



Case No.: 18-1008-EL-EEC

Mercantile Customer: Rookwood Exchange Operating Suite A

Electric Utility: Duke Energy

Program Title or Description: High Efficiency HVAC System in New Building Construction

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: **Rookwood Exchange Operating Suite A**

Principal address: **3825 Edwards Rd Apt: A**
Cincinnati, OH 45209-1149

Address of facility for which this energy efficiency program applies:

3825 Edwards Rd Apt: A
Cincinnati, OH 45209-1149

Name and telephone number for responses to questions:

Andrew Taylor, (317) 838-2096

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)).
- ☐ 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): September, 2015.
- ☐ 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: _____kWh

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

Annual savings: _____kWh

Please describe any less efficient new equipment that was rejected in favor of the more efficient new equipment.

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

Annual savings: 270,534 kWh

Refer to Appendix B for calculations and supporting document

Please describe the less efficient new equipment that was rejected in favor of the more efficient new equipment.

The less efficiency new equipment would have included building HVAC system(s) which were minimally code compliant instead of the highly efficiency water source heat pump with heat recovery equipment that was installed.

- 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.

Annual savings: _____kWh

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 high efficiency HVAC equipment was installed in September, 2015.

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

0 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 **\$11,498. 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 **6.10** (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 **\$115,859**.

The utility's program costs were **\$7,496**.

The utility's incentive costs/rebate costs were **\$11,498**.

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.

88103811		
ROOKWOOD EXCHANGE OPERATING SUITE A		
3825 Edwards Rd Apt: A		
Cincinnati, OH 45209-1149		
Date	Days	Actual KWH
05/23/2018	31	187,934
04/24/2018	30	162,228
03/23/2018	29	159,961
02/22/2018	29	160,191
01/24/2018	34	193,071
12/21/2017	32	175,788
11/21/2017	29	167,032
10/23/2017	29	204,411
09/22/2017	30	207,080
08/23/2017	31	226,438
07/25/2017	30	204,976
06/23/2017	30	199,567
Total		2,248,677

Appendix B - Rookwood Exchange Energy Savings Achieved

[illegible]

Appendix C -Cash Rebate Calculation

Rookwood Exchange High Efficiency HVAC New Construction

Measure	Quantity	Cash Rebate Rate	Cash Rebate
High Efficiency HVAC Systems in New Construction (above baseline energy code)	1	50% of incentive that would be offered by the Smart \$aver Custom program	\$11,498
			\$11,498

Appendix D -UCT Value

Roodwood Exchange High Efficiency HVAC New Construction

Measure	Total Avoided Cost	Program Cost	Incentive	Quantity	Measure UCT
High Efficiency HVAC Systems in New Construction (above baseline energy code)	\$115,859	\$7,496	\$11,498	1	6.10
Totals	\$115,859	\$7,496	\$11,498	1	

Total Avoided Supply Costs \$115,859
 Total Program Costs \$7,496
 Total Incentive \$11,498

Aggregate Application UCT

6.10



Smart Saver® Incentive Program

phone: 866.380.9580

fax: 980.373.9755

customprocessing@duke-energy-energyefficiency.com

4/26/2018

JR Anderson
ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101
3825 EDWARDS RD APT: B
CINCINNATI OH 45209-1149

Subject: Your Application for a Duke Energy Mercantile Self-Direct Rebate CMO17-0000123363

Dear JR Anderson,

Thank you for your Duke Energy Mercantile Self Direct rebate application. As noted in the Energy Conservation Measure (ECM) chart on page 2, a total rebate of \$11,498.00 has been proposed for your projects completed in the 2015 calendar years. **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 2
- completing the PUCO-required affidavit on Page 3

Please return the documents to my attention via fax at 513.629.5572 or email to customprocessing@duke-energy-energyefficiency.com. Upon receipt, Duke Energy will submit the necessary documentation to PUCO. Following PUCO's approval, Duke Energy will remit payment.

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 'Andrew Taylor', with a long horizontal flourish extending to the right.

Andrew Taylor
Program Manager
Custom Incentives

cc: Roger Jones
John Kirschner



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

☒ Rebate is accepted.

☐ Rebate is declined.

By accepting this rebate, ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101 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, ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101 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, ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101 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


Customer Signature

J. R. Anderson
Printed Name

4/26/18
Date



Proposed Rebate Amounts

Measure ID	Energy Conservation Measure	Proposed Rebate Amount
ECM-1	High Efficiency New Construction: Rookwood Exchange	\$11,498.00 per Facility X 1
	Total	\$11,498.00

Application to Commit
Energy Efficiency/Peak Demand Reduction ProgramsCase No.: 18-1008 - EL-EEC18-1008-EL-EECState of Ohio :J.R. Anderson, Affiant, being duly sworn according to law, deposes and says that:

1. I am the duly authorized representative of:

Rookwood Exchange Operating
[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.

J.R. Anderson
SIGNATURE OF AFFIANT & TITLEAuthorized AgentSworn and subscribed before me this 27th day of April, 2018
DAY MONTH YEARMelissa Leidy
SIGNATURE OF OFFICIAL ADMINISTERING OATHMelissa Leidy-Paralegal
PRINT NAME AND TITLEMy commission expires on 8/5/2021
DATEMELISSA LEIDY
Notary Public, State of Ohio
My Commission Expires 08-05-2021

Mercantile Self Direct Nonresidential Custom Rebate Application PART 1



Ohio Mercantile Self Direct Program

Application Guide and Cover Sheet

Questions? Call 866.380.9580 or visit 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 513.629.5572.

Mercantile customers, defined as using at least 700,000 kilowatt-hours (kWh) annually or having an account in multiple locations are eligible for the Mercantile Self Direct program. Indicate which applies:

- ☐ a single Duke Energy Ohio account with 700,000 kWh annual usage
☒ an account with multiple locations

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
0910-3811-01-2			
8810-3811-01-0			

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 rules allow for, though do not require, certain projects that are Prescriptive in nature under the Smart Saver program to be evaluated using the Custom process in the Self Direct program. Use the list on page two as a guide to determine which Self Direct program best fits your project(s). Apply for Self Direct projects using the appropriate application forms in conjunction with this cover sheet.

Self Direct program rules also allow for behaviorally based and/or no cost and low cost projects to receive rebates.

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

☐ All sections of appropriate application(s) are completed	☐ Proof of payment.*	☐ Manufacturer's Spec sheets	☐ Energy model/calculations and detailed inputs for Custom applications
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*If a single payment record is intended to demonstrate the costs of both Prescriptive and Custom projects, please include an additional document with an estimated breakout of costs for each Prescriptive and Custom energy conservation measure.

Mercantile Self Direct Nonresidential Custom Rebate Application PART 1



**Behavioral energy efficiency and demand reduction projects must be both measurable and verifiable. Provide justification with your application. Rebates for such projects may be small in magnitude.

Application Type	Prescriptive Measures with Optional Custom Processing
Heating and Cooling and Window Films, Programmable Thermostats, and Guest Room Energy Management Systems	☐ ENERGY STAR® Window/Sleeve/Room AC ☐ Air Source Heat Pump Water Heater ☐ Central Air Unit
	☐ Setback/Programmable Thermostat ☐ Window Film ☐ Guestroom Energy Management Control
Chillers	☐ Air Cooled Chiller ☐ Water Cooled Chiller
Motors, Pumps and Variable Frequency Drives (VFDs)	☐ VFD – applied to Process Pump ☐ VFD – applied to HVAC Fan ☐ VFD – applied to HVAC Pump
Food Service	☐ ENERGY STAR Hot Food Holding Cabinet ☐ Anti-Sweat Heater Control ☐ Night Covers for Display ☐ Cooking Equipment ☐ ECM Cooler, Freezer, and Display Case Motors ☐ ENERGY STAR Ice Machine ☐ ENERGY STAR Solid or Glass Door Reach-in Freezer or Refrigerator
Process Equipment	☐ Engineered Nozzle – Compressed Air ☐ Pellet Dryer Duct Insulation ☐ Air Compressor Equipped with VFD
Chiller Tune-ups	☐ Air Cooled Chiller tune-up ☐ Water Cooled Chiller tune-up

Please indicate above any Prescriptive energy conservation measures to be evaluated through the Custom process. Only Prescriptive measures listed above are eligible for this option. To receive a Self Direct Custom rebate, a detailed analysis of pre-project and post-project energy usage and project costs must be included in the application.

Although some Self Direct Prescriptive measures are eligible for evaluation through Custom processes, such an approach may not be most effective for certain measures.

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 Self Direct team at 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 Self Direct team 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, please call 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 two 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

Mercantile Self Direct Nonresidential Custom Rebate Application PART 1



1. Contact Information (Required)

Duke Energy Customer Contact Information ¹					
Company Name (as it appears on your bill)	Rookwood Exchange Operating, LLC.				
Address	3825 Edwards Rd. Suite 200				
City	Cincinnati	State	OH	ZIP Code	45209
Project Contact	JR Anderson				
Office Phone	513-241-5800	Mobile Phone			
Email Address	j.r.anderson@anderson-realestate.com				

Equipment Vendor / Contractor / Architect / Engineer Contact Information					
Company Name	KLH Engineers				
Address	1538 Alexandria Pike, Suite 11				
City	Ft. Thomas	State	KY	ZIP Code	41075
Project Contact	John Kirschner				
Office Phone	859-547-0122	Mobile Phone	859-250-9692		
Email Address	johnk@gbsolutionsltd.com				

Who is the primary point of contact for technical questions? ²	John Kirschner
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Payment Information					
If an incentive is awarded, who should receive payment? ³					
☒ Customer ☐ Vendor* (customer or customer's agent ⁴ must sign below)					
*If the payee is the vendor, they must issue a credit in the amount of the incentive to the customer on the invoice and include it with the payment request.					
Tax ID Number for Payee (provide W-9)		30-0752498			
Mailing Address for Payee (if different from above)					
Street					
City		State		ZIP Code	

¹ Provided customer information should match the Duke Energy customer of record and W-9 form provided with this application. If the customer entity is a business affiliate of the Duke Energy customer of record, documentation must be provided that demonstrates the business affiliation.

² Note that if the vendor is the primary point of contact, the customer will still be copied on all application correspondence. If the customer does not wish to be copied, the customer must provide a signed letter of authorization on customer letterhead indicating an entity is acting as an agent for the customer. Duke Energy does not act as an agent.

³ If payment is to be made to an entity other than the Duke Energy account holder or the vendor, a payment waiver is required and will be provided for customer signature.

⁴ If an outside agent is acting on behalf of the Duke Energy customer of record, a letter of authorization on customer letterhead and signed by an authorized employee of the customer must be provided.

**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 two years or less
- ☐ Replacing equipment that is estimated to have remaining useful life of more than two

years

- ☐ Behavioral, operational and/or procedural programs/projects

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

See Attached Summary Document

C. When did you start and complete implementation?

Start date 10 / 2012 (mm/yyyy) End date 09 /2015 (mm/yyyy)

D. Are you also applying for Self Direct Prescriptive rebates and, if so, which one(s)⁵?
Window rebates

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. Baseline utilizes ASHRAE 90.1-2007 standard minimum equipment for this type of building.

G. Attach a supplier or contractor invoice(s) and/or other equivalent information documenting the Implementation Cost for each project listed in your application.

Does the Implementation Cost include any internal labor⁶? Yes

⁵ 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



If yes, please specify which costs are internal labor.

3. Attestation, Terms and Conditions, and Signature (Required)

Attestation

By signing below, I agree to the following:

I, (INSERT NAME) J.R. ANDERSON, do hereby consent to Duke Energy Ohio, Inc. 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 have read and agree to the below Terms and Conditions of the Duke Energy Ohio's Mercantile Self Direct Program.

I certify that I meet the eligibility requirements of the Duke Energy Ohio's Mercantile Self Direct Program, as applicable, and that all information provided within my application is correct to the best of my knowledge.

I certify that the taxpayer identification number provided in my application 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).

Instructions/Terms/Conditions

Note: Please keep for your records

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 (PUCO). *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

⁶ Internal labor costs cannot be counted in the Incremental Project Cost for purposes of analysis.

Mercantile Self Direct Nonresidential Custom Rebate Application PART 1



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 PUCO. *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 six 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.
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.

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

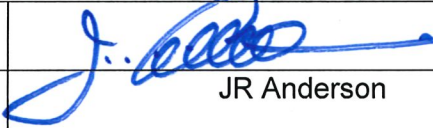


16. Disclaimers: *Duke Energy Ohio, Inc.*

- 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.*

CUSTOMER SIGNATURE REQUIRED

By signing below, I certify that I have read and agree to the above Mercantile Self Direct Attestation and Terms and Conditions.

Customer Signature			
Print Name	JR Anderson	Date	5/22/17

TRADE ALLY SIGNATURE (REQUIRED ONLY IF TRADE ALLY IS PAYEE)

By signing below, I certify that I have read and agree to the above Mercantile Self Direct Attestation and Terms and Conditions.

Trade Ally Signature			
Print Name		Date	

CUSTOMER – AUTHORIZATION TO DESIGNATE TRADE ALLY AS PAYEE

If an incentive is awarded and the customer would like to authorize payment to the trade ally, the customer must sign below to allow release of their incentive to the trade ally.

Required: Final invoice from trade ally to customer must show the incentive credited to the customer. If the itemized invoice does not reflect a deduction of the incentive amount, the payee will be changed to the customer.

Customer Signature			
Print Name		Date	



The General 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. This worksheet is for all projects that are not easily submitted through one of the other worksheets

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

- Submitting this application does not guarantee an rebate will be approved.
- Rebates already decided to proceed.
- 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 Direct 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	JR Anderson
Company	Rookwood Exchange Operating, LLC.

Equipment Vendor / Project Engineer Contact Information

Name	John Kirschner
Company	KLH Engineers

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.



List of Sites (Required)

App No.	
Rev.	

Provide a list of sites addressed by this custom rebate application

[illegible]

1 Site ID

Can be a store number, building name or other way to identify the location. If there is only one site involved in this application, then a Site ID is not necessary.

2 Account Numbers

Must match the facility of the proposed project(s). If there are multiple meters at a site, only include the meters that pertain to the project(s).



For each project, answer the following questions (use one worksheet per project)

Project Name: **Rookwood Exchange Multi-Use Building**

App No.	0
Rev.	0

How would you classify this project? (Place an x in all boxes that apply.)

Lighting	X	Heating/Cooling	X	Air Compressor		Energy Management System	
VFD		Motors/Pumps	X	Process Equipment		Other, describe below:	

Brief Project Description

Describe the Baseline (see note 3)	Equipment/System	Describe the Proposed High Efficiency Project
Project baseline is developed from ASHRAE 90.1-2007 guidelines for office building. Results of Energy Modeling are found in the following files: "Energy Cost Budget.pdf", "Equipment Energy Consumption.pdf", Monthly Energy		The lighting system utilizes a LED's and the HVAC system employs a Water Source Heat Pump system.
If Existing Equipment is the Baseline, how many years of useful life remain or how many years until scheduled replacement?		
Detailed Project Description Attached?		Yes (Required)

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		
	7:00 AM	18:00 PM	8:00 AM	17:00 PM			52	3,528

Energy Savings

	Baseline (see Note 3)	Proposed	Savings	Describe how energy numbers were calculated
Annual Electric Energy	3201227	2930689	270,538 kWh	are was used to model energy savins utilizing ASHRAE 90.1-2007 guidelines for Baseline
Electric Demand	1,455 kW	1,378 kW	77 kW	
Calculations attached	Yes	Yes	(Required)	

Simple Payback

Average electric rate (\$/kWh) on the applicable accounts (see note 6)	\$0.10
Estimated annual electric savings	\$27,054
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)	
Copy of vendor proposal is attached (see note 8)	Yes
Simple Electric Payback in years (see note 9)	0
Total Payback in years	0

3 Baseline

Retrofit projects: the existing equipment is the baseline.

New construction projects: the baseline is the standard option in today's market, taking into account any applicable organizational, local, state or federal codes or standards currently in effect.

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 electric payback is less than 1 year, the rebate structure is affected. Double check average electric rate for correct payback.



4/26/2018

JR Anderson
ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101
3825 EDWARDS RD APT: B
CINCINNATI OH 45209-1149

Subject: Your Application for a Duke Energy Mercantile Self-Direct Rebate CMO17-0000123363

Dear JR Anderson,

Thank you for your Duke Energy Mercantile Self Direct rebate application. As noted in the Energy Conservation Measure (ECM) chart on page 2, a total rebate of \$11,498.00 has been proposed for your projects completed in the 2015 calendar years. **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 2
- completing the PUCO-required affidavit on Page 3

Please return the documents to my attention via fax at 513.629.5572 or email to customprocessing@duke-energy-energyefficiency.com. Upon receipt, Duke Energy will submit the necessary documentation to PUCO. Following PUCO's approval, Duke Energy will remit payment.

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 "Andrew Taylor", with a long horizontal flourish extending to the right.

Andrew Taylor
Program Manager
Custom Incentives

cc: Roger Jones
John Kirschner



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

☐ Rebate is accepted.

☐ Rebate is declined.

By accepting this rebate, ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101 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, ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101 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, ROOKWOOD EXCHANGE OPERATING SUITE B - 0910381101 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

Customer Signature

Printed Name

Date



Proposed Rebate Amounts

Measure ID	Energy Conservation Measure	Proposed Rebate Amount
ECM-1	High Efficiency New Construction: Rookwood Exchange	\$11,498.00 per Facility X 1
	Total	\$11,498.00



Application to Commit

Energy Efficiency/Peak Demand Reduction Programs

Case No.: ____ - ____ -EL-EEC

State of _____ :

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

1. I am the duly authorized representative of:

[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.

SIGNATURE OF AFFIANT & TITLE

Sworn and subscribed before me this ____ day of _____, _____
DAY MONTH YEAR

SIGNATURE OF OFFICIAL ADMINISTERING OATH

PRINT NAME AND TITLE

My commission expires on _____
DATE



Rookwood Exchange Mixed Use

3825 Edwards Rd. Cincinnati, OH 45209



Mercantile Self Direct Rebate Application – Project Summary

May 12, 2017

Prepared By:

John Kirschner
Kohrs Lonnemann Heil Engineers, PSC
1538 Alexandria Pike
Ft. Thomas, KY 41075

Project Summary

Rookwood Exchange Operating, LLC completed construction of the 270,143 sqft. Rookwood Exchange Mixed Use building. The building officially opened Jan. 1, 2015. The building utilized several energy efficiency measures to improve the lighting, hvac, and building envelope. This summary document will only address the lighting and hvac equipment. The building envelope components will be submitted under a prescriptive application.

The new lighting will require removal of all lighting components with the specified sections including: power distribution, stairwells, hallways, garage, and pole lighting. The new system will include the following parameters:

- Removal of existing lighting system – Demolition of 3857 fixtures and electric distribution system
- Installation of LED Based lighting system
 - Reconfiguration of electrical distribution panels and electrical wiring
 - Use of less fixtures than current system – 3509 total fixtures (348 less than original system)
 - Utilization of Dimming sensors throughout facility
 - Employment of Daylight sensors around perimeter of garage to lower electric usage during daylight hours
 - Revamped common area (elevators, stairwells, and walkways) Lighting
- Budget Estimate Breakdown:
 - From Walker Parking Construction Estimate for the project is \$7,108,509.00
 - \$2,599,500.00 – APGS & Related Alternate
 - \$3,094,675.00 – LED Lighting, Poles, Power
 - \$99,125.00 – Signage
 - \$1,315,209.00 – GC, Design & Construction Contingencies

Energy Modeling

The preparation for this project produced a detailed assessment of current usage and load. See file “Parking Garage lighting assessment.xls” for assessment results and calculation methods. This assessment was utilized as data points for entry into Trane Trace 700 Energy Modeling software. Using this assessed load we can translate the proposed fixtures and upgraded power distribution upgrades into the energy modeling software to determine estimated energy savings versus the current system. This estimate does not consider dimming and daylighting features utilized by the proposed system to save energy. These features energy savings will be monitored after installation to quantify the additional electrical usage and request additional rebates. The energy model was developed using a maximum spec fixture per versus current electrical load. See attached files (EL 501.pdf) for fixture details and building drawings (18184.00EL101C.pdf thru 18184.00EL403.pdf). Results from the simulation show a 2,646,115 kwh and 300.1 KW (summer peak) reduction in energy usage for the proposed system versus current system. See energy modeling documents “Energy Consumption Summary.pdf, Energy Cost Budget.pdf, and Equipment Energy Consumption.pdf” for full results of energy modeling simulations.



Contact Info

Questions about the provided documentation should be directed to John Kirschner via email: jkirschner@klhengrs.com or by phone: 859-547-0122.



MONTHLY ENERGY CONSUMPTION

By KLH Engineers

----- Monthly Energy Consumption -----

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 1 Rookwood Exchange Proposed													
Electric													
On-Pk Cons. (kWh)	220,344	201,182	237,852	201,248	248,333	299,269	292,110	322,365	248,314	227,959	218,992	212,723	2,930,689
On-Pk Demand (kW)	1,076	1,075	1,024	1,075	1,243	1,337	1,351	1,378	1,338	1,262	1,055	1,078	1,378
Gas													
On-Pk Cons. (therms)	2,337	1,734	1,407	222	0	0	0	0	0	66	1,080	1,471	8,317
On-Pk Demand (therms/hr)	19	10	8	5	0	0	0	0	0	3	7	9	19
Water													
Cons. (1000gal)	173	175	218	133	163	236	247	263	173	154	199	183	2,318

Energy Consumption	
Building	38,333 Btu/(ft2-year)
Source	109,280 Btu/(ft2-year)
Floor Area	282,630 ft2

Environmental Impact Analysis	
CO2	5,297,455 lbm/year
SO2	36,763 gm/year
NOX	9,187 gm/year

MONTHLY ENERGY CONSUMPTION

By KLH Engineers

----- Monthly Energy Consumption -----

Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alternative: 2 ASHRAE Baseline System 6													
Electric													
On-Pk Cons. (kWh)	275,430	239,106	259,144	215,029	267,614	312,838	308,198	337,410	258,633	242,380	237,825	247,618	3,201,227
On-Pk Demand (kW)	981	983	975	1,066	1,219	1,385	1,423	1,455	1,311	1,202	992	980	1,455
Gas													
On-Pk Cons. (therms)	4,467	2,241	1,142	0	0	0	0	0	0	0	625	1,695	10,170
On-Pk Demand (therms/hr)	30	28	26	0	0	0	0	0	0	0	24	26	30
Water													
Cons. (1000gal)	13	8	18	58	179	318	330	369	200	106	23	11	1,632
Energy Consumption				Environmental Impact Analysis									
Building	42,256 Btu/(ft2-year)			CO2	5,786,473 lbm/year								
Source	119,772 Btu/(ft2-year)			SO2	40,157 gm/year								
				NOX	10,035 gm/year								
Floor Area	282,630 ft2												

EQUIPMENT ENERGY CONSUMPTION

By KLH Engineers

Alternative: 1 Rookwood Exchange Proposed

----- Monthly Consumption -----													
Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Lights													
Electric (kWh)	82,668.1	74,742.4	87,283.7	79,256.8	84,975.9	83,872.5	80,360.3	87,283.7	79,257.0	84,975.9	81,564.7	80,360.3	986,601.3
Peak (kW)	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0
Misc. Ld													
Electric (kWh)	29,386.6	26,579.9	31,691.5	28,066.9	30,539.1	30,371.8	28,234.2	31,691.5	28,066.9	30,539.1	29,219.4	28,234.2	352,621.0
Peak (kW)	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1
Cooling Coil Condensate													
Recoverable Water (1000gal)	5.4	4.7	4.3	1.4	7.4	31.2	37.0	40.3	20.5	2.7	3.8	4.6	163.4
Peak (1000gal/Hr)	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2
Bsu 1: Exterior Lighting													
Electric (kWh)	2,350.7	2,123.2	2,350.7	2,274.9	2,350.7	2,274.9	2,350.7	2,350.7	2,274.9	2,350.7	2,274.9	2,350.7	27,677.6
Peak (kW)	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Bsu 2: Domestic hot water-Electric													
Electric (kWh)	33,163.2	30,004.8	36,321.6	31,584.0	34,742.4	34,742.4	31,584.0	36,321.6	31,584.0	34,742.4	33,163.2	31,584.0	399,537.6
Peak (kW)	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6
Cpl 1: WSHP Cool [Sum of dsn coil capacities=467.8 tons]													
Water source heat pump - 002 [Clg Nominal Capacity/F.L.Rate=467.8 tons / 383.7 kW] [**Orig F.L.Rate=415.9 kW] (Cooling Equipment - Cooling Mode)													
Electric (kWh)	37,961.2	37,811.2	46,055.4	29,813.0	37,663.0	52,752.0	54,600.8	58,590.8	39,313.0	35,208.5	41,696.9	39,184.6	510,650.4
Peak (kW)	349.9	354.8	287.4	288.3	302.8	321.0	333.7	356.0	355.2	336.4	298.3	345.6	356.0
Water source heat pump - 002 [Htg Nominal Capacity/F.L.Rate=6,938 mbh / 350.5 kW] (Cooling Equipment - Heating Mode)													
Electric (kWh)	3,466.6	1,757.9	780.6	1,938.6	3,407.2	3,317.0	3,002.6	3,455.4	3,011.5	2,849.5	334.2	1,132.4	28,453.5
Peak (kW)	68.3	60.2	56.4	22.4	30.1	25.5	25.4	25.4	25.5	25.3	22.4	47.7	68.3
WSHP - Cooling tower [Design Heat Rejection/F.L.Rate=577.0 tons / 38.08 kW]													
Electric (kWh)	3,372.6	3,174.4	3,912.7	3,457.6	3,841.1	4,771.3	5,456.3	5,530.6	3,990.3	3,012.6	3,857.6	3,670.0	48,047.1
Peak (kW)	13.3	13.4	12.2	12.8	14.5	17.3	18.6	19.3	16.8	14.7	12.6	13.4	19.3
WSHP - Cooling tower													
Make Up Water (1000gal)	172.0	175.0	217.9	133.0	163.4	236.3	246.5	263.3	173.4	154.1	198.9	183.4	2,317.3
Peak (1000gal/Hr)	1.7	1.7	1.3	1.3	1.4	1.5	1.5	1.6	1.7	1.6	1.4	1.7	1.7

EQUIPMENT ENERGY CONSUMPTION

By KLH Engineers

Alternative: 1 Rookwood Exchange Proposed

----- Monthly Consumption -----													
Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<u>Cpl 1: WSHP Cool [Sum of dsn coil capacities=467.8 tons]</u>													
Var vol chill water pump [F.L.Rate=13.17 kW] (Misc Accessory Equipment)													
Electric (kWh)	726.9	707.4	827.7	517.3	706.0	975.8	981.9	1,109.5	761.5	692.6	742.1	709.2	9,458.0
Peak (kW)	10.6	10.9	7.7	7.8	8.7	9.9	10.9	12.6	12.3	10.9	8.4	10.3	12.6
Var vol cnd water pump [F.L.Rate=15.86 kW] (Misc Accessory Equipment)													
Electric (kWh)	795.7	803.9	973.2	541.5	711.2	1,018.7	1,041.6	1,162.5	779.2	704.4	882.2	822.4	10,236.5
Peak (kW)	12.7	13.1	8.1	8.2	9.1	10.4	11.4	13.2	13.2	11.6	8.8	12.4	13.2
Wshpcntl - WS heat pump control [F.L.Rate=0.03 kW] (Misc Accessory Equipment)													
Electric (kWh)	16.5	14.8	15.2	10.6	11.0	11.4	12.6	12.6	10.9	9.2	13.9	15.7	154.3
Peak (kW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<u>Cpl 2: DOAS Cool [Sum of dsn coil capacities=249.9 tons]</u>													
Air-cooled unitary - 001 [Clg Nominal Capacity/F.L.Rate=249.9 tons / 260.7 kW] (Cooling Equipment)													
Electric (kWh)	0.0	0.0	0.0	3,125.6	24,995.3	51,712.9	52,348.0	59,058.4	33,848.9	11,076.5	0.0	0.0	236,165.6
Peak (kW)	0.0	0.0	39.7	89.5	190.4	250.7	251.1	253.8	216.3	155.6	41.1	0.0	253.8
Condenser fan for Recip [Design Heat Rejection/F.L.Rate=324.0 tons / 30.78 kW]													
Electric (kWh)	0.0	0.0	0.0	544.2	3,591.8	6,877.0	7,001.9	7,827.4	4,768.1	1,752.8	0.0	0.0	32,363.1
Peak (kW)	0.0	0.0	2.5	12.7	24.5	30.5	30.5	30.6	27.8	20.8	4.5	0.0	30.6
Cntl panel & interlocks - 0.3 KW [F.L.Rate=0.30 kW] (Misc Accessory Equipment)													
Electric (kWh)	0.0	0.0	0.0	90.0	136.8	132.6	136.2	137.1	132.0	130.2	0.0	0.0	894.9
Peak (kW)	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0	0.3
<u>Hpl 1: WSHP Heat [Sum of dsn coil capacities=2,422 mbh]</u>													
Boiler - 002 [Nominal Capacity/F.L.Rate=2,422 mbh / 25.77 Therms] (Heating Equipment)													
Gas (therms)	104.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	104.7
Peak (therms/Hr)	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9
Heating water circ pump [F.L.Rate=6.69 kW] (Misc Accessory Equipment)													
Electric (kWh)	280.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	280.8
Peak (kW)	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7
Make-up water - 5.18e-006 gal/btu (Misc Accessory Equipment)													
Make Up Water (1000gal)	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
Peak (1000gal/Hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

EQUIPMENT ENERGY CONSUMPTION

By KLH Engineers

Alternative: 1 Rookwood Exchange Proposed

----- Monthly Consumption -----													
Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
<u>Hpl 1: WSHP Heat [Sum of dsn coil capacities=2,422 mbh]</u>													
Cntl panel & interlocks - 0.5 KW [F.L.Rate=0.50 kW] (Misc Accessory Equipment)													
Electric (kWh)	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
Peak (kW)	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
<u>Hpl 2: DOAS Heat [Sum of dsn coil capacities=1,627 mbh]</u>													
Gas-fired heat exchanger - 001 [Nominal Capacity/F.L.Rate=1,627 mbh / 20.34 Therms] (Heating Equipment)													
Gas (therms)	2,232.1	1,733.9	1,407.0	222.1	0.0	0.0	0.0	0.0	0.0	66.1	1,080.2	1,470.7	8,212.1
Peak (therms/Hr)	11.2	10.0	8.4	4.5	0.0	0.0	0.0	0.0	0.0	3.4	7.2	8.6	11.2
<u>Sys 1: WSHP 1</u>													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	1,654.7	1,365.5	1,171.3	201.9	0.0	0.0	0.0	0.0	0.0	0.0	1,045.9	1,298.9	6,738.2
Peak (therms/Hr)	4.3	3.9	3.2	2.1	0.0	0.0	0.0	0.0	0.0	0.0	2.9	3.4	4.3
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	165.2	149.2	164.4	40.0	0.0	135.2	140.8	152.0	12.0	0.0	159.6	165.6	1,284.0
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FC Centrifugal const vol [DsnAirflow/F.L.Rate=42,843 cfm / 4.58 kW] (Main Clg Fan)													
Electric (kWh)	2,109.3	1,888.6	2,057.6	1,949.5	1,992.7	1,928.7	1,992.5	1,991.6	1,926.9	2,010.4	1,980.7	2,063.5	23,891.9
Peak (kW)	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=11,403 cfm / 8.89 kW] (Opt. Ventilation Fan)													
Electric (kWh)	3,685.9	3,329.7	3,669.6	2,234.9	1,854.0	3,309.8	3,417.4	3,583.6	1,940.0	1,846.1	3,561.3	3,695.0	36,127.3
Peak (kW)	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
<u>Sys 2: WSHP 2</u>													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	1,038.6	852.8	817.6	143.4	0.0	0.0	0.0	0.0	0.0	46.1	664.4	769.0	4,331.9
Peak (therms/Hr)	4.8	4.4	3.8	2.8	0.0	0.0	0.0	0.0	0.0	2.3	3.2	3.8	4.8
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	92.4	83.6	101.2	24.0	0.0	79.2	80.0	92.0	16.0	8.8	92.4	88.0	757.6
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

EQUIPMENT ENERGY CONSUMPTION

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Alternative: 1 Rookwood Exchange Proposed

Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Sys 2: WSHP 2													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=40,352 cfm / 4.32 kW]	(Main Clg Fan)												
Electric (kWh)	1,228.5	1,075.6	1,255.6	1,095.7	1,214.9	1,244.2	1,173.0	1,301.9	1,111.3	1,213.0	1,119.1	1,101.1	14,133.9
Peak (kW)	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=12,741 cfm / 9.94 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	2,326.2	2,124.7	2,601.8	1,627.6	1,691.6	2,459.8	2,266.1	2,571.2	1,790.4	1,585.1	2,358.6	2,226.7	25,629.6
Peak (kW)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Sys 3: WSHP 3													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	720.9	591.6	567.1	99.6	0.0	0.0	0.0	0.0	0.0	31.9	460.5	533.0	3,004.6
Peak (therms/Hr)	3.3	3.0	2.7	1.9	0.0	0.0	0.0	0.0	0.0	1.6	2.2	2.6	3.3
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	92.4	83.6	101.2	24.0	0.0	79.2	80.0	92.0	16.0	8.8	92.4	88.0	757.6
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FC Centrifugal const vol [DsnAirflow/F.L.Rate=37,480 cfm / 4.01 kW]	(Main Clg Fan)												
Electric (kWh)	1,144.0	999.2	1,166.3	1,018.8	1,129.9	1,159.5	1,095.3	1,213.7	1,034.3	1,128.0	1,037.4	1,020.6	13,147.1
Peak (kW)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=8,887 cfm / 6.93 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	1,623.9	1,487.4	1,835.3	1,237.9	1,303.5	1,756.3	1,604.6	1,843.6	1,369.6	1,176.6	1,655.1	1,553.0	18,446.6
Peak (kW)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Sys 4: WSHP 4													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	680.8	558.7	535.3	94.1	0.0	0.0	0.0	0.0	0.0	30.1	434.6	503.1	2,836.7
Peak (therms/Hr)	3.1	2.8	2.5	1.8	0.0	0.0	0.0	0.0	0.0	1.5	2.1	2.5	3.1
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	92.4	83.6	101.2	24.0	0.0	79.2	80.0	92.0	16.0	8.8	92.4	88.0	757.6
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FC Centrifugal const vol [DsnAirflow/F.L.Rate=36,353 cfm / 3.89 kW]	(Main Clg Fan)												
Electric (kWh)	1,109.1	968.2	1,128.6	986.5	1,094.9	1,124.7	1,063.5	1,177.5	1,002.7	1,092.3	1,003.2	987.8	12,739.0
Peak (kW)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9

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Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Sys 4: WSHP 4													
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=8,400 cfm / 6.55 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	1,529.4	1,402.8	1,726.3	1,172.6	1,228.2	1,661.9	1,513.8	1,740.2	1,294.5	1,113.2	1,556.8	1,460.6	17,400.1
Peak (kW)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Sys 5: WSHP 5													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	681.4	559.2	535.8	94.2	0.0	0.0	0.0	0.0	0.0	30.2	435.0	503.6	2,839.3
Peak (therms/Hr)	3.1	2.8	2.5	1.8	0.0	0.0	0.0	0.0	0.0	1.5	2.1	2.5	3.1
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	92.4	83.6	101.2	24.0	0.0	79.2	80.0	92.0	16.0	8.8	92.4	88.0	757.6
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FC Centrifugal const vol [DsnAirflow/F.L.Rate=36,449 cfm / 3.90 kW]	(Main Clg Fan)												
Electric (kWh)	1,111.3	970.1	1,130.7	988.5	1,097.5	1,127.6	1,066.2	1,180.5	1,005.1	1,094.6	1,005.1	989.7	12,766.7
Peak (kW)	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=8,410 cfm / 6.56 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	1,530.4	1,403.8	1,726.3	1,173.6	1,228.8	1,664.1	1,515.9	1,742.5	1,295.3	1,113.4	1,556.5	1,461.1	17,411.8
Peak (kW)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Sys 6: WSHP 6													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	680.8	558.6	534.9	94.0	0.0	0.0	0.0	0.0	0.0	30.1	434.3	503.0	2,835.5
Peak (therms/Hr)	3.1	2.8	2.5	1.8	0.0	0.0	0.0	0.0	0.0	1.5	2.1	2.5	3.1
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	92.4	83.6	101.2	24.0	0.0	79.2	80.0	92.0	16.0	8.8	92.4	88.0	757.6
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FC Centrifugal const vol [DsnAirflow/F.L.Rate=38,187 cfm / 4.09 kW]	(Main Clg Fan)												
Electric (kWh)	1,170.1	1,020.1	1,188.6	1,036.4	1,149.9	1,182.1	1,117.6	1,236.1	1,051.8	1,146.2	1,057.9	1,043.3	13,400.3
Peak (kW)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=8,410 cfm / 6.56 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	1,530.0	1,404.2	1,728.1	1,198.1	1,240.1	1,669.8	1,515.0	1,741.8	1,300.9	1,116.5	1,554.9	1,460.6	17,459.9
Peak (kW)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6

EQUIPMENT ENERGY CONSUMPTION

By KLH Engineers

Alternative: 1 Rookwood Exchange Proposed

Equipment - Utility	----- Monthly Consumption -----												Total
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Sys 7: WSHP 7													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	680.8	558.6	534.9	94.0	0.0	0.0	0.0	0.0	0.0	30.1	434.3	502.9	2,835.5
Peak (therms/Hr)	3.1	2.8	2.5	1.8	0.0	0.0	0.0	0.0	0.0	1.5	2.1	2.5	3.1
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	92.4	83.6	101.2	24.0	0.0	79.2	80.0	92.0	16.0	8.8	92.4	88.0	757.6
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FC Centrifugal const vol [DsnAirflow/F.L.Rate=38,208 cfm / 4.09 kW] (Main Clg Fan)													
Electric (kWh)	1,169.2	1,020.7	1,189.3	1,037.0	1,150.6	1,182.8	1,118.3	1,236.8	1,052.4	1,146.9	1,058.6	1,042.7	13,405.2
Peak (kW)	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=8,410 cfm / 6.56 kW] (Opt. Ventilation Fan)													
Electric (kWh)	1,530.0	1,404.2	1,728.5	1,198.5	1,240.4	1,669.9	1,515.0	1,741.8	1,301.0	1,116.6	1,555.9	1,460.6	17,462.2
Peak (kW)	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Sys 8: WSHP 8													
Total-energy wheel (OA precondition) [Stage 1 Energy Recovery]													
Energy Recovered (therms)	650.4	534.2	509.9	89.4	0.0	0.0	0.0	0.0	0.0	28.3	412.4	478.8	2,703.4
Peak (therms/Hr)	3.0	2.7	2.3	1.7	0.0	0.0	0.0	0.0	0.0	1.4	1.9	2.3	3.0
Total-energy wheel (OA precondition) [Stage 1 Parasitics]													
Electric (kWh)	92.4	83.6	101.2	24.0	0.0	79.2	80.0	92.0	8.0	8.8	92.4	88.0	749.6
Peak (kW)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FC Centrifugal const vol [DsnAirflow/F.L.Rate=30,312 cfm / 3.24 kW] (Main Clg Fan)													
Electric (kWh)	999.0	836.7	918.1	787.3	899.1	951.4	898.3	992.7	818.4	876.7	841.7	854.8	10,674.0
Peak (kW)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
FC Centrifugal var freq drv [DsnAirflow/F.L.Rate=8,345 cfm / 6.51 kW] (Opt. Ventilation Fan)													
Electric (kWh)	1,525.7	1,391.8	1,715.7	1,076.2	1,145.5	1,656.9	1,425.3	1,741.4	1,105.5	1,077.6	1,533.3	1,456.5	16,851.2
Peak (kW)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5

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Alternative: 2 ASHRAE Baseline System 6

----- Monthly Consumption -----													
Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Lights													
Electric (kWh)	82,668.1	74,742.4	87,283.7	79,256.8	84,975.9	83,872.5	80,360.3	87,283.7	79,257.0	84,975.9	81,564.7	80,360.3	986,601.3
Peak (kW)	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0	304.0
Misc. Ld													
Electric (kWh)	29,386.6	26,579.9	31,691.5	28,066.9	30,539.1	30,371.8	28,234.2	31,691.5	28,066.9	30,539.1	29,219.4	28,234.2	352,621.0
Peak (kW)	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1
Cooling Coil Condensate													
Recoverable Water (1000gal)	0.2	0.2	0.3	0.1	3.0	17.6	25.1	28.5	7.5	0.4	0.0	0.2	83.1
Peak (1000gal/Hr)	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.2
Bsu 1: Exterior Lighting													
Electric (kWh)	2,350.7	2,123.2	2,350.7	2,274.9	2,350.7	2,274.9	2,350.7	2,350.7	2,274.9	2,350.7	2,274.9	2,350.7	27,677.6
Peak (kW)	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Bsu 2: Domestic hot water-Electric													
Electric (kWh)	33,163.2	30,004.8	36,321.6	31,584.0	34,742.4	34,742.4	31,584.0	36,321.6	31,584.0	34,742.4	33,163.2	31,584.0	399,537.6
Peak (kW)	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6	201.6
Cpl 1: Cooling plant - 003 [Sum of dsn coil capacities=827.0 tons]													
Water source heat pump - 001 [Clg Nominal Capacity/F.L.Rate=827.0 tons / 767.3 kW] [**Orig F.L.Rate=827.0 kW] (Cooling Equipment - Cooling Mode)													
Electric (kWh)	2,967.2	4,774.0	11,657.1	20,086.9	53,172.6	93,299.8	96,778.1	108,249.0	58,831.2	32,359.3	11,741.8	7,450.3	501,367.3
Peak (kW)	170.7	177.7	199.1	296.5	448.9	594.1	627.1	648.4	525.4	423.7	212.5	188.0	648.4
Water source heat pump - 001 [Htg Nominal Capacity/F.L.Rate=8,997 mbh / 568.0 kW] [**Orig F.L.Rate=627.7 kW] (Cooling Equipment - Heating Mode)													
Electric (kWh)	36,570.0	25,513.7	18,557.4	3,712.9	633.2	0.0	0.0	0.0	185.0	1,480.0	13,505.4	20,979.5	121,137.1
Peak (kW)	201.9	196.3	182.8	79.8	15.6	0.0	0.0	0.0	11.0	44.1	168.5	183.8	201.9
90.1 Min Cooling Tower [Design Heat Rejection/F.L.Rate=1,045 tons / 66.58 kW]													
Electric (kWh)	0.0	0.0	386.8	958.5	2,534.7	3,600.0	4,044.2	4,448.2	2,536.4	1,691.2	472.0	223.2	20,895.2
Peak (kW)	5.9	5.9	6.2	7.1	9.2	29.3	37.2	39.9	16.5	8.6	6.4	6.1	39.9
90.1 Min Cooling Tower													
Make Up Water (1000gal)	0.0	0.0	14.1	58.2	179.1	317.7	329.6	368.6	199.8	105.8	19.6	4.7	1,597.2
Peak (1000gal/Hr)	0.5	0.5	0.7	1.0	1.5	2.0	2.1	2.2	1.8	1.4	0.7	0.6	2.2

EQUIPMENT ENERGY CONSUMPTION

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Alternative: 2 ASHRAE Baseline System 6

----- Monthly Consumption -----													
Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Cpl 1: Cooling plant - 003 [Sum of dsn coil capacities=827.0 tons]													
Cnst vol chill water pump [F.L.Rate=36.39 kW] (Misc Accessory Equipment)													
Electric (kWh)	25,470.3	21,649.7	18,993.6	11,789.1	14,954.7	17,319.8	17,829.2	17,902.0	14,481.7	13,208.2	17,720.1	21,795.3	213,113.6
Peak (kW)	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4	36.4
Cnst vol cnd water pump [F.L.Rate=55.19 kW] (Misc Accessory Equipment)													
Electric (kWh)	38,630.8	32,836.2	28,807.6	17,880.5	22,681.8	26,269.0	27,041.5	27,152.0	21,964.4	20,032.8	26,876.0	33,056.9	323,229.4
Peak (kW)	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2	55.2
Wshpcntl - WS heat pump control [F.L.Rate=0.03 kW] (Misc Accessory Equipment)													
Electric (kWh)	17.5	14.9	13.1	8.1	10.3	11.9	12.3	12.3	10.0	9.1	12.2	15.0	146.4
Peak (kW)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hpl 1: Heating plant - 002 [Sum of dsn coil capacities=8,702 mbh]													
Boiler - 001 [Nominal Capacity/F.L.Rate=4,351 mbh / 54.39 Therms] (Heating Equipment)													
Gas (therms)	4,466.6	2,241.2	1,142.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	625.5	1,695.0	10,170.3
Peak (therms/Hr)	29.7	28.3	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.7	26.3	29.7
Heating water circ pump [F.L.Rate=3.83 kW] (Misc Accessory Equipment)													
Electric (kWh)	2,194.1	1,401.5	597.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	620.3	1,068.3	5,881.5
Peak (kW)	3.8	3.8	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8	3.8
Make-up water - 5.18e-006 gal/btu (Misc Accessory Equipment)													
Make Up Water (1000gal)	12.9	8.3	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	6.3	34.6
Peak (1000gal/Hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cntl panel & interlocks - 0.5 KW [F.L.Rate=0.50 kW] (Misc Accessory Equipment)													
Electric (kWh)	286.5	183.0	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.0	139.5	768.0
Peak (kW)	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5
Hpl 2: Heating plant - 004 [Sum of dsn coil capacities=0 mbh]													
Sys 1: WSHP 1													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=51,375 cfm / 9.16 kW] (Main Clg Fan)													
Electric (kWh)	4,206.6	3,784.0	4,149.7	3,924.8	3,986.1	3,855.5	3,983.4	3,982.7	3,850.0	4,031.1	3,995.3	4,157.8	47,907.1
Peak (kW)	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2

EQUIPMENT ENERGY CONSUMPTION

By KLH Engineers

Alternative: 2 ASHRAE Baseline System 6

Equipment - Utility	----- Monthly Consumption -----												Total
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Sys 1: WSHP 1													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=11,403 cfm / 2.03 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	839.9	758.6	836.2	814.5	844.5	816.8	841.9	835.8	818.4	838.8	811.5	841.9	9,898.6
Peak (kW)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Sys 2: WSHP 2													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=44,239 cfm / 7.89 kW]	(Main Clg Fan)												
Electric (kWh)	2,164.9	1,913.0	2,262.5	1,911.5	2,120.8	2,154.7	1,991.8	2,257.6	1,937.8	2,104.5	2,048.1	1,993.5	24,860.5
Peak (kW)	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
FC Centrifugal const vol [DsnAirflow/F.L.Rate=9,841 cfm / 1.76 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	405.4	366.8	444.0	386.1	424.7	424.7	386.1	444.0	386.1	424.7	405.4	386.1	4,884.4
Peak (kW)	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Sys 3: WSHP 3													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=40,845 cfm / 7.28 kW]	(Main Clg Fan)												
Electric (kWh)	2,034.6	1,792.8	2,120.2	1,769.4	1,960.6	1,991.3	1,842.7	2,086.9	1,792.1	1,947.4	1,910.5	1,866.6	23,114.9
Peak (kW)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
FC Centrifugal const vol [DsnAirflow/F.L.Rate=8,887 cfm / 1.58 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	366.1	331.3	401.0	348.7	383.6	383.6	348.7	401.0	348.7	383.6	366.1	348.7	4,410.9
Peak (kW)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Sys 4: WSHP 4													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=38,905 cfm / 6.94 kW]	(Main Clg Fan)												
Electric (kWh)	1,943.1	1,710.4	2,020.4	1,682.6	1,865.3	1,896.1	1,755.6	1,987.4	1,705.7	1,851.9	1,819.3	1,780.0	22,017.8
Peak (kW)	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
FC Centrifugal const vol [DsnAirflow/F.L.Rate=8,400 cfm / 1.50 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	346.1	313.1	379.0	329.6	362.5	362.5	329.6	379.0	329.6	362.5	346.1	329.6	4,169.2
Peak (kW)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sys 5: WSHP 6													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=40,309 cfm / 7.19 kW]	(Main Clg Fan)												
Electric (kWh)	1,995.1	1,757.4	2,071.9	1,743.0	1,932.6	1,966.1	1,821.2	2,059.7	1,766.4	1,917.2	1,874.0	1,829.3	22,733.9
Peak (kW)	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2

EQUIPMENT ENERGY CONSUMPTION

By KLH Engineers

Alternative: 2 ASHRAE Baseline System 6

Equipment - Utility	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Sys 5: WSHP 6													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=8,410 cfm / 1.50 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	346.5	313.5	379.5	330.0	363.0	363.0	330.0	379.5	330.0	363.0	346.5	330.0	4,174.2
Peak (kW)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sys 6: WSHP 7													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=40,309 cfm / 7.19 kW]	(Main Clg Fan)												
Electric (kWh)	1,995.1	1,757.4	2,071.9	1,743.0	1,932.6	1,966.1	1,821.2	2,059.7	1,766.4	1,917.2	1,874.0	1,829.3	22,733.9
Peak (kW)	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
FC Centrifugal const vol [DsnAirflow/F.L.Rate=8,410 cfm / 1.50 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	346.5	313.5	379.5	330.0	363.0	363.0	330.0	379.5	330.0	363.0	346.5	330.0	4,174.2
Peak (kW)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sys 7: WSHP 8													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=39,342 cfm / 7.02 kW]	(Main Clg Fan)												
Electric (kWh)	2,116.8	1,846.7	2,127.8	1,753.0	1,885.7	1,907.2	1,762.5	1,997.0	1,713.0	1,906.8	1,927.3	1,911.5	22,855.2
Peak (kW)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
FC Centrifugal const vol [DsnAirflow/F.L.Rate=8,345 cfm / 1.49 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	343.8	311.1	376.5	327.4	360.2	360.2	327.4	376.5	327.4	360.2	343.8	327.4	4,141.9
Peak (kW)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Sys 8: WSHP 5													
FC Centrifugal const vol [DsnAirflow/F.L.Rate=39,027 cfm / 6.96 kW]	(Main Clg Fan)												
Electric (kWh)	1,928.7	1,700.0	2,005.3	1,686.8	1,870.7	1,902.2	1,761.4	1,993.8	1,710.6	1,856.6	1,813.3	1,769.6	21,999.0
Peak (kW)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
FC Centrifugal const vol [DsnAirflow/F.L.Rate=8,410 cfm / 1.50 kW]	(Opt. Ventilation Fan)												
Electric (kWh)	346.5	313.5	379.5	330.0	363.0	363.0	330.0	379.5	330.0	363.0	346.5	330.0	4,174.2
Peak (kW)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Energy Cost Budget / PRM Summary

By KLH Engineers

Project Name: Rookwood Exchange	Date: April 19, 2017
City: 3825 Edwards Rd Cincinnati Ohio	Weather Data: Cincinnati, OH

Note: The percentage displayed for the "Proposed/ Base %" column of the base case is actually the percentage of the total energy consumption.

* Denotes the base alternative for the ECB study.

		* Alt-1 Rookwood Exchange Pr			Alt-2 ASHRAE Baseline System		
		Energy 10^6 Btu/yr	Proposed / Base %	Peak kBtuh	Energy 10^6 Btu/yr	Proposed / Base %	Peak kBtuh
Lighting - Conditioned	Electricity	3,367.3	31	1,038	3,367.3	100	1,038
Space Heating	Electricity	97.2	1	235	416.1	428	691
	Gas	831.7	8	2,313	1,017.0	122	2,973
Space Cooling	Electricity	2,552.4	24	2,082	1,711.7	67	2,213
Pumps	Electricity	68.2	1	111	1,850.6	2,714	326
Heat Rejection	Electricity	274.4	3	170	71.3	26	136
Fans - Conditioned	Electricity	981.3	9	321	847.3	86	247
Receptacles - Conditioned	Electricity	1,203.5	11	417	1,203.5	100	417
Stand-alone Base Utilities	Electricity	1,458.1	13	708	1,458.1	100	708
Total Building Consumption		10,834.1			11,942.8		

		* Alt-1 Rookwood Exchange Pr	Alt-2 ASHRAE Baseline System
Total	Number of hours heating load not met	11	0
	Number of hours cooling load not met	771	0

		* Alt-1 Rookwood Exchange Pr		Alt-2 ASHRAE Baseline System	
		Energy 10^6 Btu/yr	Cost/yr \$/yr	Energy 10^6 Btu/yr	Cost/yr \$/yr
Electricity		10,002.4	494,512	10,925.8	525,228
Gas		831.7	8,032	1,017.0	9,328
Total		10,834	502,544	11,943	534,555

ENERGY CONSUMPTION SUMMARY

By KLH Engineers

	Elect Cons. (kWh)	Gas Cons. (kBtu)	Water Cons. (1000 gals)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 1						
Primary heating						
Primary heating	28,454	831,682		8.6 %	928,793	1,166,819
Other Htg Accessories	28		1	0.0 %	94	283
Heating Subtotal	28,481	831,682	1	8.6 %	928,888	1,167,102
Primary cooling						
Cooling Compressor	746,816			23.5 %	2,548,883	7,647,414
Tower/Cond Fans	80,410		2,317	2.5 %	274,440	823,403
Condenser Pump	9,797			0.3 %	33,438	100,324
Other Clg Accessories	1,043			0.0 %	3,558	10,676
Cooling Subtotal....	838,066		2,317	26.4 %	2,860,319	8,581,816
Auxiliary						
Supply Fans	287,526			9.1 %	981,326	2,944,273
Pumps	10,178			0.3 %	34,738	104,223
Stand-alone Base Utilities	427,215			13.5 %	1,458,086	4,374,694
Aux Subtotal....	724,919			22.8 %	2,474,150	7,423,192
Lighting						
Lighting	986,601			31.1 %	3,367,270	10,102,821
Receptacle						
Receptacles	352,621			11.1 %	1,203,495	3,610,847
Cogeneration						
Cogeneration				0.0 %	0	0
Totals						
Totals**	2,930,689	831,682	2,318	100.0 %	10,834,122	30,885,776

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

ENERGY CONSUMPTION SUMMARY

By KLH Engineers

	Elect Cons. (kWh)	Gas Cons. (kBtu)	Water Cons. (1000 gals)	% of Total Building Energy	Total Building Energy (kBtu/yr)	Total Source Energy* (kBtu/yr)
Alternative 2						
Primary heating						
Primary heating	121,137	1,017,033		12.0 %	1,430,473	2,311,007
Other Htg Accessories	768		35	0.0 %	2,621	7,864
Heating Subtotal	121,905	1,017,033	35	12.0 %	1,433,095	2,318,872
Primary cooling						
Cooling Compressor	501,367			14.3 %	1,711,167	5,134,014
Tower/Cond Fans	20,895		1,597	0.6 %	71,315	213,967
Condenser Pump	323,229			9.2 %	1,103,182	3,309,877
Other Clg Accessories	146			0.0 %	500	1,499
Cooling Subtotal....	845,638		1,597	24.2 %	2,886,164	8,659,356
Auxiliary						
Supply Fans	248,250			7.1 %	847,277	2,542,085
Pumps	218,995			6.3 %	747,430	2,242,516
Stand-alone Base Utilities	427,215			12.2 %	1,458,086	4,374,694
Aux Subtotal....	894,460			25.6 %	3,052,793	9,159,295
Lighting						
Lighting	986,601			28.2 %	3,367,270	10,102,821
Receptacle						
Receptacles	352,621			10.1 %	1,203,495	3,610,847
Cogeneration						
Cogeneration				0.0 %	0	0
Totals						
Totals**	3,201,226	1,017,033	1,632	100.0 %	11,942,817	33,851,192

* Note: Resource Utilization factors are included in the Total Source Energy value.

** Note: This report can display a maximum of 7 utilities. If additional utilities are used, they will be included in the total.

Project Name: Rookwood Echange
Dataset Name: ROOKWOOD.TRC

TRACE® 700 v6.3.2 calculated at 02:56 PM on 04/19/2017
Alternative - 2 Energy Consumption Summary report page 1

CONTINUATION SHEET

ALA DOCUMENT G703

PAGE OF PAGES

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.

APPLICATION NO: 5471-12

APPLICATION DATE: 06/03/15

PERIOD TO: COMPLETION

In tabulations below, amounts are stated to the nearest dollar.

Use Column I on Contracts where variable retainage for line items may apply.

ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G		H BALANCE TO FINISH (C - G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD		TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G + C)		
	GENERAL CONDITIONS	\$37,000.00	\$37,000.00			\$37,000.00	100.00%		
	WIRE & CABLES	\$350,000.00	\$350,000.00			\$350,000.00	100.00%		
	GROUNDING	\$3,800.00	\$3,800.00			\$3,800.00	100.00%		
	RACEWAYS & BOXES	\$214,000.00	\$214,000.00			\$214,000.00	100.00%		
	LIGHTING CONTROL	\$50,000.00	\$50,000.00			\$50,000.00	100.00%		
	SWITCHGEAR	\$255,000.00	\$255,000.00			\$255,000.00	100.00%		
	WIRING DEVICES	\$10,000.00	\$10,000.00			\$10,000.00	100.00%		
	GENERATOR & TRANSFER SWITCHES	\$125,000.00	\$125,000.00			\$125,000.00	100.00%		
	LIGHTNING PROTECTION	\$45,500.00	\$45,500.00			\$45,500.00	100.00%		
	LIGHTING	\$560,000.00	\$560,000.00			\$560,000.00	100.00%		
	FIRE ALRM	\$60,000.00	\$60,000.00			\$60,000.00	100.00%		
	CLOSEOUT	\$5,000.00	\$5,000.00			\$5,000.00	100.00%		
	CO #13-704-17A	(\$7,800.00)	(\$7,800.00)			(\$7,800.00)	100.00%		
	CO #13-704-17B	(\$3,547.00)	(\$3,547.00)			(\$3,547.00)	100.00%		
	CO #13-704-17C	\$796.00	\$796.00			\$796.00	100.00%		
	CO #13-704-17D	(\$12,298.00)	(\$12,298.00)			(\$12,298.00)	100.00%		
	CO #13-704-17E	\$778.00	\$778.00			\$778.00	100.00%		
	CO #13-704-17F	\$28,667.00	\$28,667.00			\$28,667.00	100.00%		
	CO #13-704-17G	\$1,951.00	\$1,951.00			\$1,951.00	100.00%		
	CO #13-704-17H	\$50,641.00	\$50,641.00			\$50,641.00	100.00%		
	CO #13-704-17I	\$6,092.00	\$6,092.00			\$6,092.00	100.00%		
	CO #13-704-17J	\$7,355.00	\$7,355.00			\$7,355.00	100.00%		
	CO #13-704-17K	\$6,072.00	\$6,072.00			\$6,072.00	100.00%		
	CO #13-704-17L	\$8,171.00	\$8,171.00			\$8,171.00	100.00%		
	CO #13-704-17M	\$3,425.00	\$3,425.00			\$3,425.00	100.00%		
		\$1,805,603.00	\$1,805,603.00	\$0.00	\$0.00	\$1,805,603.00		\$0.00	\$0.00

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SCHEDULE OF VALUES PECK HANNAFORD + BRIGGS

PAGE 1 of 1 PAGES

SUBCONTRACT APPLICATION FOR PAYMENT IS ATTACHED

APPLICATION NUMBER: **RETAINER**

PHB #: 214150

APPLICATION DATE: 04/15/15

PERIOD TO: 04/30/15

In tabulations below, amounts are stated to the nearest dollar.

Use Column J on Contractors where variable retainage for line items may apply.

Contract No.:

A	B	C	D	E	F	G	H	I
Item No.	Description of Work	Scheduled Value	Work Completed		Materials Presently Stored (Not in D or E)	Total Completed and Stored To Date (D+E+F)	% (G/C)	Balance To Finish (C-G)
			From Previous Application (D+E)	This period				
1	Mobilization/Demobilization	20,000	20,000	-	-	20,000	100%	0
2	Coordination	60,000	60,000	-	-	60,000	100%	0
3	RTUs	525,000	525,000	-	-	525,000	100%	0
4	Boilers	85,000	85,000	-	-	85,000	100%	0
5	Cooling Tower	80,000	80,000	-	-	80,000	100%	0
6	Pump Package	95,000	95,000	-	-	95,000	100%	0
7	Heat Pumps	415,000	415,000	-	-	415,000	100%	0
8	Miscellaneous Equipment	69,000	69,000	-	-	69,000	100%	0
9	1st Floor Labor	80,000	80,000	-	-	80,000	100%	0
10	1st Floor Material	60,000	60,000	-	-	60,000	100%	0
11	2nd Floor Labor	80,000	80,000	-	-	80,000	100%	0
12	2nd Floor Material	59,000	59,000	-	-	59,000	100%	0
13	3rd Floor Labor	80,000	80,000	-	-	80,000	100%	0
14	3rd Floor Material	59,000	59,000	-	-	59,000	100%	0
15	4th Floor Labor	72,000	72,000	-	-	72,000	100%	0
16	4th Floor Material	53,000	53,000	-	-	53,000	100%	0
17	5th Floor Labor	72,000	72,000	-	-	72,000	100%	0
18	5th Floor Material	53,000	53,000	-	-	53,000	100%	0
19	6th Floor Labor	72,000	72,000	-	-	72,000	100%	0
20	6th Floor Material	53,000	53,000	-	-	53,000	100%	0
21	7th Floor Labor	72,000	72,000	-	-	72,000	100%	0
22	7th Floor Material	53,000	53,000	-	-	53,000	100%	0
23	8th Floor Labor	75,000	75,000	-	-	75,000	100%	0
24	8th Floor Material	56,000	56,000	-	-	56,000	100%	0
25	Penthouse Labor	75,000	75,000	-	-	75,000	100%	0
26	Penthouse Material	56,000	56,000	-	-	56,000	100%	0
27	Insulation	72,000	72,000	-	-	72,000	100%	0
28	Controls	110,000	110,000	-	-	110,000	100%	0
29	Balancing	10,000	10,000	-	-	10,000	100%	0
30	CO - 13-704-06A	(5,000)	(5,000)	-	-	(5,000)	-	0
31	CO - 13-704-06B	1,806	1,806	-	-	1,806	100%	0
32	CO - 13-704-06C	38,685	38,685	-	-	38,685	100%	0
33	CO - 13-704-06D	10,672	10,672	-	-	10,672	100%	0
34	CO - 13-704-06E	(8,425)	(8,425)	-	-	(8,425)	-	0
35	CO - 13-704-06F	2,172	2,172	-	-	2,172	100%	0
36	CO-13-704-06G	32,066	32,066	-	-	32,066	100%	0
37	CO-13-704-06H	3,300	3,300	-	-	3,300	100%	0
38	CO-13-704-06I	(11,636)	(11,636)	-	-	(11,636)	-	0
39								
TOTALS		2,784,640	2,784,640	0	0	2,784,640	100%	0

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Summary: Application pplication to Commit Energy Efficiency/Peak Demand Reduction Programs
(Mercantile Customers Only)- Rookwood Exchange Operating Suite A, High Efficiency HVAC System in New Building Constructio electronically filed by Carys Cochern on behalf of Duke Energy