			624	64,896	\$4,633.57	\$7.43
35=>39			104.0	100			683	71,032	\$5,071.68	\$7.43
30=>34			104.0	100			693	72,072	\$5,145.94	\$7.43
25=>29			104.0	100			446	46,384	\$3,311.82	\$7.43
20=>24			104.0	100			255	26,520	\$1,893.53	\$7.43
15=>19			104.0	100			140	14,560	\$1,039.58	\$7.43
10=>14			104.0	100			79	8,216	\$586.62	\$7.43
5=>9			104.0	100			47	4,888	\$349.00	\$7.43
0=>4			104.0	100			40	4,160	\$297.02	\$7.43
Total/Avg:							8752	910,208	\$64,988.85	\$7.43

# AHUB\_1

Maximum VFD Output

70.00

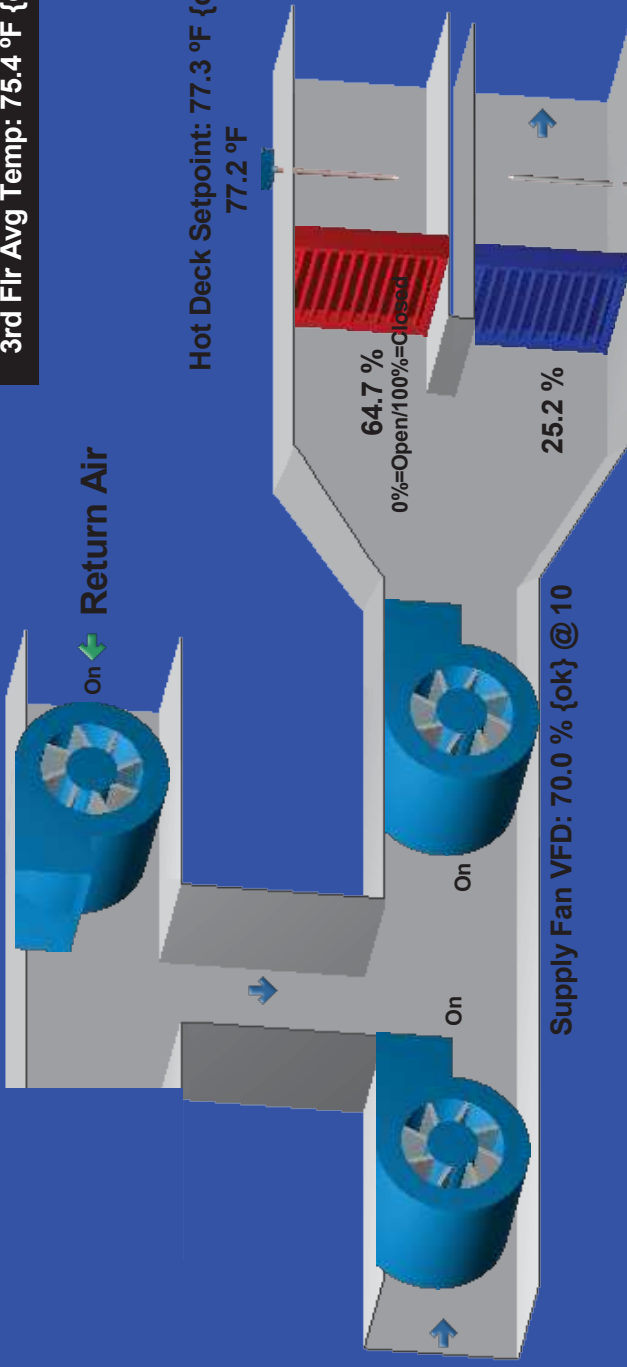
Minimum VFD Output

20.00

Return Fan 1 VFD: 70.0 % {ok} @ 10

Return Fan 2 VFD: 70.0 % {ok} @ 10

On  Return Air



Hot Deck Setpoint: 77.3 °F {ok}  
77.2 °F

59.6 °F  
Cold Deck Setpoint: 60.0 °F {ok}

OA TEMP: 52.7 °F {ok}

Mixed Air Temp: 74.0 °F {ok}

Grd Flr Avg Temp: 77.5 °F {ok}

1st Flr Avg Temp: 73.6 °F {ok}

2nd Flr Avg Temp: 71.8 °F {ok}

3rd Flr Avg Temp: 75.4 °F {ok}

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**XRI**®  
HIGH EFFICIENCY

MODEL JVB 405TTDS6060CP W SER. WAA059908

PART NO. ENCL DP FRAME 4

ES. B IP 12 CODE G RISE 45 °C MTG F1 TYPE T

NS F1 IC 01 PH 3 AMB 40 °C DUTY CONT

TH/YR MFG 02/2010

ALTITUDE 3300FT/1000M DRIVE/OPP 316/3

HZ 60 HZ 50

HP 125 KW 93.0 HP 125 KW 93.0

RPM 1782 EFF 95.4 RPM 1475 EFF 94.5

VOLT 460 VOLT 380

FLA 141 FLA 172

SF 1.15 PF(COS  $\phi$ ) 86(0.86) SF 1.0 PF(COS  $\phi$ ) 87

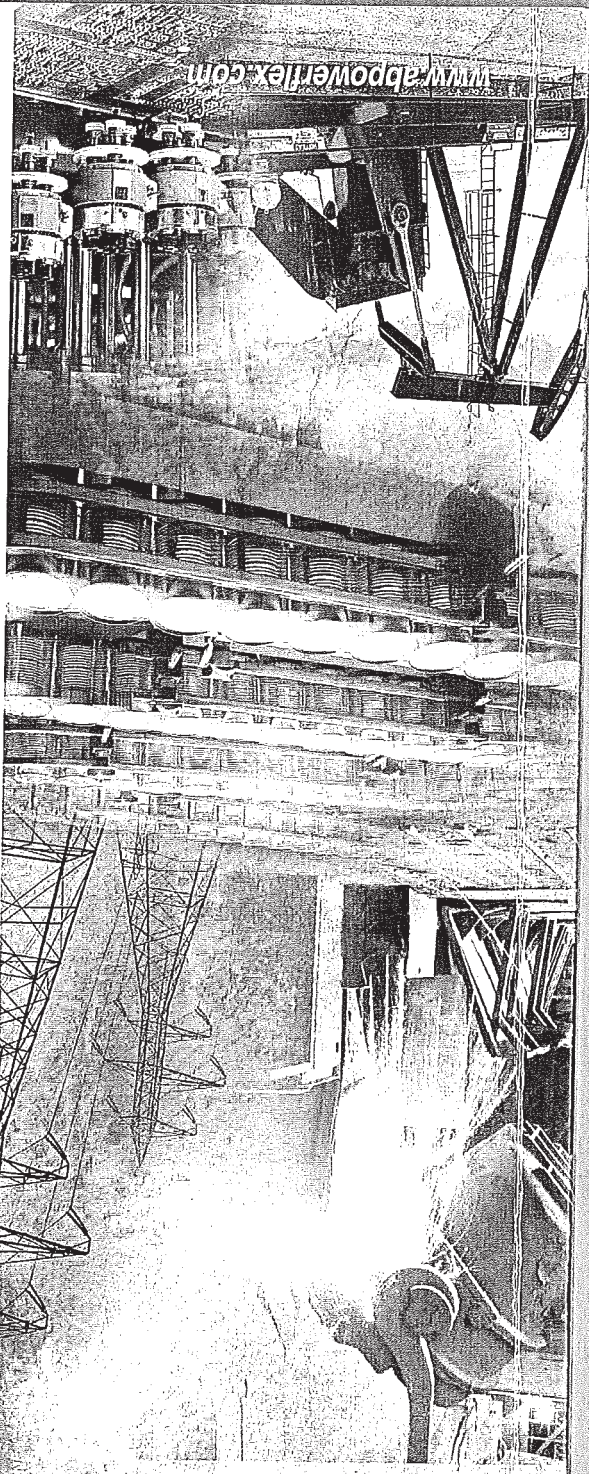
10:1VT, 1.0 SF

ACROSS  
START COI

SINGLE VOLTAGE  
MOTOR SUITABLE FOR  
PART WINDING START,  
AND YΔ START



S-92722-E-N-BCKLM-S-X-F



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Fan & Pump  
Applications**

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User Manual

**Rockwell  
Automation**

**Allen-Bradley**

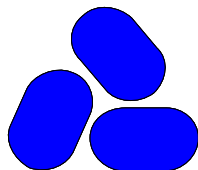


#### A-4 Supplemental Drive Information

Category	Specification
Electrical	Voltage Tolerance: 200-240V $\pm 10\%$ 380-480V $\pm 10\%$
	Frequency Tolerance: 48-63 Hz
	Input Phases: Three-phase input provides full rating. Single-phase operation provides 35% rated current.
	Displacement Power Factor: 0.98 across entire speed range
	Efficiency: 97.5% at rated amps, nominal line voltage
	Maximum Short Circuit Rating: 100,000 Amps Symmetrical (Frame C Drives) 200,000 Amps Symmetrical (Frame D-H Drives)
	Actual Short Circuit Rating: Determined by AIC Rating of installed fuse/circuit breaker
	Transistor Type: Isolated Gate Bipolar (IGBT)
	Internal DC Bus Choke: 200-240V AC Input: 11-37 kW (15-50 HP) Panel Mount Drives 380-480V AC Input: 11-110 kW (15-150 HP) Panel Mount Drives
	Method: Sinusoidal PWM, Volts/Hertz
Control	Carrier Frequency: 2-10 kHz, Drive rating based on 4 kHz Frames C and D: 2-8 kHz, Drive rating based on 4 kHz Frames E - H:
	Frequency Accuracy: Within $\pm 0.05\%$ of set output frequency
	Digital Input: Within 0.5% of maximum output frequency, 10-Bit resolution
	Analog Input: $\pm 2\%$ of full scale, 10-Bit resolution
	Analog Output: $\pm 1\%$ of base speed across a 60:1 speed range
	Speed Regulation - Open Loop with Slip Compensation: 0-320 Hz (programmable)
	Output Frequency: Multiple programmable stop modes including - Ramp, Coast, DC-Brake, Ramp-to-Hold and S Curve.
	Stop Modes: Two independently programmable accel and decel times. Each time may be programmed from 0 - 600 seconds in 0.1 second increments.
	Accel/Decel: 110% Overload capability for up to 1 minute
	Intermittent Overload: Class 10 protection with speed sensitive response.
Control Inputs	Electronic Motor Overload Protection
	Digital: Quantity: (3) Semi-programmable (4) Programmable
	Type: Source Mode (SRC): 18-24V = ON, 0-6V = OFF Sink Mode (SNK): 0-6V = ON, 18-24V = OFF
	Analog: Quantity: (1) Isolated, -10 to 10V or 4-20mA (1) Non-isolated, 0 to 10V or 4-20mA
	Specification: Resolution: 10-bit 0 to 10V DC Analog: 100k ohm input impedance 4-20mA Analog: 250 ohm input impedance External Pot: 1-10k ohm, 2 Watt minimum

#### Supplemental Drive Information A-5

Category	Specification
Control Outputs	Relay: Quantity: (2) Programmable Form C
	Specification: 3.0A at 30V DC, 3.0A at 125V, 3.0A at 240V AC Resistive Rating: 0.5A at 30V DC, 0.5A at 125V, 0.5A at 240V AC Inductive Rating:
	Optional Relay Card: Quantity: (6) Optional Programmable Form A (Not available for Frame C drives.)
	Specification: Resistive Rating: 0.1A at 30V DC Class II circuits, 3.0A at 125V, 3.0A at 240V AC Inductive Rating: 0.1A at 30V DC Class II circuits, 3.0A at 125V, 3.0A at 240V AC
	Opto: Quantity: (1) Programmable Specification: 30V DC, 50mA Non-inductive
Keypad	Analog: Quantity: (2) Non-Isolated, 0-10V or 4-20mA
	Specification: 10-bit Resolution: 0 to 10V DC Analog: 1k ohm minimum 4-20mA Analog: 525 ohm maximum
	Display: Integral 2 line by 16 character LCD with (5) LED Indicators
	Languages: English, Français, Español, Italiano, Deutsch, Português, Nederlands
	Type: Serial (RS485)
Communication	Supported Protocols: Drive Serial Interface (DSI) Modbus RTU (Standard): Metasys N2 P1 - Floor Level Network (FLN)
	Supported Protocols: BACnet DeviceNet (Optional): EtherNet/IP PROFIBUS DP ControlNet LonWorks
	Software: Windows Based
	(Optional): Pocket PC/Windows Mobile 2003



**Tritonservices,inc.**

---

## **AN ENGINEERED PROJECT**

*Triton Services, Inc. is pleased to provide the technical services described in this proposal and all services required for the implementation of all schedules within. The schedules are attached hereto and made a part of this agreement, in accordance with the terms and conditions set forth on the following project pages.*

---

Triton Services, Inc. will provide the following quality project described on the following pages.

**THIS IS AN AGREEMENT BETWEEN TRITON SERVICES, INC.  
AND**

**Triton Services, Inc.**  
8162 Duke Boulevard  
Mason, Ohio 45040  
(hereinafter Triton)

**KAO Brands**  
2535 Spring Grove Avenue  
Cincinnati, Ohio 45202  
(hereinafter Client)

---

**SERVICE LOCATIONS: 2535 Spring Grove Avenue — Administration**

---

### **TRITON**

\_\_\_\_\_  
Signature

Richard T. Schock

\_\_\_\_\_  
Name (Type/Print)

V.P.-Sales and Marketing

\_\_\_\_\_  
Title

**APPROVED FOR TRITON:**

\_\_\_\_\_  
Signature, Richard T. Schock

### **CLIENT**

Chris Dugan

\_\_\_\_\_  
Signature

Mr. Chris Dugan

\_\_\_\_\_  
Name (Type/Print)

\_\_\_\_\_  
Title

9/28/09

\_\_\_\_\_  
Date

This agreement is the property of Triton Services, Inc. and is provided for our Client's use only. This agreement, when accepted by you above, and approved in writing by Triton's authorized representative, shall constitute the entire agreement between us, and all prior representations or agreements not incorporated herein are superseded.

**Triton guarantees the price stated in this agreement for thirty (30) days from date above.**

Quote No. 090473	1	5/19/09
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## **SPECIFICATIONS**

### **Triton Services will provide the following scope of work**

The administration building automation project consists of the following items which are to be installed and integrated to reduce overall energy consumption of the existing HVAC systems.

The affected systems include the main air handler in the basement and the air handler on the 4<sup>th</sup> floor.

Installed components for both systems

VFD for Supply Fans, Return fans, and Pumps.

DDC Controller to operate both systems

34 point expansion bus

Connectivity License

Electronic outdoor air sensor

Electronic discharge air sensors for hot deck and cold deck.

Electronic pneumatic transducers for valve operation.

Wall mounted indoor sensors in selected areas for representative indoor temperature feedback.

Manual freeze stats

Return air temperature sensor

Wiring is plenum rated cabling

Wiring in EMT where additional protection is required.

### **Basic overview of the anticipated sequence of operation**

The controller will be programmed to optimize run time during unoccupied hours, based on a schedule provided by the end user. The programming will reset the hot deck and cold deck temperatures based on outside air in combination with building demand. This will allow the system to use less chilled water and steam around the clock.

## **SPECIFICATIONS**

The control of the pump VFD will allow the pumps to be run at a slower speed when the demand is not needed.

The fans will run at slower speeds in response to building requirements, and will have a fixed setting during unoccupied periods.

During the unoccupied period the programming will bring the system out of setback if any given parameter is reached, such as a predetermined outdoor air temperature or indoor temperature.

All of the programming will be customized for the administration building.

**TOTAL ADDITIONAL INVESTMENT - \$81,888  
(EIGHTY ONE THOUSAND EIGHT HUNDRED AND EIGHTY EIGHT DOLLARS)**

## TERMS AND CONDITIONS

1. Any deviation from this Agreement involving repair work, cost of material/labor and emergency service, will be considered extra work. This will be an additional charge, billed at the standard preferred hourly rate of this agreement.
2. All work under this agreement will be performed during our normal working hours presently 7:30 am to 4:00 pm.
3. In the event the system is altered, modified, changed, or moved by persons other than Triton Services this agreement may immediately be terminated at Triton's option.
4. Triton will not be liable for any delay in furnishing or failure to furnish service due to fire, flood, strike, and lockout dispute with working men, inability to obtain material, war, act of God, or any cause beyond reasonable control.
5. Our responsibility to injury of persons or property that may be caused by or arise through the maintenance service functioning, or use of the system(s) shall be limited to injury caused directly by our negligence in performing our obligations under this agreement, and in no event shall Triton be liable for speculation, indirect or consequential damages.
6. Client will promptly pay invoices within thirty (30) days of receipt. Should a payment become thirty (30) days or more delinquent, Triton may stop all work under this agreement without notice and/or cancel this agreement, and the entire agreement shall become due and payable immediately upon request.
7. Client will provide reasonable means of access to all equipment covered by this agreement. Triton will be free to start and stop all primary equipment relating to the operation of the mechanical system(s) as arranged with client's representative. In the event that Triton should incur any collection costs, the client will become responsible for all costs, including attorney's fees.
8. Client shall make available to Triton's personnel all pertinent Material Safety Data Sheets (MSDS) pursuant to OSHA's Hazard Communication Standard Regulations.

Quote No. 090473	4	05/19/09
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Triton Services, Inc.  
8162 Duke Boulevard  
Mason, Ohio 45040  
Telephone: 513-679-6800  
Fax: 513-679-6808

Over 120 days

Sold To:  
KAO BRANDS COMPANY  
2535 SPRING GROVE AVENUE  
CINCINNATI OH  
45214  
Att: ACCTS PAYABLE

Job Location:  
KAO BRANDS COMPANY  
ADMINISTRATION  
CINCINNATI OH 45214  
513-207-6982

## INVOICE

Invoice Number: W17666  
Invoice Date: May 10/10  
Terms: NET 30  
Customer Code: KAO-02  
Reference:  
Customer Order:  
Work Order #: 090473  
Work Order Type: Projects  
Job Location: KAO BRANDS COMPANY  
Called By: Chris Dugan  
Starting Date: Feb 3/10  
Ending Date: May 9/10

Description Qty Price Total

INSTALL CONTROLS SYSTEM IN THE CONTROLS BUILDING

\$ 61,416

BAL Due 26,772

*Handwritten signature*

- CONDITIONS -

Amount

88,188.00

Total Invoice

88,188.00

This include a new 125 HP  
VFD as listed on the DUKE ENERGY CUSTOM APPLICATION

PO#4530014936

Bill Schulte 12-6-11

11-419 KAO BRANDS

Doc	Created On	Doc No	Ref Doc No	Cost Elem	Cost Elem Name	Value CIP	Notes	Quantity	For	Offset	Offset Acct	Offset Acct Name	Doc Date	Postg Date	Material	Val. in AC	Per	Purch Doc
COHNER	04/26/2010	C210007	5105608267	570-CL	CLrg-CIP acquisition	61,416.00	MARY BANDY TRITON SERVICES INC	61,416	EA	K	203505	TRITON SERVICES, INC.	03/09/2010	04/16/2010		61,416.00	4	4530012732
RNOE	04/28/2010	C210007	100357049	570-CL	CLrg-CIP acquisition	6,000.00	PNC visa May 2010		S		182-	Suspense payments	04/28/2010	04/28/2010		6,000.00	4	
RNOE	05/14/2010	C210007	100360482	570-CL	CLrg-CIP acquisition	390.00			S		343-	Other tax payable	05/14/2010	05/14/2010		390.00	5	
RNOE	05/18/2010	C210007	100360935	570-CL	CLrg-CIP acquisition	3,992.04	Triton Services-Install VPD's & DOC Controls		S		343-	Other tax payable	05/18/2010	05/18/2010		3,992.04	5	
COHNER	10/27/2010	C210007	5105618540	570-CL	CLrg-CIP acquisition	23,696.25		22,250	EA	K	203505	TRITON SERVICES, INC.	09/30/2010	10/27/2010		23,696.25	10	4530014408
*		C210007				95,494.29		83,666	EA							95,494.29		
**						95,494.29		83,666	EA							95,494.29		



#### KAO Billing Analysis

PEAK KW	2492.2 KW Max set 1 per year	2300 Target
85% of Peak KW	2118.37 KW calculated	1955 Target
Distribution Charge KW	2118.37	1955 Target

#### Areas of bill impact.

1. Reduction of Delivery Charges
2. Reduction of Generation Charges
3. Reduction of Generation of Energy Charges

- Bill Impact			Savings
Demand Chg \$2.937/KW	2.937	2.937	
Rate Charged	\$6,221.65	\$5,741.84	\$ 479.82
Generation Charge \$5.673/KW for over 1,000KW	\$ 5.67	\$ 5.67	
Rate Charged	\$6,344.51	\$5,417.72	\$ 926.80
Generation Energy Charge			
There are 2 rates low rate is \$0.00594	\$ 0.00594 \$/KWH	\$ 0.00594	
Billed KWH	547038 KWH	527000	
Rate Charged	\$3,249.41	\$3,130.38	\$ 119.03
		Total Savings	\$ 1,525.64
There are various riders which may also be impacted by energy reduction.		annual	\$18,307.70

#### Impact of reducing fan horsepower usage

##### Administration Building

##### Annual analysis

Targeted Horsepower fans, and pumps	175 1hp=.7457 kw	Equivalent KW	130.5 KW	
Current runtime hours	8760	Kw usage	1143158 KWH	\$98,493.82
Reduced runtime as follows	3224 total Hrs	KW savings	420724 KWH	\$36,249.32
Monday thru Friday reduce by 6 hours/day	30 week	Percentage of Savings	36.8%	
Saturday and Sunday reduce by 16 hours/day	32 week			

Runtime on nights and weekend can not be reduced to Zero because of the need to maintain the building in a state from which the building can come out of setback in a reasonable timeframe prior to occupancy. The system will be required to run intermittently to maintain this setback state.

Additional savings can be captured through static pressure reduction and lowering motor speed during run time hours

**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**3/14/2012 4:45:15 PM**

**in**

**Case No(s). 12-0967-EL-EEC**

Summary: Application Application to Commit Energy  
Efficiency/Peak Demand  
Reduction Programs  
(Mercantile Customers Only)- KAO electronically filed by Carys Cochern on behalf of Duke  
Energy