



Public Utilities Commission

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

Case No.: ____ - ____ -EL-EEC

Mercantile Customer:

Electric Utility: Duke Energy

Program Title or Description: AK Steel Lighting Retrofit
Project

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. 16-1604-EL-EC

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: AK Steel Corporation

Principal address: 9227 Centre Point Drive West Chester, OH 45069

Address of facility for which this energy efficiency program applies: AK Steel
Middletown Works 1801 Crawford St Middletown, OH 45043

Name and telephone number for responses to questions: Larry Shutte, 513-425-3133

Electricity use by the customer (check the box(es) that apply):

- ☒ The customer uses more than seven hundred thousand kilowatt hours per year at the above facility. (Please attach documentation.)
- ☐ The customer is part of a national account involving multiple facilities in one or more states. (Please attach documentation.)

Section 2: Application Information

A) The customer is filing this application (choose which applies):

- ☒ Individually, without electric utility participation.
- ☐ Jointly with the electric utility.

B) The electric utility is: Duke Energy Corporation

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, completed on May 1 2016 (Provide the date on which the customer replaced fully functioning equipment, and the date on which the customer would have replaced such equipment if it had not been replaced early. Please include a brief explanation for how the customer determined this future replacement date (or, if not known, please explain why this is not known)). The customer would have replaced the failing equipment and fixtures with inefficient alternatives as part of their routine maintenance on these facilities. This is an ongoing process for this customer. Due to the environment, work conditions, and the existing technology, failure is common for High Pressure Sodium and Metal Halide technology. The average life of these existing technologies is 2-3 years. Therefore the expected replacement of these fixtures in these facilities would lie within that time period (May 1, 2018 to May 1, 2019).
- ☐ Installation of new equipment to replace equipment that needed to be replaced. The customer installed new equipment on the following date(s):
- ☐ Installation of new equipment for new construction or facility expansion. The customer installed new equipment on the following date(s):

- ☐ Behavioral or operational improvement. In all of the facilities, foot candle levels were raised significantly through the replacement of High Pressure Sodium or Metal Halide fixtures with high-powered LED technology offering more directed light output, coverage, and expected life.

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: 8,704,855.8 kWh

- 2) If you checked the box indicating that the customer installed new equipment to replace equipment that needed to be replaced, then calculate the annual savings [(kWh used by less efficient new equipment) - (kWh

used by the higher efficiency new equipment) = (kWh per year saved)].
Please attach your calculations and record the results below:

Annual savings: _____ kWh

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

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

Annual savings: _____ kWh

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

- 4) If you checked the box indicating that the project involves behavioral or operational improvements, provide a description of how the annual savings were determined.
-

Section 4: Demand Reduction/Demand Response Programs

- A) The customer's program involves (check the one that applies):
- ☒ Coincident peak-demand savings from the customer's energy efficiency program.
 - ☐ Actual peak-demand reduction. (Attach a description and documentation of the peak-demand reduction.)
 - ☐ Potential peak-demand reduction (check the one that applies):
 - ☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a tariff of a regional transmission organization (RTO) approved by the Federal Energy Regulatory Commission.
 - ☐ The customer's peak-demand reduction program meets the requirements to be counted as a capacity resource under a program that is equivalent to an RTO program, which has been approved by the Public Utilities Commission of Ohio.
- B) On what date did the customer initiate its demand reduction program? May 1 2016.
- C) What is the peak demand reduction achieved or capable of being achieved (show calculations through which this was determined):

993.71 kW

Total kWh savings divided by annual hours ($8,704,855.8 / 8760 = 993.71$)

**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 \$_____. (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 226.44 Days (not to exceed 24 months). (Attach calculations showing how this time period was determined.)

OR

☐ A commitment payment valued at no more than \$_____. (Attach documentation and

calculations showing how this payment amount was determined.)

OR

- ☐ Ongoing exemption from payment of the electric utility's energy efficiency/peak demand reduction rider for an initial period of 24 months because this program is part of the customer's ongoing efficiency program. (Attach documentation that establishes the ongoing nature of the program.) In order to continue the exemption beyond the initial 24 month period, the customer will need to provide a future application establishing additional energy savings and the continuance of the organization's energy efficiency program.)

Section 6: Cost Effectiveness

The program is cost effective because it has a benefit/cost ratio greater than 1 using the (choose which applies):

- x Total Resource Cost (TRC) Test. The calculated TRC value is: 2.16

Continue to Subsection 1, then skip Subsection 2)

- ☐ Utility Cost Test (UCT) . The calculated UCT value is: _____ (Skip to Subsection 2.)

Subsection 1: TRC Test Used (please fill in all blanks).

The TRC value of the program is calculated by dividing the value of our avoided supply costs (generation capacity, energy, and any transmission or distribution) by the sum of our program overhead and installation costs and any incremental measure costs paid by either the customer or the electric utility.

The electric utility's avoided supply costs were \$2,931,795.43

Our program costs were \$1,354,495.54

The incremental measure costs were \$0

TRC Value: 2.16

Subsection 2: UCT Used (please fill in all blanks).

We calculated the UCT value of our program by dividing the value of our avoided supply costs (capacity and energy) by the costs to our electric utility (including administrative costs and incentives paid or rider exemption costs) to obtain our commitment.

Our avoided supply costs were _____.

The utility's program costs were _____.

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

Section 7: Additional Information

Please attach the following supporting documentation to this application:

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



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Commission**

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State of Ohio:

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

1. I am the duly authorized representative of:

AK Steel Corporation

[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.

Larry Schutte - Corporate Manager of Energy Optimization
Signature of Affiant & Title

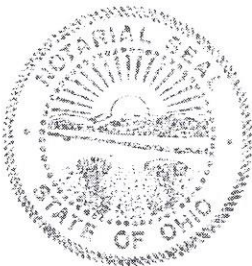
Sworn and subscribed before me this 11th day of May, 2016 Month/Year

[Signature]

Signature of official administering oath

Jeffrey L. Zackerman, Attorney at Law
Print Name and Title

My commission expires on N/A



JEFFREY LEE ZACKERMAN, Attorney at Law
Notary Public, State Of Ohio
My Commission Has No Expiration Date
Section 147.03

AK Steel Energy Efficiency Rider Exemption Overview and Commitment Form:

Commitment of Savings: By signing and accepting this application, AK Steel Corporation affirms its intention to commit and integrate the energy efficiency projects contained within this application towards Duke Energy Corp.'s peak demand reduction, demand response and/or energy efficiency programs for the life of the lighting equipment.

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

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

Committed Project Overview: AK Steel agrees to commit the energy savings generated from the energy efficient lighting upgrade equal to 8,704,855.8 kWh per year for the life of the equipment. Expected life is equal to 8 years for the new LED technology in this environment. This solution replaced various types of HID and HPS in Phase 1 and 400W HID and 1000W HID traditional high bay fixtures in Phase 2.

Confidentiality: AK Steel Corporation requests that the PUCO, Duke Energy Corporation and all other parties keep all relevant parts of this application strictly confidential. The steel business is highly competitive and AK Steel Corporation views the information contained within this application as a confidential business advantage directly affecting its business operation.

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

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

Project Timeline/Rider Exemption Timeline: (see addendum C1) The project was placed in commercial operation on May 1, 2016.

Annual Report: AK Steel agrees to provide the Utility Company and the PUCO a formal annual report that documents the energy savings and electric utility peak-demand reductions achieved for this project. This report shall be submitted electronically to the Utility Company and the PUCO no later than 15 days

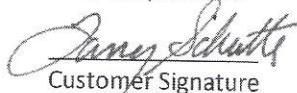
AK Steel Energy Efficiency Rider Exemption Overview and Commitment Form:

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

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

Signature:

I, LARRY SCHUTTE, certify that I am eligible to sign and certify this document on behalf of AK Steel Corporation.


Customer Signature

5/11/2016
Date



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Addendum A1

AK Steel has been embarking on a campus wide initiative to transition HID and HPS technology to LED technology in several buildings and on the grounds at the Middletown location. The buildings lights run 24/7 365 as activity persists in the plant 8760 hours a year. The calculations below detail energy usage, replacement cost, and rider exemption value for these replacements and determined that the economics are favorable for replacement of the lighting.

Calculations:

Operating Hours- 8760 hours per year

Hourly Savings of 993.71 kW

Annual kWh Savings= 8,704,855.80 kWh annual savings

The average annual total electricity consumption for AK Steel Middletown Works over the past three years is 1,403,138.33 MWh. (2013-2015)

Total usage for 2013 was 1,321,254 MWH

Total Usage for 2014 was 1,432,874 MWH

Total Usage for 2015 was 1,455,287 MWH

Since 1% annual reduction is required to offset the rider for the year 2016, the annual rider reduction requirement is: $0.01 \times 1,403,138.33 \text{ MWh} = 14,031,383 \text{ kWh}$.

This project will offset $8,704,855.80 \text{ kWh} / 14,031,383 \text{ kWh} = 62.04\%$ of the annual rider requirement

$365 \text{ days per year} \times 66.11\% = 226.44 \text{ days of rider exemption}$

Addendum B1

Total Resource Cost Test (TRC) Calculations:

Annual Production: kWh	
Average kWh Rate:	\$ 0.0421
Minimum Useful Life: years (Conservative)	8
Electric Utility's Lifetime avoided supply costs=	\$2,931,795.43
Our program costs were:	\$1,354,495.54
The incremental measure costs will be:	\$0
Total Costs	\$1,354,495.54
Total Resource Cost Test:	2.16
Calculations Explained:	
Savings x kWh Rate x minimum useful life= Electric utility's avoided supply costs	
Avoided Supply Costs/ (Program costs+ Incremental measure costs)= TRC Test	

**Application to Commit
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Addendum C1: Timeline

This project was completed and placed in commercial operation on May 1, 2016.

Addendum D1: See Project Specifications PDF – Phase 1 – Orders

Addendum D2: See Project Specifications PDF – Phase 2 – Project

Addendum D1 - Phase 1-Orders

Item #	Area	Inst. Qty	Existing Watts (Footc)	Existing Watts (Total)	New Fixture	Fixture Cost	Total Cost	Replacement Watts	Watts	Watts Saved
1	Slab Motor Room	15	1,080	17,280	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	836.00	13,000.00	240	3,840	15,440
2	Slab Motor Room	3	1,080	3,240	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	456.00	1,500.00	240	720	2,520
3	Slab Motor Room	1	1,080	1,080	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	850.50	850.00	240	720	680
4	Slab Motor Room	6	1,080	6,480	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	350.00	6,800.00	240	1,570	6,730
5	Transportation	4	465	1,860	AT82 808LEDE10 MVOLT B4 5K BZ PCLL	265.00	3,450.00	284	1,136	2,724
6	Hot Strip	6	365	2,190	W4GLED 30C 1000 SOK T3M MVOLT BZ	450.00	2,700.00	104	624	1,566
7	Slab Motor Room	8	1,080	8,640	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	850.00	6,800.00	240	1,920	6,720
8	Hot Strip Motor Room	5	1,080	5,400	PH2 27L 5K AH P L N PF-121-A WG	875.00	4,375.00	240	1,200	4,200
9	Hot Strip Motor Room	5	1,080	5,400	PH2 27L 5K AH P L N PF-121-A WG	875.00	4,375.00	240	1,200	4,200
10	Cold Strip	12	1,080	12,960	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	850.00	10,200.00	240	2,880	10,080
11	Transportation	4	465	1,860	AT82 808LEDE10 480 R4 5K BZ PCLL	935.00	3,980.00	284	1,136	2,724
12	Hot Strip Motor Room	11	1,080	11,880	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	610.00	6,910.00	240	2,640	9,240
13	Transportation	4	1,080	4,320	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	850.00	3,400.00	240	960	3,360
14	Slab Motor Room	8	1,080	8,640	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	6,480.00	240	1,920	6,720
15	Slab Motor Room	1	1,080	1,080	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	810.00	240	240	840
16	Slab Motor Room	6	1,080	6,480	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	850.00	5,100.00	240	1,440	5,040
17	Blast Furnace	2	465	930	PH2 27L 5K AH P L N PF-121-A WG	981.00	1,962.00	98	196	734
18	Transportation	4	465	1,860	AT82 808LEDE10 480 R4 5K BZ PCLL	995.00	3,980.00	284	1,136	2,724
19	Slab Motor Room	2	1,080	2,160	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	1,620.00	240	480	1,680
20	Transportation	2	465	930	AT82 808LEDE10 480 R4 5K BZ PCLL	995.00	1,990.00	284	568	362
21	Transportation	1	465	465	AT82 808LEDE10 MVOLT R4 5K BZ SH	41.55	41.55	284	284	181
22	Transportation	4	1,080	4,320	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	3,240.00	240	960	3,360
23	Caster	10	465	4,650	W4GLED 30C 1000 SOK T3M MVOLT BZ	450.00	4,500.00	104	1,040	3,610
24	Hot Strip	20	1,080	21,600	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	4,800	16,800
25	Transportation	4	1,080	4,320	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	3,240.00	240	960	3,360
26	Hot Strip	1	185	185	BALED 5L 5K AS P G	447.97	447.97	52	52	133
27	Caster	10	1,080	10,800	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	8,100.00	240	2,400	6,400
28	Transportation	4	465	1,860	AT82 808LEDE10 MVOLT R4 5K BZ PCLL	865.00	3,460.00	284	1,136	724
29	Caster	10	465	4,650	W4GLED 30C 1000 SOK T3M MVOLT BZ	450.00	4,500.00	104	1,040	3,610
30	Transportation	4	1,080	4,320	HMLED2 12 5K AS G AW AO PCL1 P3	0.01	0.04	500	2,000	2,320
31	Transportation	4	1,080	4,320	HMLED2 12 5K AS G AW AO PCL1 P3	1,836.04	7,344.00	500	2,000	2,420
32	Caster	1	1,080	1,080	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	810.00	240	480	1,680
33	Transportation	4	465	1,860	W4GLED 30C 1000 SOK T3M MVOLT BZ	450.00	1,800.00	104	240	840
34	Blast Furnace	8	465	3,720	HMLED 42 700 5K AS UN G L5 SSC	675.00	5,400.00	42	416	1,444
35	Hot Strip	1	1,080	1,080	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	810.00	240	336	3,384
36	Cold Strip	12	185	2,220	BALED 5L 5K AS P G	425.00	5,100.00	240	240	840
37	Caster	10	465	4,650	W4GLED 30C 1000 SOK T3M MVOLT BZ	450.00	4,500.00	104	624	1,596
38	Hot Strip	20	1,080	21,600	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	1,040	3,610
39	Hot Strip	20	1,080	21,600	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	4,800	16,800
40	Transportation	4	465	1,860	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	4,800	16,800
41	Transportation	4	465	1,860	PMLED 6 5K 10A AS 65 3 K ZP 0623	0.01	0.04	160	640	1,220
42	Transportation	2	465	930	PMLED 6 5K 10A AS 65 3 K ZP 0623	1,733.97	4,935.88	160	640	1,220
43	Cold Strip	12	1,080	12,960	AT82 808LEDE10 MVOLT R4 5K BZ PCLL	865.00	1,730.00	284	568	362
44	Caster	6	465	2,790	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	9,720.00	240	2,880	10,080
45	Transportation	4	1,080	4,320	W4GLED 30C 1000 SOK T3M MVOLT BZ	450.00	2,700.00	104	624	1,596
46	Transportation	4	1,080	4,320	PMLED 9 5K 10A AS 65 3 K ZP PCL1 P3 TLO	0.01	0.04	354	1,416	2,166
47	Transportation	4	1,080	4,320	PMLED 9 5K 10A AS 65 3 K ZP PCL1 P3 TLO	1,547.00	6,188.00	354	1,416	2,904
48	Hot Strip	1	1,080	1,080	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	850.00	850.00	240	240	840
49	Hot Strip	20	1,080	21,600	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	4,800	16,800
50	Hot Strip	20	1,080	21,600	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	4,800	16,800
51	Hot Strip	5	1,080	5,400	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	4,050.00	240	1,200	4,200
52	Hot Strip	20	1,080	21,600	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	4,800	16,800
53	Blast Furnace	14	185	2,590	BALED 5L 5K AS P G	425.00	5,950.00	52	778	1,862
54	Hot Strip	20	465	9,300	W4GLED 30C 1000 SOK T3M MVOLT BZ	450.00	9,000.00	104	2,080	7,220
55	Cold Strip	12	185	2,220	BALED 5L 5K AS P G	425.00	5,100.00	52	624	1,596
56	Hot Strip	20	1,080	21,600	PH2 27L 5K AS P L N PF-105 CD-6 WG	780.00	15,500.00	240	4,800	16,800
57	Transportation	4	1,080	4,320	HMLED2 12 5K AS G AW AO PCL1 P3	0.01	0.04	500	2,000	2,320
58	Transportation	4	1,080	4,320	HMLED2 12 5K AS G AW AO PCL1 P3	1,836.04	7,344.00	500	2,000	2,420
59	Blast Furnace	15	1,080	16,200	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	12,150.00	240	3,000	12,600
60	Cold Strip	12	1,080	12,960	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	9,720.00	240	2,880	10,080
61	Cold Strip	12	1,080	12,960	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	9,720.00	240	2,880	10,080
62	Transportation	4	1,080	4,320	PMLED 9 5K 10A AS 65 3 K ZP PCL1 P3 TLO	0.01	0.04	354	1,416	2,166
63	Transportation	4	1,080	4,320	PMLED 9 5K 10A AS 65 3 K ZP PCL1 P3 TLO	1,547.12	6,188.48	354	1,416	2,904
64	Cold Strip	12	1,080	12,960	HMLED2 12 5K AS G AW AO PCL1 P3	1,872.77	22,473.24	500	6,000	6,960
65	Transportation	4	465	1,860	AT82 808LEDE10 480 R4 5K BZ PCLL	995.00	3,980.00	284	1,136	724
66	Caster	10	1,080	10,800	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	8,100.00	240	2,400	8,400
67	Blast Furnace	14	185	2,590	BALED 5L 5K AS P G	425.00	5,950.00	52	778	1,862
68	Cold Strip	12	1,080	12,960	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	9,720.00	240	2,880	10,080
69	Hot Strip	20	1,080	21,600	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	810.00	16,200.00	240	4,800	16,800
70	Transportation	4	1,080	4,320	PH2LSOLSK70C8ASPLNPF-105-CD-6-WG	0.01	0.04	432	1,728	2,592
71	Transportation	4	1,080	4,320	PH2LSOLSK70C8ASPLNPF-105-CD-6-WG	1,575.00	5,900.00	432	1,728	2,592
72	Hot Strip Mill	4	1,080	4,320	PH2 27L 5K 12 P W M CDP-L5-15-3 PF-121A	3,175.00	12,700.00	240	960	3,660
73	Hot Strip Mill	1	1,080	1,080	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	1,836.04	1,836.04	500	500	580
74	Hot Strip Mill	1	1,080	1,080	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	1,836.04	1,836.04	500	500	580
75	Hot Strip Mill	1	1,080	1,080	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	1,836.04	1,836.04	500	500	580
76	Hot Strip Mill	1	1,080	1,080	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	1,836.04	1,836.04	500	500	580
77	Hot Strip Mill	1	1,080	1,080	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	1,836.04	1,836.04	500	500	580
78	Hot Strip Mill	1	1,080	1,080	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	1,836.04	1,836.04	500	500	580
79	Hot Strip Mill	1	1,080	1,080	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	1,836.04	1,836.04	500	500	580
80	Hot Strip Mill	4	1,080	4,320	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	0.04	0.16	500	2,000	2,320
81	Blast Furnace	4	1,080	4,320	HMLED2 12 5K AS G AW AO PCL1 P3HMLED2 12	7,344.16	29,376.64	500	2,000	2,320
82	Blast Furnace	12	185	2,220	BALED 5L 5K AS P G	5,100.00	61,200.00	52	824	1,596
83	Hot Strip Mill	4	465	1,860	PMLED 6 5K 10A AS 65 3 K ZP 0623	0.04	0.16	160	640	1,220
84	Hot Strip Mill	4	465	1,860	PMLED 6 5K 10A AS 65 3 K ZP 0623	4,935.88	19,743.52	160	640	1,220
85	Blast Furnace	4	185	740	BALED 5L 5K AS P G	0.04	0.16	52	208	532
86	Blast Furnace	4	185	740	BALED 5L 5K AS P G	1,700.00	6,800.00	52	208	532
87	East Processing	10	1,080	10,800	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	8,500.00	85,000.00	240	2,400	8,400
88	East Processing	10	1,080	10,800	222ALV-PH24LSKASPLNPF-10SSPASWG-AK	8,500.00	85,000.00	240	2,400	8,400

635

547919

740,162.24

141,932

405,978

PUCO FER (Duke Energy)	
Total kW Reduction for PUCO:	405,978
- 633 Fixtures	
Total kWh Reduction for PUCO:	3,556,067.28
Total Cost:	5740,162.24

Phase 2 - Detail (Project)									
Existing Lighting Scenario									
Qty	Existing Fixture Description	Location	Existing Watts	Hours	Days Per Year	kW	Annual kWh		
115	HID 1000W HiBay, Metal Salad Bowl	East Pro 173	1080	24.0	365	124.20	1,087,992.00		
180	HID 400W HiBay, Metal Salad Bowl	NNS	458	24.0	365	82.44	722,174.40		
204	HID 1000W HiBay, Metal Salad Bowl	Hot Roll Processing	1080	24.0	365	220.32	1,930,003.20		
216	HID 1000W HiBay, Metal Salad Bowl	Green Coil Storage	1080	24.0	365	233.28	2,043,532.80		
104	HID 1000W HiBay, Metal Salad Bowl	South Annealing (S&S)	1080	24.0	365	112.32	983,923.20		
						772.56	6,767,625.60		
Proposed Lighting Scenario									
	Proposed Solution	Location	Proposed Watts	Hours	Days Per Year	kW	Annual kWh		
96	Holo Phuzion	East Pro 173	255	24.0	365	24.48	214,444.80		
129	Holo Phuzion	NNS	482	24.0	365	62.18	544,679.28		
153	Holo Phuzion	Hot Roll Processing	255	24.0	365	39.02	341,771.40		
140	Holo Phuzion	Green Coil Storage	255	24.0	365	35.70	312,732.00		
92	Holo Phuzion	South Annealing (S&S)	255	24.0	365	23.46	205,509.60		
						184.83	1,619,137.08		
Product to be Installed									
96	Holo Phuzion	East Pro 173							
129	Holo Phuzion	NNS							
153	Holo Phuzion	Hot Roll Processing							
140	Holo Phuzion	Green Coil Storage							
92	Holo Phuzion	South Annealing (S&S)							
Savings and Project Cost									
kW Savings:			587.73						
Annual kWh Savings			5,148,488.52						
Total Project Cost*:			\$ 614,333.30						

Summary Chart of kW Savings, kWh, & Cost

PUCO EER (Duke Energy)	
Phase 1 - Orders	
Total kW Reduction for PUCO:	405.98
- 635 Fixtures	
Total kWh Reduction for PUCO:	3,556,367.28
Total Cost:	\$740,162.24
Phase 2 - Project	
Total kW Reduction for PUCO:	587.73
- 610 Fixtures	
Total kWh Reduction for PUCO:	5,148,488.52
Total Cost:	\$614,333.30
Total Project (Phase 1 and 2)	
Total kW Reduction for PUCO:	993.71
- 1245 Fixtures	
Total kWh Reduction for PUCO:	8,704,855.80
Total Cost:	\$1,354,495.54

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Case No(s). 16-1604-EL-EEC

Summary: Application electronically filed by Kevin Carp on behalf of AK Steel and Cope, Russ Mr.