

Bourbon County Schools District Energy Management Team

May 4, 2016



Agenda

- Members of District Energy Management Committee
- Latest Energy Management Report
- Energy Star Portfolio Manager Ratings
- Savings Summary
- Enernoc Demand Reduction Program
- Energy Conservation Measures (ECM's)
- Grant Funds Available from Kentucky Utilities
- Possible Update to Energy Management Plan
- Energy Management Goals for 2015-2016 School Year

District Energy Management Committee

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|------------------|---------------------------|--------------------|---------------------------|
| • Amy Baker | Superintendent | • Chris Kindred | Director of Planning/Prog |
| • Todd Earlywine | School Board Chairman | • Larry Perraut | BCHS Head Custodian |
| • Andrea Kiser | Chief Financial Officer | • Steve Greenamyer | Maintenance |
| • Jim Cleaver | Director of Maint./Trans. | • Chuck Tanner | Electrician |
| • Dana Hill | Cane Ridge Principal | • Eric Horine | Kentucky Utilities |
| • Scott Muntz | SCMS Teacher | • Keaton Prebble | High School Student |
| • Tom Mills | Chief Information Officer | • Mady Walters | Middle School Student |
| • Marlena Rose | Food Service Director | • Jim McClanahan | Energy Manager |



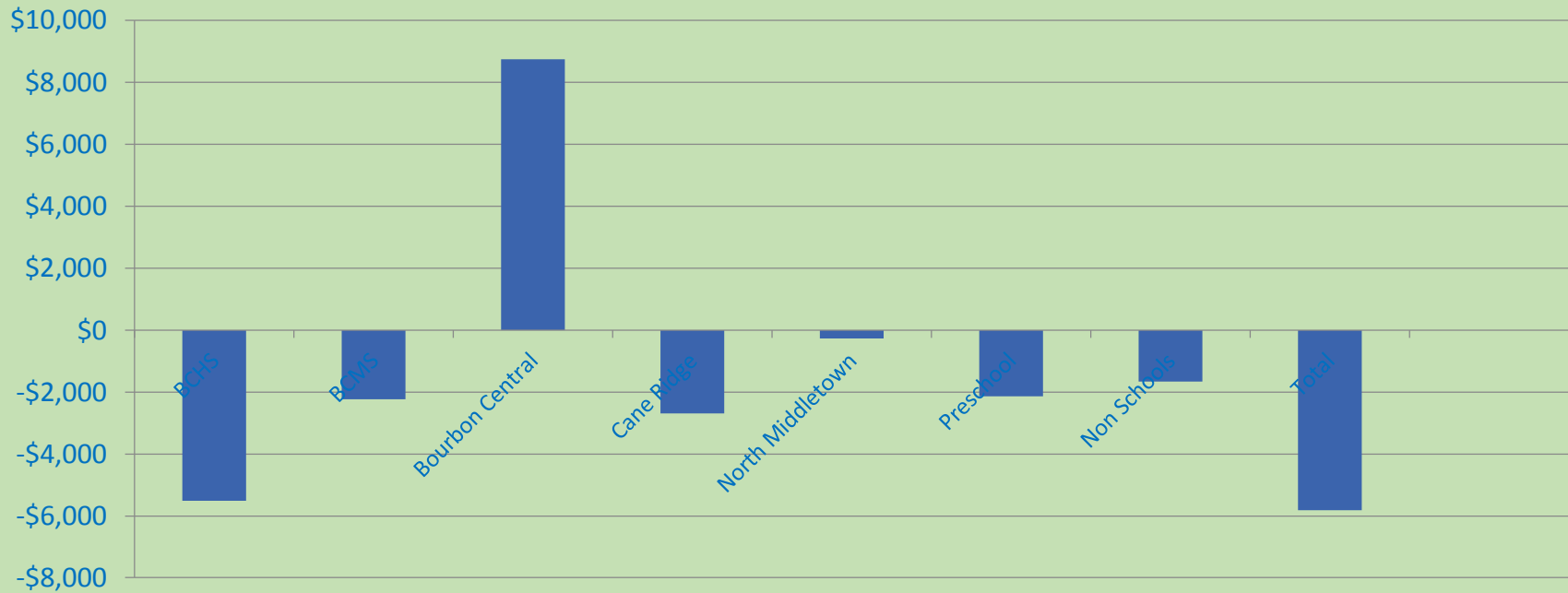
Bourbon County Schools Energy Management Report April 2016

School Facility	April					2015 - 2016 YTD Results				
	2015 Actual Kwh	2016 Actual Kwh	% Reduction	Position	\$ Cost Change	2014-15 Actual Kwh	2015-16 Actual Kwh	% Reduction	Overall Position	YTD \$ Cost Change
BCHS	118,289	100,616	14.9%	3	-\$1,868	1,334,875	1,275,715	4.4%	4	-\$5,521
BCMS	76,522	69,625	9.0%	6	-\$729	926,055	902,083	2.6%	5	-\$2,237
Bourbon Central	72,277	60,355	16.5%	2	-\$1,260	763,098	856,655	-12.3%	7	\$8,731
Cane Ridge	41,608	37,214	10.6%	4	-\$464	533,213	504,306	5.4%	2	-\$2,698
North Middletown	12,769	11,604	9.1%	5	-\$123	133,642	130,621	2.3%	6	-\$282
Preschool	21,240	19,400	8.7%	7	-\$194	277,480	254,600	8.2%	1	-\$2,135
Non Schools	32,036	26,706	16.6%	1	-\$563	334,281	316,333	5.4%	3	-\$1,675
Total	374,741	325,520	13.1%		-\$5,201	4,302,644	4,240,313	1.4%		-\$5,817



Electrical Energy Cost Comparison to Last Year

July 2015 - April 2016 \$ Cost Change



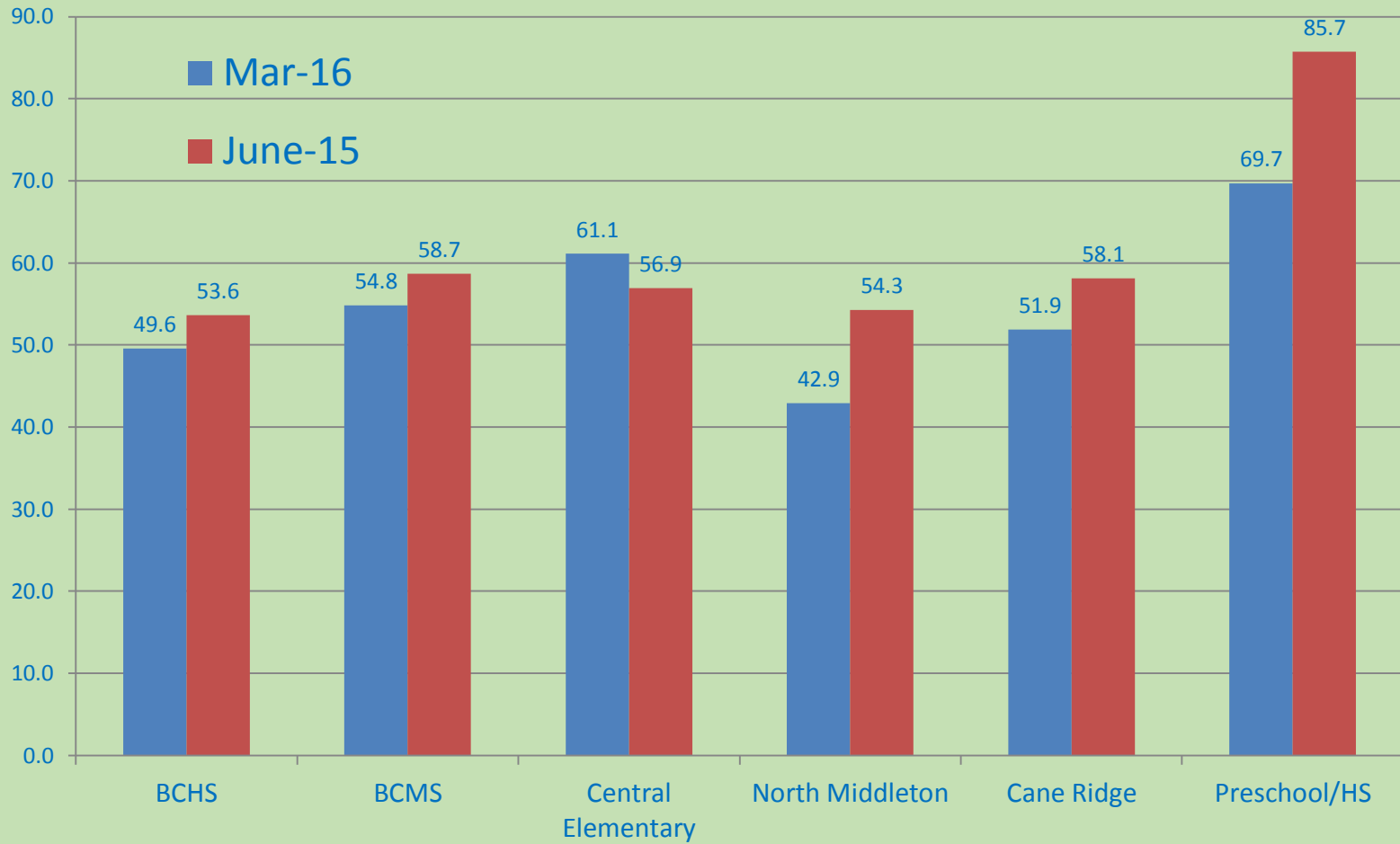
Note: The Schools with the Lowest Bars are doing the Best Job in Reducing Costs

Energy Star Portfolio Manager Ratings

Facility Name	Rating (1-100) Mar-16	Rating (1-100) June-15	Energy Use kbtu/sq ft Mar-16	Energy Use kbtu/sq ft June-15	Change From Baseline
Bourbon County High School	56	52	49.6	53.6	-7.5%
Bourbon County Middle School	61	58	54.8	58.7	-6.6%
Bourbon Co Central Elementary	55	65	61.1	56.9	7.4%
North Middleton Elementary	98	96	42.9	54.3	-21.0%
Cane Ridge Elementary	77	72	51.9	58.1	-10.7%
Preschool/Headstart	N/A	N/A	69.7	85.7	-18.7%
			-		
Group Total	64	63	53.1	57.4	-7.5%



EUI (kbtu/sq.ft/)



Energy Management Avoided Costs Summary

Project Description	Refunds/Rebates Received	Avoided Costs	Total Avoided Costs
Rate Change Savings Prior Years		\$23,724	\$23,724
Rate Change Savings Current Year		\$11,400	\$11,400
Consumption Savings Current Year		\$25,778	\$25,778
Energy Projects Prior Years	\$11,381 (Rebates)		\$11,381
Energy Projects Current Year	\$8,231 (Rebates)		\$8,231
Total	\$19,612	\$60,902	\$80,514

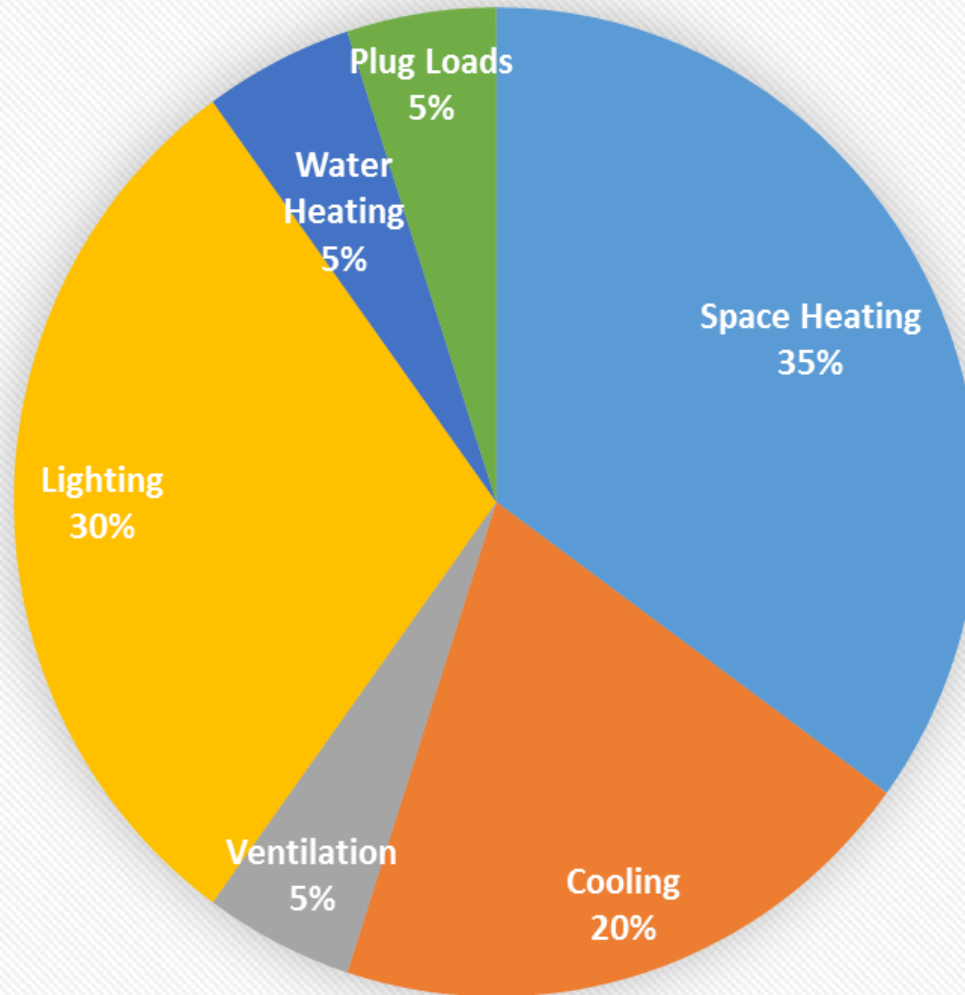


Enernoc Demand Reduction Program

- New Smart Meters Have Been Installed at Schools
- All Meters Must be Verified and Tested
- Three Schools (BCHS, BCMS & Cane Ridge) were tested on April 27, 2016 and they all passed.
- Real Time Meters are now accessible
- Demand Reductions could be asked for in June, July, August or September



Typical School Energy Use



■ Space Heating ■ Cooling ■ Ventilation ■ Lighting ■ Water Heating ■ Plug Loads



Energy Conservation Measures (ECM's)

- Low cost/no cost measures first
 - Keep outside doors and windows closed
 - Keep lights off when no in the area
 - Turn computers off at night and on weekends
 - Remove all space heaters except for temporary use while maintenance is being done on equipment
 - Reduce personal appliances such refrigerators, microwaves, coffee pots, etc.

ECM's for Schools

- Cane Ridge Elementary
 - Convert Gym Lights to LED's – Cost \$7.2K < 3 yrs. (Complete)
 - Convert T12 to LED's – Cost \$12.3K with payback < 3 yrs.
 - Convert Parking Lot Lights to LED's – Cost \$4.6K < 8 yrs.
- North Middletown Elementary
 - Convert T12 to T8 – Cost \$1.5K with payback < 1 yr.
- Preschool
 - Convert Outside Lights to LED's – Cost \$0.8K < 2 yrs.
 - Convert Parking Lot Lights to LED's – Cost \$4.6K < 8 yrs.

KU Grants for Schools

- Three Options
 - No match = \$6,000
 - One for One Match = \$12,000 (Projects Total \$24,000)
 - One for One Match > \$12,000 (Projects > \$24,000)
- Requirements to Obtain Grant
 - Define Projects with Payback less than 10 Years
 - Complete Attachment B for All Projects
 - School Board Approve Funding Participation Resolution
 - Submit to KSBA before August 15, 2016
- Will not know until after August 15 How Much more than \$12,000 would be available.

List of Energy Conservation Measures (ECM)

<u>School</u>	<u>ECM's</u>	<u>Material Cost</u>	<u>Rebates</u>	<u>Net Cost</u>	<u>Annual Savings</u>	<u>Payback (Years)</u>
N. Middletown	Convert T-12 Lights to T-8 (28 Watts)	\$1,520.40	\$672.00	\$848.40	\$1,272.08	0.67
Preschool	Outside Metal Halide to LED	\$770.00	\$0.00	\$770.00	\$577.83	1.33
Bourbon Middle	Outside Metal Halide to LED	\$560.00	\$0.00	\$560.00	\$414.94	1.35
Bourbon Central	Convert M.H. Wall Packs to LED	\$665.00	\$0.00	\$665.00	\$341.44	1.95
Bourbon Middle	Convert Gym Lights to LED (with Sensors)	\$13,202.85	\$1,242.00	\$11,960.85	\$3,973.09	3.01
Cane Ridge	Convert T-12 Lights to LED's	\$12,320.00	\$1,350.00	\$10,970.00	\$3,758.56	2.92
Bourbon High	Outside Metal Halide to LED	\$4,320.00	\$0.00	\$4,320.00	\$829.89	5.21
Cane Ridge	Convert Parking Lot Lights to LED (with Sensors)	\$4,574.70	\$270.00	\$4,304.70	\$589.92	7.30
Bourbon Central	Convert Parking Lot Lights to LED (with Sensors)	\$6,607.90	\$390.00	\$6,217.90	\$852.10	7.30
Preschool	Convert Parking Lot Lights to LED (with Sensors)	\$4,574.70	\$270.00	\$4,304.70	\$589.92	7.30
Bourbon High	Convert 24/7 Lights to LED	\$15,229.20	\$238.00	\$14,991.20	\$1,188.30	12.62
Total		\$64,344.75	\$4,432.00	\$59,912.75	\$14,388.06	4.16
Total Projects Highlighted		\$44,540.85	\$3,924.00	\$40,616.85	\$12,609.85	3.22



Potential Updates to Energy Management Plan

- Potential Change to Unoccupied Temperature Setpoints
 - “unoccupied temperatures will change by 5 degrees” to
 - “unoccupied temperatures set points: 60 degrees for heating and 80 degrees for cooling”

2015-2016 Energy Management Goals

- Achieve 5% Reduction from Last Year (Not Achieved)
- Achieve \$50,000 Cumulative Avoided Costs (Achieved)
- Obtain Energy Star for Two Schools (Achieved)
- Enter National and Kentucky Building Competition (Completed)
- Establish Student Energy Teams at Each School (In Process)