

LET'S SAVE ENERGY

School Energy Efficiency News

KSBA-SEMP ... Cultivating energy efficiency,
best practices in Kentucky school districts



December 2016

\$123 million:

Total energy savings for seven years, with 98 percent of school districts cutting energy use

Total energy use in Kentucky school districts continue to decline, while square footage of school facilities continues to increase. Energy costs per MMBTU continue to increase and is expected to continue to rise.

The major yardstick for these calculations is energy use intensity (EUI), which measures energy use (kBtu) per square foot. For the base year 2009-10, the statewide EUI index was 65.4 kBtu per square foot. In 2013-14 the EUI index was 60.9, and continued dropping steadily, now at 52.0 kBtu per square foot for 2015-16. Further, the corresponding cumulative avoided cost during that period through consumption reduction, rate corrections, rebates, refunds and utility case interventions is over \$123 million. Significantly, 98 percent of districts reduced energy consumption over the same period.

KSBA's School Energy Managers Project (SEMP) has funded and trained local school energy managers

since 2010. Current funding is in partnership with Louisville Gas & Electric/Kentucky Utilities Company and Kentucky Power Company. SEMP personnel help school districts:

- Break down analytical and technical issues.
- Develop and implement energy management plans.
- Comply with statutory and board policy requirements.
- Track energy usage.
- Coordinate recognition events.
- Consolidate and report statewide energy data to Legislative Research Commission and the Energy and Environment Cabinet.
- Collaborate with the Kentucky Energy and Environment Cabinet, utility companies, and other stakeholders to work on energy-saving activities.

**Figure 8. MUNIS K-12 Facility Energy Expenditures
FY2000 - FY2016**

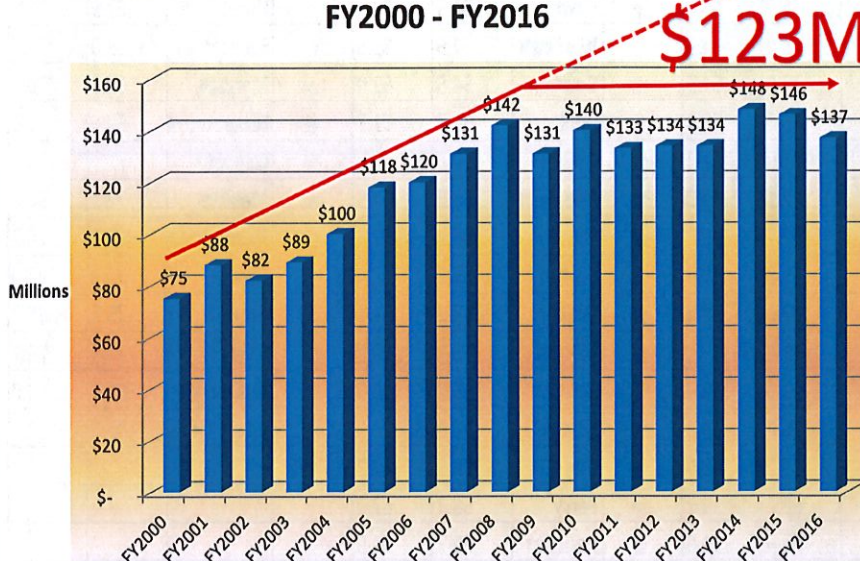


Figure 8 at left shows the MUNIS-reported school energy costs from fiscal year 2000 through fiscal year 2016. This graph shows that these costs had nearly doubled between fiscal years 2000 and 2008. The red lines on the graph illustrate the projected trajectory of costs and the cumulative savings of over \$123 million.

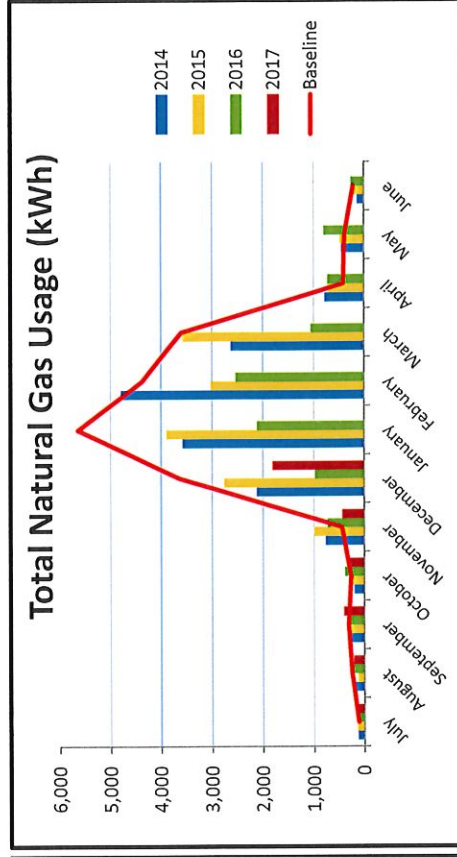
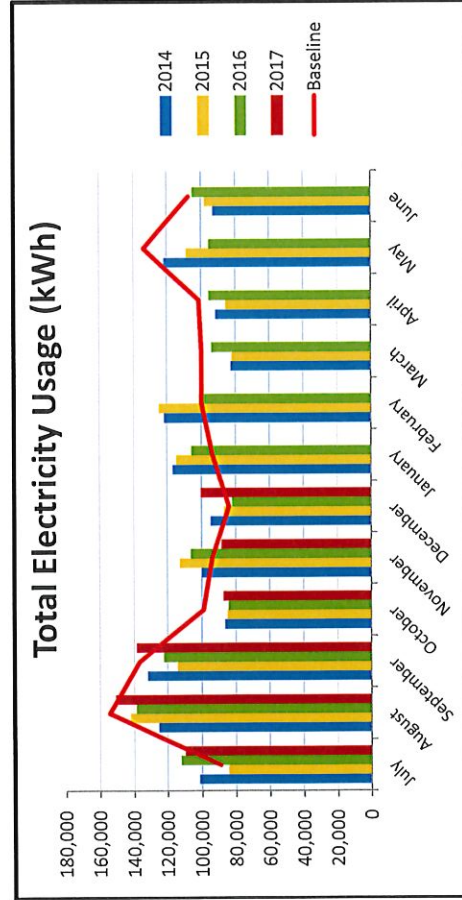
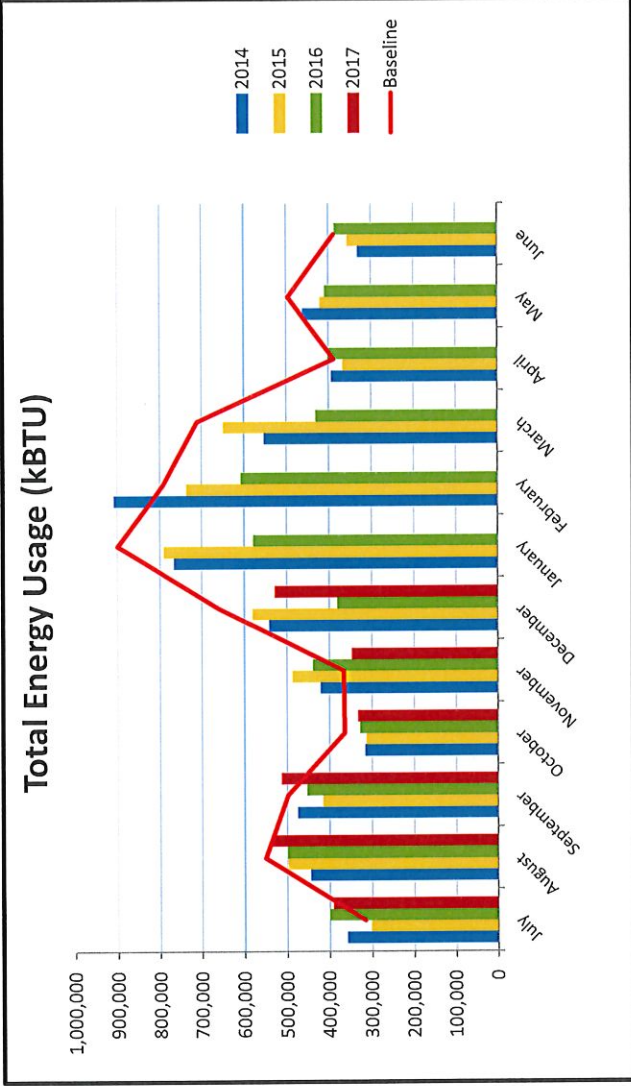
TABLE 2, District Ranking by Energy Use Intensity for FY2016

Rank	District	2016 EUI	2010 EUI	Rank	District	2016 EUI	2010 EUI	Rank	District	2016 EUI	2010 EUI	Rank	District	2016 EUI	2010 EUI
1	Owen	33.2	62.5	45	Christian	44.2	70.1	89	Paducah	50.4	73.9	133	Jefferson	56.8	68.2
2	Nelson	34.8	51.5	46	Pendleton	44.3	55.9	90	Newport	50.6	44.5	134	Wolfe	57.1	dnr
3	Marion	35.3	60.3	47	Glasgow	44.3	62.6	91	Lincoln	50.6	70.7	135	Bardstown	57.1	72.9
4	Scott	35.9	53.3	48	Calloway	44.4	56.2	92	Carlisle	50.7	46.9	136	Ludlow	57.5	107.9
5	Oldham	36.1	45.7	49	Henry	44.5	67.9	93	Campbells	50.8	76.4	137	Pikeville	57.8	81.9
6	Walton-Verde	36.2	44.6	50	Trimble	44.5	53.7	94	Livingston	51.0	56.9	138	Mayfield	57.9	60.9
7	Butler	36.5	42.8	51	Williamstown	44.8	63.3	95	Jenkins	51.1	dnr	139	Laurel	58.2	dnr
8	East Berns	37.8	dnr	52	Science Hill	44.9	56.5	96	Owensboro	51.2	70.1	140	Martin	58.2	dnr
9	Trigg	37.8	60.2	53	Floyd	44.9	52.0	97	Wayne	51.3	64.2	141	Bath	58.6	87.8
10	Anderson	38.2	52.3	54	Burgin	45.0	60.5	98	Fort Thomas	51.3	72.2	142	Bowling Green	59.0	73.6
11	Bullitt	38.2	53.7	55	Lawrence	45.1	68.6	99	Adair	51.4	71.1	143	Ashland	59.5	75.1
12	Corbin	39.0	51.6	56	Russellville	45.2	52.5	100	Hickman	51.5	67.6	144	Anchorage	60.2	73.8
13	Jessamine	39.2	50.3	57	Garrard	45.4	51.5	101	Russell	51.5	80.5	145	Raceland-Worthingo	60.5	67.0
14	Shelby	39.2	71.6	58	Clark	45.6	74.7	102	Harlan Co.	51.6	55.7	146	Danville	61.2	64.6
15	Erlanger	39.5	56.9	59	West Point	45.7	dnr	103	LaRue	51.8	55.1	147	Berea	61.3	75.7
16	Harlan Ind.	40.4	52.3	60	Boyle	45.7	65.9	104	McCracken	52.0	62.7	148	Todd	62.2	70.0
17	Warren	40.5	50.7	61	Casey	45.8	49.5	105	Fulton Ind.	52.1	69.0	149	Cumberland	62.4	71.1
18	Hazard	40.8	87.2	62	Crittenden	45.9	57.1	106	Mercer	52.2	78.3	150	Johnson	62.6	78.2
19	Middlesboro	40.9	97.2	63	Murray	46.0	47.2	107	Webster	52.5	75.5	151	Knott	62.7	dnr
20	Greenup	41.1	64.1	64	Carter	46.0	59.3	108	Taylor	53.0	64.7	152	Breckinridge	62.8	72.1
21	Meade	41.3	48.7	65	Metcalfe	46.1	60.9	109	Letcher	53.0	62.9	153	Covington Ind.	63.2	80.5
22	Fulton Co.	41.4	69.4	66	Caldwell	46.2	60.7	110	Caverna	53.4	84.2	154	Eminence	63.5	85.3
23	Robertson	41.4	114.5	67	Augusta	46.4	55.6	111	Muhlenberg	53.4	68.5	155	Henderson	64.0	74.1
24	Woodford	41.6	63.5	68	Monroe	46.6	54.7	112	Rowan	53.7	72.3	156	Boone	64.1	74.0
25	South Gate	41.7	47.2	69	Russell Ind.	47.0	70.3	113	Nicholas	53.8	80.7	157	Barbourville	65.0	76.8
26	Paris	41.7	59.6	70	Dawson Springs	47.3	61.0	114	Lewis	53.9	65.6	158	Ballard	65.7	80.1
27	McLean	41.8	45.9	71	Lyon	47.8	53.7	115	Grant	54.0	70.7	159	Fayette	65.9	78.2
28	Elliott	42.3	dnr	72	Bell	48.1	81.5	116	Franklin	54.4	87.3	160	Somerset	66.1	89.8
29	Lee	42.4	78.3	73	Fleming	48.1	69.8	117	Magoffin	54.4	64.7	161	Bellevue	66.4	68.4
30	Hancock	42.6	57.8	74	Knox	48.1	64.8	118	Boyd	54.5	81.2	162	Hart	67.9	73.5
31	Pineville	42.7	58.5	75	Williamsburg	48.4	54.9	119	Washington	54.5	83.5	163	Simpson	68.0	73.6
32	Gallatin	42.8	60.0	76	Logan	48.5	54.5	120	Bourbon	54.5	65.0	164	Marshall	69.3	70.9
33	Estill	42.8	53.4	77	Madison	48.6	56.4	121	Hopkins	54.7	71.7	165	Elizabethtown	69.5	76.9
34	Hardin	43.0	54.3	78	Ohio	48.9	64.4	122	Owsley	54.8	dnr	166	Campbell	71.7	70.2
35	Jackson Co.	43.1	55.2	79	Barren	49.1	49.8	123	Pike County	55.0	64.9	167	Menifee	72.1	90.4
36	Frankfort	43.3	80.7	80	Grayson	49.1	60.0	124	Carroll	55.2	82.9	168	Montgomery	75.3	70.2
37	Whitley	43.3	57.7	81	Bracken	49.3	55.0	125	Dayton	55.2	67.4	169	Powell	75.3	97.0
38	Edmonson	43.8	58.7	82	Beechwood	49.8	68.8	126	Leslie	55.2	69.4	170	Green	75.5	88.2
39	Kenton	43.8	64.9	83	Spencer	49.8	dnr	127	Morgan	55.7	116.8	171	Fairview	77.5	79.7
40	Allen	43.8	57.1	84	Daviess	49.9	53.9	128	Rockcastle	55.7	59.9	172	McCreary	87.1	94.8
41	Cloverport	44.0	72.7	85	Union	50.0	69.1	129	Graves	56.0	dnr	173	Jackson Ind.	102.0	117.6
42	Silver Grove	44.1	69.2	86	Pulaski	50.2	60.9	130	Clay	56.1	63.3				
43	Clinton	44.1	53.5	87	Mason	50.2	59.2	131	Perry	56.3	67.0				
44	Paintsville	44.1	53.3	88	Harrison	50.4	61.9	132	Breathitt	56.7	64.0				

Attachment B
Proposal Samples and Template

Dawson Springs Indep.

Projects	Monthly KW Savings	Annual KWH Savings	Annual \$ Savings	Installed Cost, \$	Rebates, \$	Final Installed Cost, \$	Simple Payback
Library Lighting	13.29	30,150.7	\$ 3,015.07	\$ 6,735.00	-	\$ 6,735.00	2.2
Wallpack retrofit	1.36	5,956.8	\$ 595.68	\$ 470.00	0	\$ 470.00	0.8
Parking lights	1.135	4,971.3	\$ 497.13	\$ 1,775.00	0	\$ 1,775.00	3.6
Bus Garage Low ba	1.05	2,100.0	\$ 210.00	\$ 924.00	0	\$ 924.00	4.4
Hallway retrofit	3.12	6,240.0	\$ 624.00	\$ 2,100.00	0	\$ 2,100.00	3.4
Total	19.95	49,418.8	\$ 4,941.88	\$ 12,004.00	0	\$ 12,004.0	2.4



**Dawson Springs
ENERGY STATISTICS**

Year	Square Footage	Total Costs	Total EUI	Electric EUI	Consumption Savings by year, \$
2010	121,558	\$ 125,374	61.0	39.9	Base Year
2011	121,558	\$ 131,597	51.6	39.4	\$ 24,059
2012	121,558	\$ 107,656	40.9	34.4	\$ 53,018
2013	121,558	\$ 116,215	46.7	36.3	\$ 35,405
2014	121,558	\$ 121,569	47.7	36.0	\$ 33,940
2015	118,733	\$ 125,766	53.7	37.7	\$ 17,147
2016	118,733	\$ 128,097	47.3	37.4	\$ 36,943

Cumulative Consumption Savings \$ 200,513

Utility Data									
Year	Electricity, kwh	Electricity, \$	Natural Gas, ccf	Natural Gas, \$	Propane, gallons	Propane, \$	Fuel Oil, gallons	Fuel Oil, \$	Coal, Tons
2010	1,420,556	\$ 104,799	25,655	\$ 20,575	-	\$ -	-	\$ -	0
2011	1,403,875	\$ 120,942	14,767	\$ 10,655	-	\$ -	-	\$ -	0
2012	1,225,921	\$ 99,826	7,837	\$ 7,830	-	\$ -	-	\$ -	0
2013	1,292,566	\$ 100,947	12,713	\$ 15,268	-	\$ -	-	\$ -	0
2014	1,283,605	\$ 104,951	14,150	\$ 16,618	-	\$ -	-	\$ -	0
2015	1,312,419	\$ 110,563	18,935	\$ 15,203	-	\$ -	-	\$ -	0
2016	1,300,589	\$ 120,071	11,819	\$ 8,026	-	\$ -	-	\$ -	0

KU Rebate Summary:

Hall and classroom lighting	\$ 2,722
Gym Lights	\$ 1,864
Board office led tubes	\$ 370
High bay fixtures (Lobby, Cafeteria, MPR)	\$ 592
Gym rooftop units	\$ 1,200
Sanyo heat pumps	<u>\$ 3,600</u>
Total	\$ 9,698 (received Dec 2016, Jan 217)

KU Rate Change Savings:

Converted main school account from PS2 to TODS

FY 2013	\$7,419	
FY 2014	\$6,980	
FY 2015	\$5,622	
FY 2016	\$6,919	
FY 2017*	<u>\$3,822</u>	* July-Dec
Total	\$30,762	