



Kentucky Power Company ENERGY STAR Schools

Russell Primary School
Russell High School
McDowell Intermediate School
North Magoffin Elementary School
Fleming Neon Middle School
Wurtland Middle School
Wurtland Elementary School
McKell Middle School
McKell Elementary School
Greysbranch Elementary School
Greenup High School
Stumbo Elementary
Betsy Layne High School
Allen Elementary School
Allen Central High
Adams Middle School
Boyd County High School





Fairview Elementary
4th place with 19.8%
reduction
in...







Kentucky's Battle
of the School Buildings

An ENERGY STAR®
Battle of the Buildings™ Competition







Annual Report

for

Kentucky Power Company School Energy Management Program

July 2016 - June 2017

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EXECUTIVE SUMMARY

The Kentucky Power School Energy Management Program ("Program") consists of two sub-programs that provide funding support for public school energy management programs. The first sub-program ("Grant #1) makes funding available to eight eligible eastern Kentucky public school districts in Lawrence and contiguous counties. The second sub-program ("Grant #2) is a commercial DSM program that makes available funding support to all public school districts in Kentucky Power's service territory. The Program is administered by the Kentucky School Boards Association ("KSBA") as part of its School Energy Managers Project pursuant to Energy Manager Program Agreements between Kentucky Power ("KPC") and KSBA.

Out of the twenty-three eligible public school districts, there are a total of seventeen participating. The following public school districts are participating in "*Grant #2:*" Breathitt County, Carter County, Fairview Independent, Floyd County, Hazard Independent, Jackson Independent, Jenkins Independent, Johnson County, Knott County, Lawrence County, Leslie County, Letcher County, Magoffin County, Martin County, Paintsville Independent Perry County, and Pikeville Independent.

The Program assists the districts in implementing energy management measures to improve energy efficiency through behavioral and facility changes by providing supporting funding for an energy manager who facilitates identification, evaluation and implementation, and monitoring of energy efficiency measures. As part of its obligations under the Energy Manager Program Agreements KSBA provides KPC with a report regarding the operation of the School Energy Manager Program and energy savings achieved through the program.

The participating districts reduced their FY2017 energy consumption over FY2015 by 9.66 percent and their summer and winter peak demands by 9.56 percent and 13.72 percent respectively.

The partnership established between KPC and KSBA is providing a means for the School Energy Managers Project (SEMP) to maintain a major presence within public schools in eastern Kentucky. District energy managers are benefitting from technical training and improved skills facilitated by KSBA-SEMP. They and their school districts are benefitting from the knowledge being gained that has provided leverage for energy and demand conservation measures which may not otherwise be undertaken.

It should be noted that school districts may have significant transition in personnel each year. This impacts the experience and knowledge in-district personnel have in maintaining energy management efforts. There were changes with two energy managers. This did require additional training for the two districts.

DISTRICT FUNDING

KPC SCHOOL ENERGY MANAGEMENT PROGRAM FUNDING DISTRIBUTION

KPC Grant #1 - FY2017							
District	Project Management		Energy Manager Support				Total
	Staff	Outreach	Travel	Technical	Training	Salary	
Carter						\$6,165	\$6,165
Johnson						\$6,943	\$6,943
Lawrence						\$4,500	\$4,500
Martin						\$4,320	\$4,320
Paintsville						\$2,700	\$2,700
Fairview						\$1,714	\$1,714
FY2017	\$3,142	\$3,042	\$498	\$5,918	\$8,276	\$26,342	\$47,217
FY2015	\$1,373	\$1,332	\$248	\$871	\$1,441	\$26,346	\$31,610
FY2016	\$2,347	\$1,630	\$436	\$3,351	\$3,425	\$31,946	\$43,135
Total	\$6,862	\$6,003	\$1,183	\$10,139	\$13,142	\$84,634	\$121,962

KPC is providing \$75,000 in FY2015 and \$50,000 in FY2016 from which KSBA-SEMP is providing a 50 percent salary match for energy managers based on the relationship of KPC served K-12 schools to total district K-12 schools.

KPC Grant #2 FY2017							
District	Project Management			Energy Manager Support			Total
	Staff	Outreach	Travel	Technical	Training	Salary	
Breathitt						\$5,136	\$5,136
Carter						\$6,429	\$6,429
Fairview						\$2,571	\$2,571
Floyd						\$13,192	\$13,192
Jackson Ind						\$1,070	\$1,070
Hazard						\$2,362	\$2,362
Jenkins						\$1,286	\$1,286
Johnson						\$6,943	\$6,943
Knott						\$8,308	\$8,308
Lawrence						\$4,500	\$4,500
Leslie						\$6,750	\$6,750
Letcher						\$10,286	\$10,286
Magoffin						\$4,320	\$4,320
Martin						\$4,320	\$4,320
Paintsville						\$2,700	\$2,700
Perry						\$12,150	\$12,150
Pikeville						\$2,571	\$2,571
FY2016 Adj						-\$4,007	-\$4,007
FY2017	\$12,741	\$12,419	\$1,596	\$24,071	\$33,252	\$90,887	\$174,966
FY2016	\$8,725	\$6,028	\$1,380	\$12,254	\$12,682	\$98,283	\$139,352
Total	\$21,466	\$18,447	\$2,976	\$36,325	\$45,934	\$189,170	\$314,318

KPC is providing \$200,000 in FY2016 and \$200,000 in FY2017 from which KSBA-SEMP is providing a 50 percent salary match for energy managers based on the relationship of KPC served K-12 schools to total district K-12 schools.

INITIATIVES IMPLEMENTED

A complete listing of energy projects or initiatives which lower the electric consumption and/or demand, as well as the total district Energy Usage Intensity, are included as *Attachment A*. The file includes projects reported by the district, and includes school/facility and account number. The projects or initiatives include such items as:

- Installed high-efficiency chiller
- Replaced 30 - Metal Halide fixtures with LED and 300 t-12/T-8 with LED Tubes
- Energy Teams formed, Shut-down checklists implemented during summer, Fall Break, Thanksgiving and Christmas Breaks. Educated employees and students on the importance of energy conservation (Behavior Change)
- 1st & 6th grade Occupancy Sensor Installed

Important to note that three districts have spent much of FY2017 evaluating performance contractors regarding opportunities for energy savings. Those districts are in initial stages of implementing energy projects.

An example of the initiatives is shown below:

Energy Projects												Energy Initiatives	
HVAC				Lighting				Other					
Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings	Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings	Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings		
Installed new HVAC control system (BAS) to provide time of day and temperature control of campus HVAC equipemnt			811,514 kWh annual savings	T12 to T8; 400w Metal Halide to 3LT5 and 4LT5 (50 fixtures)			7621 kWh savings figured at 1600 hr/yr	Replaced double convection oven with UNOX Combi Oven	Feb-16	in process		Resource and Principal's office still under construction.	Identified control issue, allowing HVAC running on occupied 24/7 - setback to 12 hrs

ENERGY UTILIZATION INDICES

One of the key indicators for measuring energy performance is district-wide Energy Use Intensity, measured in kBtu/sf/yr. This measure is slightly different from the Building Energy Use Intensity in that the district EUI is a measure of **all** the energy use in a district divided by the square footage of the **conditioned** area. The statewide average for district-wide EUI in FY2010 was 64.2kBtu/sf/yr.¹ By FY2016 the state-wide district-wide EUI had dropped to 52 kBtu/sf/yr. Lower EUI indicates a more energy efficient condition.

Statewide and for most districts the EUI has lowered. This can be attributed to several things. The enactment of KRS160.325 and the implementation of KSBA's School Energy Manager Project now supported by KPC have educated and focused school districts on the importance of valuing best energy management practices. While new school construction and renovation statewide are very energy efficient, work by energy managers is leading to significant elimination of energy waste in both new and existing buildings by continual focus of skilled energy specialists.

Table 1 on the next page shows the data by participating KPC districts with both their Electric EUI and their Total EUI for the immediate three-years, FY2014, FY2015 and FY2016, preceding initiation of Grant #2.¹ FY2017 EUI data will not be available until December 1st.

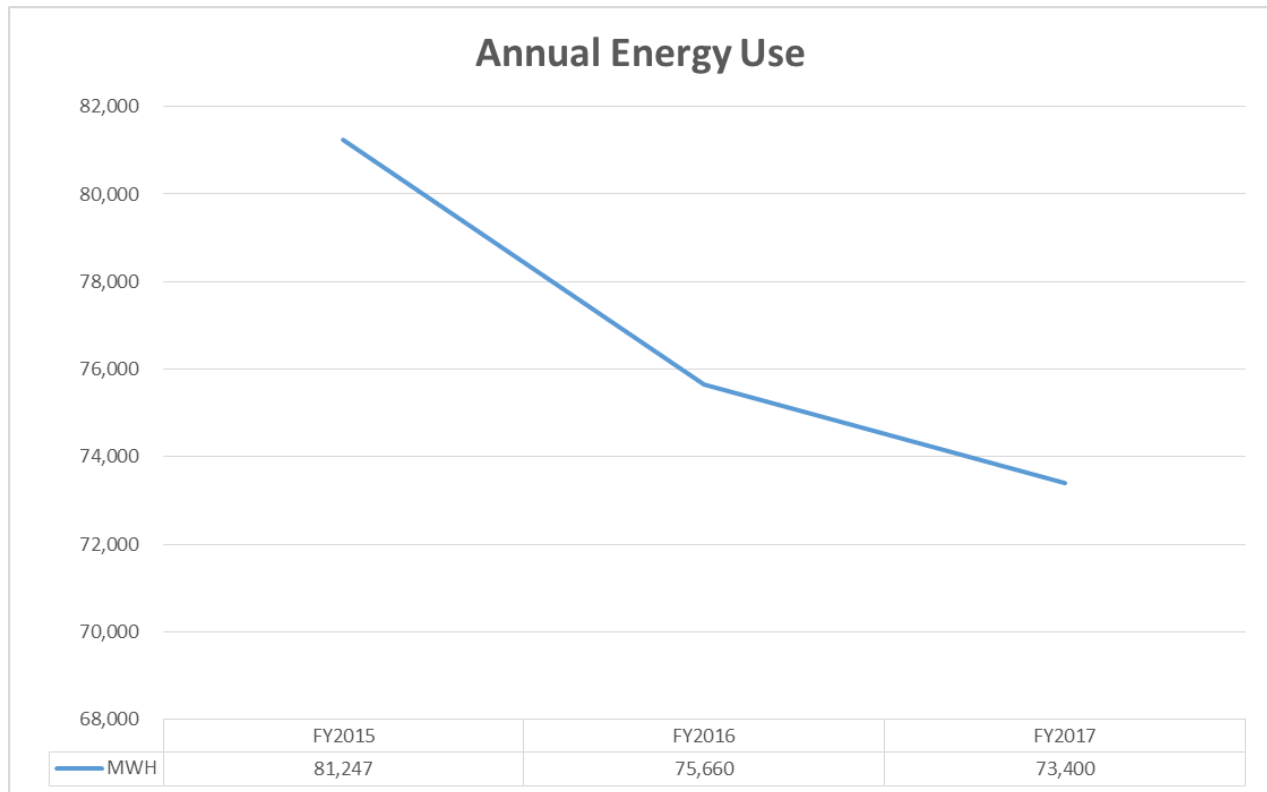
¹ EUI's are not adjusted for weather and include all forms of energy use.

Table 1							
EUI History (kBtu/sf)							
Participating Districts							
District	2014 Electric EUI	2015 Electric EUI	2016 Electric EUI		2014 total EUI	2015 total EUI	2016 total EUI
Breathitt	53.42	54.30	42.92		78.74	75.33	56.72
Carter	40.74	43.31	38.81		54.26	53.07	46.01
Fairview	47.95	49.87	46.63		86.20	85.89	77.47
Floyd	40.52	38.15	36.91		52.85	49.51	44.88
Hazard	49.42	46.38	36.72		57.00	54.17	40.77
Jackson Ind	100.19	93.26	95.89		112.78	106.51	101.95
Jenkins	58.90	48.80	51.12		58.90	48.80	51.12
Johnson	43.39	42.12	42.92		61.19	59.46	62.58
Knott	49.58	46.60	45.63		54.43	51.58	62.65
Lawrence	38.56	39.92	35.87		51.12	52.47	45.07
Leslie	58.84	56.47	51.99		63.90	63.10	55.24
Letcher	44.94	44.65	50.99		48.12	48.84	53.03
Magoffin	44.33	50.37	48.70		50.84	58.76	54.36
Martin	53.30	47.81	45.40		70.50	67.50	58.20
Paintsville	37.93	38.83	35.93		50.40	49.98	44.13
Perry	58.85	57.71	52.60		63.33	61.96	56.25
Pikeville	60.53	57.48	53.03		66.71	62.62	57.79

CONSUMPTION REDUCTION –

PRECEDING AND CURRENT YEAR PEAK DEMAND and ENERGY USE COMPARED TO July 2014 through June 2017

Energy Usage

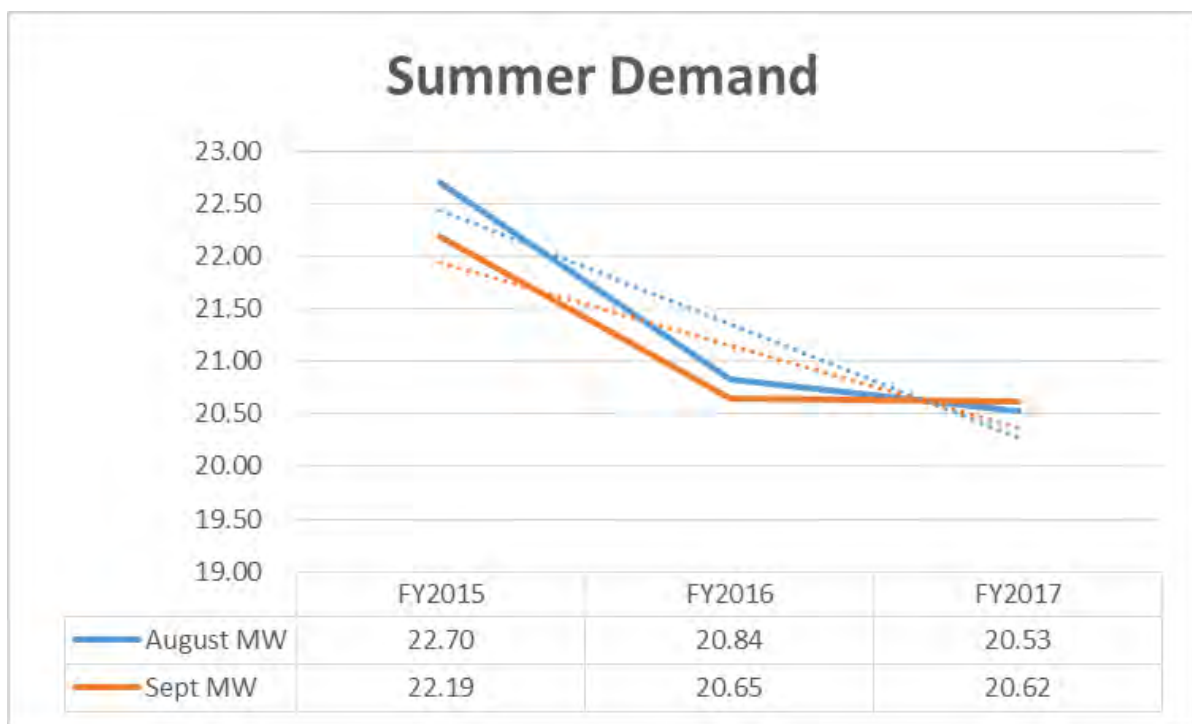


The participating *Grant 2* districts reduced their FY2017 annual energy use over FY2015 by 9.66 percent.

Demand Usage

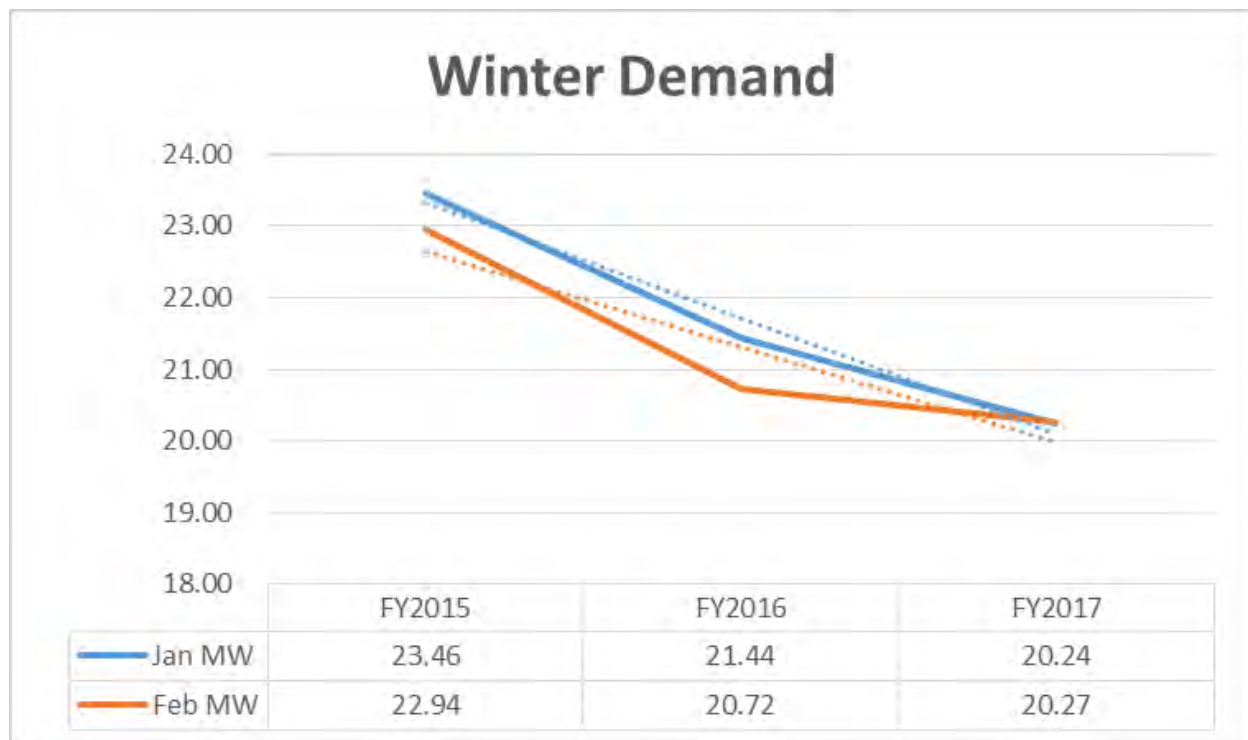
Individual school district measured demand data (Tariffs 240 and 260) was rolled up into a KPC summary. The non-diversified billing demand data was then analyzed for Summer Demand (August and September) and Winter Demand (January and February). Trend lines were developed to approximate normalized results.

The summer peak demand for schools coincides with the start of the school year when buildings are being taken out of summer setback and unoccupied modes and returned to a student-occupied mode.



The participating districts showed a 9.56 percent reduction in August Demand and a 7.47 percent reduction in September Demand from FY2015 to FY2017. It should be noted that August FY17 was six percent hotter than August FY16, while September FY17 was two percent hotter than September FY16.

Winter peak demand for schools will be impacted by snow-days, when school is out of session. Efforts have been made to encourage districts to develop and implement strategies to most efficiently setback HVAC systems when snow days occur. This impact is difficult to quantify, however should be noted.



The participating districts show a 13.72 percent reduction in January Demand and a 11.66 percent reduction in February Demand from FY2015 to FY2017.

ASSOCIATED ENERGY & DEMAND SAVINGS

Year	Summer Peak Demand (kW)			Winter Peak Demand (kW)			Incremental Energy (kWh)	
	Metric	Actual		Metric	Actual		Metric	Actual
2016		2,030.7		193.8	2,230.3		1,131,870	5,482,705
2017	338.3	303.4		422.9	1,201.2		2,469,530	2,259,359
Total	338.3	2,334.1		616.7	3,431.5		3,601,400	7,742,064

PROCESS

Energy Manager Training

Various one-on-one meetings were conducted with each energy manager to discuss utility tracking, standardized data collection, and energy project/initiative reporting. With a wide-range of experience in energy and energy management, the use of webinars, “Go-To Assists,” as well as one-on-one training strategies were used to build the depth of knowledge for energy managers. This effort was supported by the KPC grant and other funding opportunities. Because two districts had transition in personnel assigned as energy manager, individual sessions were held with the new energy managers. The following professional development opportunities have been provided since the initiation of the KPC grants:

- July 2016 – Performance contracting basics
- July 2016 – Energy Project Evaluation (small group)
- August 2016 – Enhancing Utility Trackers for Board Reports
- Fall 2016 – Review for newly funded energy managers:
 - Utility Tracking
 - Converting Utility Tracking to Grant Reporting
- May 2017 – School Energy Summit – (See *Attachment B* for Agenda)
 - Overall objectives included:
 - Explore energy as a manageable expense
 - Identify potential energy projects by hearing what others have done
 - Review the latest energy technologies for schools
 - Network with energy and education professionals
 - Examine the energy and economic trends impacting schools

Outreach and Awareness

An important deliverable of SEMP is to keep school district board members, leadership and staff; governmental officials; and local communities informed of energy efficiency opportunities and to highlight district success stories. With a district's primary mission of education, and adjusting to the ever changing educational standards, there is a continual need to educate stakeholders of resources to support the district's mission. Funds provided by KPC, along with other funding, made possible presentations, exhibits, and monthly newsletters to fulfill this objective during the reporting period for energy management.

Presentations were at the following that were attended by facility and finance managers, superintendents and board members:

- KSBA annually conducts regional meetings for its members where information and professional development is provided on a variety of subjects. SEMP staff provided updates routinely through a "One-Page Report"



The School Energy Managers Project (SEMP) was formed within Kentucky School Boards Association in 2010 to help school districts comply with KRS160.325 "in an effort to reduce rising energy costs that are straining school budgets." The mission of SEMP was to put professionally trained energy managers into schools. Where school district sizes were small, partnerships were formed across district boundaries to share the energy manager.

The KSBA-SEMP program was named an ENERGY STAR Partner of the Year by the U.S. Environmental Protection Agency in both 2014 and 2015 in the category of *Program Delivery in Energy Efficiency* for introducing energy managers into schools. In 2016 and 2017, the EPA recognized the program for "Sustained Excellence." A major reason for the recognitions were the program's resultant energy and cost savings as measured by reduced energy consumption, reduced and avoided costs, and the increase in number of ENERGY STAR schools.

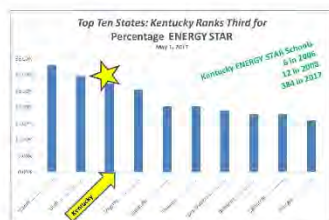


	2010	2016
National	73	73
Kentucky	65.4	52.0
ENERGY STAR	40-50	40-50
KY'S Best District	43	33.2
Net-Zero Ready	18	18

Kentucky's 173 public school districts are using less energy today than they were using in fiscal year 2010. The statewide Energy Utilization Index has dropped from 65 KBTU/SF/yr to 52.0 KBTU/SF/yr during a time when the area of conditioned space has grown significantly.

	FY15-16	Cumulative
Consumption	\$ 36,000,000	\$ 108,100,000
Rebates	\$ 416,000	\$ 2,200,000
Refunds	\$ 0	\$ 850,000
Rate Correction	\$ 687,000	\$ 5,730,000
Rate Case	\$ 2,400,000	\$ 6,320,000
TOTAL	\$ 39,503,000	\$ 123,200,000

The corresponding costs savings through consumption savings, rate savings, refunds, etc. now totals over \$123 million dollars and is growing rapidly. These dollars go back into the classroom or facility instead of being spent on utilities.



Finally, the number of ENERGY STAR labeled school buildings has grown from six in 2006 to over 380 today. The significance of this number is not just the recognition, but is confirmation by an outside organization of school district stewardship and fiscal responsibility. Over 30 percent of Kentucky's eligible public school buildings are ENERGY STAR labeled. That compares with approximately 10 percent nationally.

May 1, 2017

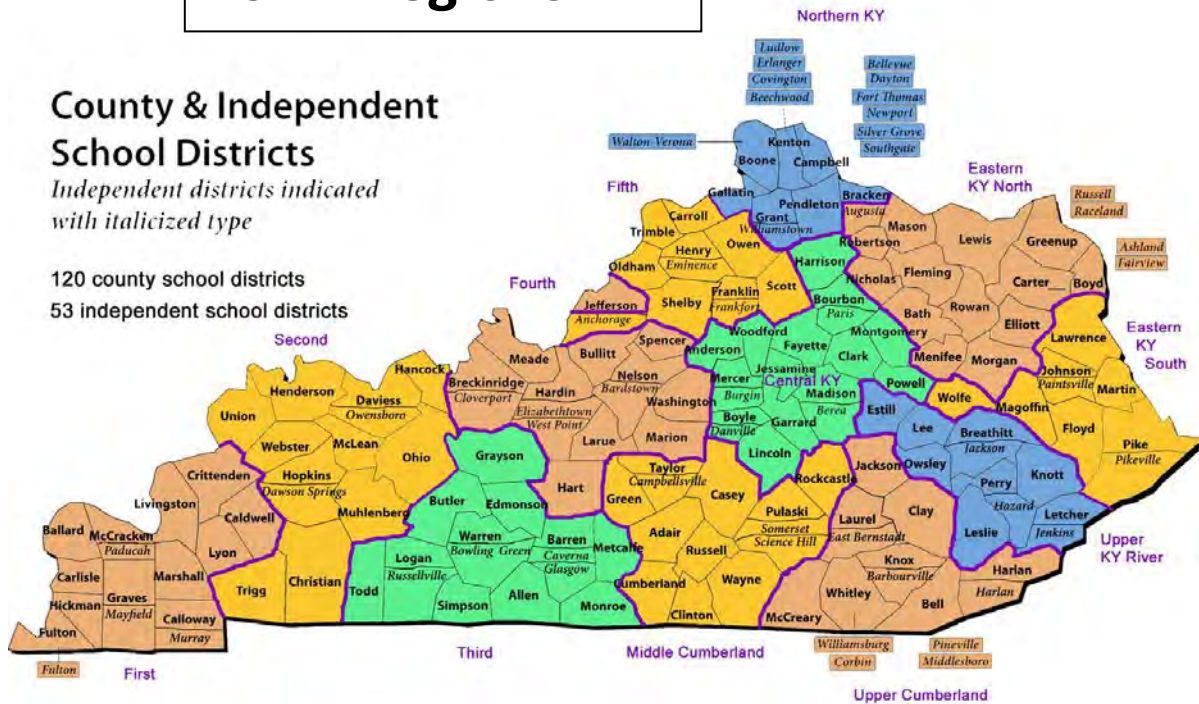
KSBA Regions

County & Independent School Districts

Independent districts indicated with italicized type

120 county school districts

53 independent school districts



Updated 3/23/16

- October 2016 - Kentucky School Plant Management Association (KSPMA) Annual Conference – Resource for all energy related sessions
- December 2016 – KSBA Winter Symposium – “Energy as a Controllable Expense”
- February 2017 – KSBA Annual Conference – “Making Superhero Financial Decisions to control Energy Costs
- February 2017 – Annual Kentucky Chamber of Commerce Conference – “Understanding your Energy Costs: The Power to Take Control – Kentucky’s K-12 Success Story
- July 2017 - Kentucky Organization of School Administrative Assistants (KOSAA) – School Energy Management Reminders

KSBA-SEMP writes and distributes the *“Let’s Save Energy”* newsletter (*Attachment C*) routinely to Kentucky school board members, and others. The purpose of the newsletter is to facilitate awareness of the benefits of district compliance with KRS160.325 and Board Policy 05.23 through the elimination of wasteful practices that unnecessarily consume energy and related district spending. Additionally, the annual December issue of the newsletter communicates a summary of the annual statutory required Energy Management Report to the Legislative Research Commission and the District Ranking by Energy Utilization Index (EUI). Example of the topics include:

- Utility-funded reduction could light all Kentucky high school football fields for more than 10 years! (October 2016)
- Don’t Miss Out on Funding Opportunities . . . News from Utility Partners (October 2016)
- Consider this project . . . Hickman County Schools (October 2016)
- Woodford County Schools Celebrates 100% ENERGY STAR Schools and Buildings (November 2016)
- District Ranking by Energy Use Intensity for FY2016 (December 2016)
- Consider this project . . . Crittenden County Schools (January 2017)
- Eighteen districts recognized for 100 percent ENERGY STAR Schools
- School Energy Summit – (Electric Utility Executive panel – June 2017)
- Consider this project . . . Clay County Schools (June 2017)
- Maintenance Project Payback in Six Months . . . Fairview Independent (July 2017)

Data

Energy Usage and Demand data is gathered by month for each district by funded energy managers, most of whom now have online access to their data. A composite history was gathered to ensure proper baseline data, which would be analyzed throughout the period.

Only those accounts that were present since July 2014 and still remaining today were analyzed. Accounts which have been vacated since July 2014 were eliminated from the data analysis. Accounts which are new since July 2014 are reflected in the overall district EUI but not in the demand or usage results. Accounts which had usage and demand changes due to renovations were either eliminated from the data base or reconciled by square footage calculations.

Following the scrubbing of the data, each district's data was graphed showing individual performance on energy and demand reductions. For the schools on Tariff 260, data was plotted as Summer Demand, and Winter Demand. Energy-by-Season was totaled for all accounts. Summer is identified as May through September and Winter is identified as October through April.

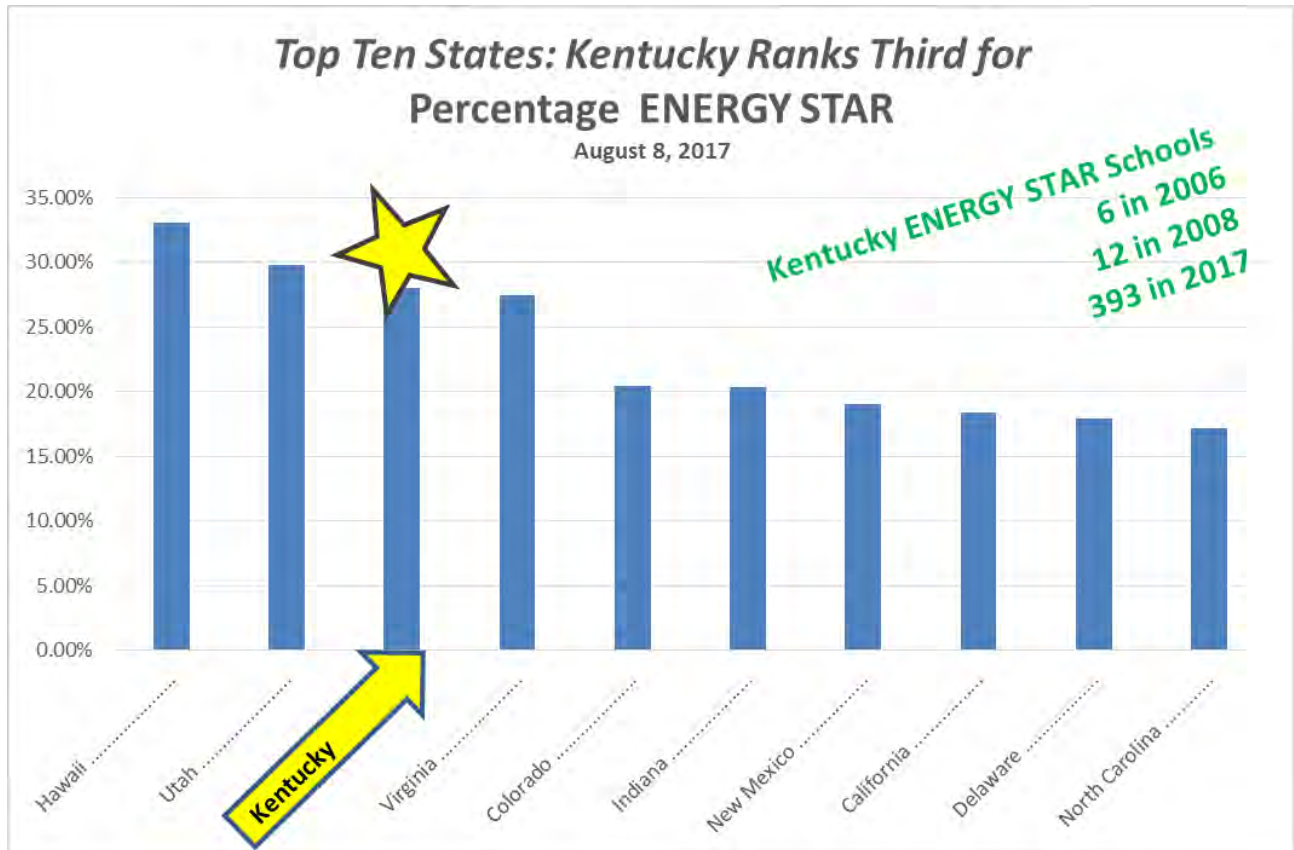
ENERGY STAR Labeled Schools

in KPC Service Territory

ENERGY STAR Labeled Schools is an energy efficiency performance benchmark for Kentucky Schools. ENERGY STAR certification provides independent verification of actual energy efficiency measures from sound energy management practices and not measures or credits for non-energy related activities. As a state the number of ENERGY STAR Schools has grown from six in 2006 to now 393 constituting over 28 percent of public schools in Kentucky. Seventeen of those schools are in KPC service territory, with eleven verified since 2014.

B_ID	Building Name	Building Owner	Label Year(s)	First Label Year	Max Rating	Floor Space FT2	Year Constructed	Grade	Utility
4024238	Russell Primary School	Russell Independent S	2015	2015	75	78000	1980	1	AEP/KY
4024116	Russell High School	Russell Independent S	2016, 2015	2015	83	105000	1960	3	AEP/KY
4024223	McDowell Intermediate School	Russell Independent S	2015	2015	79	55000	1960	2	AEP/KY
1725812	North Magoffin Elementary School	Magoffin County Scho	2009	2009	75	55000	2008	1	AEP/KY
4612446	Fleming Neon Middle School	Letcher County Public	2015	2015	85	28765	1960	2	AEP/KY
3807577	Wurtland Middle School	Greenup County Scho	2017, 2016, 2015	2015	86	61484	1971	2	AEP/KY
3809287	Wurtland Elementary School	Greenup County Scho	2017, 2016, 2015	2015	96	37000	1971	1	AEP/KY
3807574	McKell Middle School	Greenup County Scho	2017, 2016, 2015	2015	94	67340	1971	2	AEP/KY
3810587	McKell Elementary School	Greenup County Scho	2017, 2016, 2015	2015	92	45000	1971	1	AEP/KY
3809781	Greysbranch Elementary School	Greenup County Scho	2017, 2016, 2015	2015	92	37000	1971	1	AEP/KY
3772920	Greenup High School	Greenup County Scho	2016	2016	76	134690	1972	3	AEP/KY
2502486	Stumbo Elementary	Floyd County Board of	2010	2010	91	58536	1962	1	AEP/KY
1830821	Betsy Layne High School	Floyd County Board of	2012	2012	90	60750	1980	3	AEP/KY
1830807	Allen Elementary School	Floyd County Board of	2012	2012	76	55904	1991	1	AEP/KY
2502410	Allen Central High	Floyd County Board of	2010	2010	75	100222	1972	3	AEP/KY
1830754	Adams Middle School	Floyd County Board of	2012	2012	80	70354	1990	2	AEP/KY
3508108	Boyd County High School	Boyd County Public S	2015, 2014	2014	95	144447	2012	3	AEP/KY
Total sq ft						1,194,492.00			

Listed above are the seventeen schools in the Kentucky Power Service Area that are ENERGY STAR certified.



Twenty-eight percent of Kentucky school are ENERGY STAR certified, placing the state as third in the nation in percentage of ENERGY STAR Schools.







Attachment A - FY2017 Energy Projects/Initiatives

Attachment B – School Energy Summit Agenda

Attachment C – FY2017 – Let’s Save Energy Newsletters


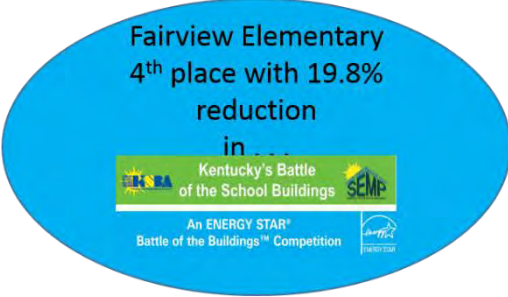
Attachment A



Kentucky Power Company School Energy Management Program Energy Projects - Initiatives July 2016 - June 2017









**Kentucky Power Company
ENERGY STAR Schools**

Russell Primary School
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Stumbo Elementary
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Allen Elementary School
Allen Central High
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Boyd County High School







District	School or Facility Name	Account Number(s)	Energy Projects												Energy Initiatives	
			HVAC				Lighting				Other					
			Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings	Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings	Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings		
Fairview Ind	Fairview Elementary	038-770-055-6					Replacement of exterior Wall-Packs	Aug-16		Jan-17	See Rebate Application					
Fairview Ind	Fairview High School	032-290-095-2	Installation of high efficiency equipment during renovation				Replacement of over 500 fixtures	Dec-16		Jan-17	See Rebate Application					
Jenkins	Burdine Elementary	032-930-031-5-2													Energy Team, Shut down checklists developed and implemented, staff and student education on the importance of energy conservation (Behavior change)	Conducted energy walk through May 2017 and gave feedback to the board
Jenkins	Burdine Elementary	039-690-095-3-3													Energy Team, Shut down checklists developed and implemented, staff and student education on the importance of energy conservation (Behavior change)	
Jenkins	Jenkins Middle High School	038-790-095-3-2													Energy Team, Shut down checklists developed and implemented, staff and student education on the importance of energy conservation (Behavior change)	Conducted energy walk through May 2017 and gave feedback to the board
Jenkins	Jenkins Middle High School	030-810-071-3-4													Energy Team, Shut down checklists developed and implemented, staff and student education on the importance of energy conservation (Behavior change)	

Jenkins	Jenkins Middle High School	031-114-880-0-7													Energy Team, Shut down checklists developed and implemented, staff and student education on the importance of energy conservation (Behavior change)	
Jenkins	Jenkins Middle High School	035-735-790-0-4													Energy Team, Shut down checklists developed and implemented, staff and student education on the importance of energy conservation (Behavior change)	
Johnson Co	Johnson County School District	All					Total District Lighting Upgrade to LED to begin in September 2017									

Leslie	Leslie County High School	036-210-006-2-3					Exterior Wall-packs (175 MH to LED) AND all common areas, library, and six classrooms		In-process							
Leslie	Stinnett Elementary	035-610-006-2-5				In-process	Gymnasium-Metal Halide Replacement AND T12 and T8 replacement project		In-process	Replaced 30 - Metal Halide fixtures with LED and 300 t-12/T-8 with LED Tubes						
			High Efficiency Chiller Replacement													
Letcher	Cowan Elementary	034-380-026-9-7					Replace exit signs with LED as needed	ongoing	No						Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	Plan to replace GYM lights with LED in the next 6 months- 1 year
Letcher	Cowan Elementary	034-380-026-9-7					Replaced Cafeteria Lights with LED	Feb-17	yes	5490W						
Letcher	Cowan Elementary	034-380-026-9-7					Replaced Gym lights with LED	Dec-16		1/4/2017	1054 KWH per month					
Letcher	Fleming Neon Middle	031-782-995-0-3													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	

Letcher	Fleming Neon Middle	033-440-040-5-0													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Fleming Neon Middle	033-940-040-0-0													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Fleming Neon Middle	036-440-040-5-7,													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Fleming Neon Middle	037-520-040-5-5													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Fleming Neon Middle	037-340-040-5-8					Replace Exit signs as needed with LED	ongoing							Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	Became Energy Star Certified/ long term plan to install control system
Letcher	Fleming Neon Middle	033-130-040-9-9													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	

Letcher	Letcher County Central High	031-403-674-1-2					Replace exit signs with LED as needed	ongoing	No					Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	Plan to replace GYM lights with LED in the next 6 months Energy Walk through scheduled for April 6th
Letcher	Letcher County Central High	032-762-440-0-5												Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher County Central High	033-743-263-0-8												Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher County Central High	031-876-264-0-7												Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher Elementary	036-290-095-4-3					Replace exit signs with LED as needed	ongoing	No					Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	Plan to replace GYM lights with LED in the next 6 months/ long term plan to install control system
Letcher	Letcher Elementary	036-290-095-4-3					Replaced Gym lights with LED	Nov-16	12/13/2016	1166.4 KWH per month					

Letcher	Letcher Elementary	033-490-025-6-2													Energy Team formed, Shut down checklists implemented not only during summer breaks bu for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher Elementary	034-390-025-6-3													Energy Team formed, Shut down checklists implemented not only during summer breaks bu for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher Middle	036-490-025-6-9					ongoing		No						Energy Team formed, Shut down checklists implemented not only during summer breaks bu for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher Middle	038-296-455-0-0													Energy Team formed, Shut down checklists implemented not only during summer breaks bu for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher Middle	039-313-443-0-7													Energy Team formed, Shut down checklists implemented not only during summer breaks bu for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Letcher Middle	039-441-229-0-6													Energy Team formed, Shut down checklists implemented not only during summer breaks bu for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	









Letcher	Letcher Middle	039-490-025-6-6					Replace exit signs with LED as needed								Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Martha Jane Potter Elementary	031-890-095-3-7					Replace exit signs with LED as needed	ongoing	No						Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	Plan to replace GYM lights with LED in the next 6 months/ long term plan to install control system
Letcher	Martha Jane Potter Elementary	031-890-095-3-7					Replaced Cafeteria Lights with LED	Feb-17	yes	5490Watts						
Letcher	Martha Jane Potter Elementary	031-890-095-3-7					Replaced Gym Lights With LED	Nov-16	12/20/2016	1054 KWH per month						
Letcher	Martha Jane Potter Elementary	030-020-001-8-4													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	West Whitesburg Elementary	032-990-095-4-2					Replace exit signs with LED as needed	ongoing	No						Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	Plan to replace GYM lights with LED in the next 6 months- 1 year/ long term plan to install control system

Letcher	West Whitesburg Elementary	032-990-095-4-2					Replaced Cafeteria Lights with LED	Dec-16		1/4/2017	1141.92 KWH per month				Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Whitesburg Middle School	030-010-013-3-2,,,					Replace exit signs with LED as needed	ongoing	No						Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break	Plan to replace GYM lights with LED in the next 6 months/long term plan to install control system
Letcher	Whitesburg Middle School	030-010-013-3-2,,,					Replaced Gym lights with LED	Nov-16		11/29/2016	1522.56 KWH per month					
Letcher	Whitesburg Middle School	034-210-013-3-4													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Whitesburg Middle School	037-910-013-2-8													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Letcher	Whitesburg Middle School	039-890-095-4-7													Energy Team formed, Shut down checklists implemented not only during summer breaks but for Fall Break, Thanksgiving break and Christmas Break. Educated employees and students on the importance of energy conservation (Behavior Change)	
Magoffin Co	Magoffin Co VoTech	038-610-064-1					Replacing T-12 and T-8 to LED	Aug-17	In-process		Approx rebate of \$15,000					
Martin Co	Martin Co High School	Custom Project	Under construction													
Paintsville Ind	Paintsville High School	033-520-006-4					Replaced T-12 and T-8 with LED	Apr-17		May-17	Rebate of \$1,249					
Paintsville Ind	Paintsville High School	033-520-006=4					Replaced MH Gym Lighting with LED	Dec-16		May-17	Rebate of \$6,362					
Perry	Buckhorn	037-786-495-0-3					Replace 16 336w cfl fixtures with 16 100w LED fixtures.	Feb. 2016	\$1,888.00		15,508kwh					
Perry	District														Completed RFP for Energy Savings Contracts but decided not to enter.	

Perry	Leatherwood	032-710-006-1-8					Replaced 12 75w metal halide with 6 19wLED and 3 27w LED.	Jan.2017		Reduction of 705w						
Perry	Willard	033-310-006-1-6					Replaced 21 500w metal halide with 21 165w LED.	May.2016	\$3,077.53	28,892kwh						
Pikeville Ind	N Bus Garage	038-680-014-1					Main Bldg	Replaced 16Exit:	42842	78.9						
Pikeville Ind	Pikeville Elementary	348900956					Interior Bldg. Lights	Replaced (120) 4	42506		22 Watt Reduction per Fixture Total Reduction 2640 Watts					
Pikeville Ind	Pikeville Elementary	3340028704					1st & 6th grade Occupancy Sensor Install	Installed 20 (OS)	42506	509.9	15,360 total watts controlled with OS Install					
Pikeville Ind	Pikeville High School	032-200-046-0					Lunchroom Commons Area	Replaced 58 (4 bulb T* Fixtures 128 watts per fixture) with 2 bulb LED (53	42598	2175	75 watt reduction per fixture Total reduction 4350 Watts					
Pikeville Ind	Pikeville High School	032-200-046-0					PHS Main Bldg	Replaced 16Exit Signs w/t New LED Exit Signs	42842	131						

Attachment B

KSBA-SEMP School Energy Summit May 9-10, 2017




Kentucky Power Company ENERGY STAR Schools







Russell Primary School
Russell High School
McDowell Intermediate School
North Magoffin Elementary School
Fleming Neon Middle School
Wurtland Middle School
Wurtland Elementary School
McKell Middle School
McKell Elementary School
Greysbranch Elementary School
Greenup High School
Stumbo Elementary
Betsy Layne High School
Allen Elementary School
Allen Central High
Adams Middle School
Boyd County High School

Fairview Elementary
4th place with 19.8%
reduction
in...

Kentucky's Battle
of the School Buildings

An ENERGY STAR[®]
Battle of the Buildings[™] Competition





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presents the
inaugural**



**Examining and operating
energy-efficient schools**

**May 9-10, 2017
Holiday Inn
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Welcome



Dear School Energy Summit participants:

Welcome to the Inaugural School Energy Summit!

For over 80 years, the Kentucky School Boards Association (KSBA) has provided ongoing professional development and other services to school board members and school districts across Kentucky. In 2010, we followed the enactment of KRS160.325 that required school boards to focus on reducing energy use in order to reduce rising energy costs. Because KSBA already supported all local school boards, it made sense to provide a level of energy management support to districts, which we do through our School Energy Managers Project.

The Summit will offer you a depth of knowledge on all issues impacting school energy management. The opening general session will help you understand some of the overarching issues we face as a nation and state regarding the complicated energy issues. The breakout sessions will provide you with strategies or projects that have proven successful for schools. To understand the specific local utility issues, we are fortunate to have utility executives to provide an industry update. The closing general session will call our attention to how energy and facilities impact our overarching goal of providing the best education for our students.

Listen, learn, exchange ideas over these next two days to support your schools in becoming energy efficient.

Sincerely,

Mike Armstrong
Executive Director, KSBA

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Opinions expressed by program participants do not necessarily reflect official positions of the Kentucky School Boards Association.

Tuesday, May 9

Registration and Trade Show

8 – 8:30 a.m.

GENERAL SESSION*

Ballroom

8:30 – 10:45 a.m.

Welcome

Mike Armstrong, KSBA Executive Director

Presentation of the Flag

Jeffersontown High School Color Guard

National Anthem

Lyric A. Hill, Jeffersontown High School senior

National and State Energy and Economic Outlook

Governmental and energy industry leaders discuss current trends and changing regulations in the energy landscape and the impact that will have on national, state and local economies. Explore the impact of the U.S. becoming a net energy exporter and the potential effect on schools.

Rick Bender, executive advisor, Kentucky Department for Energy

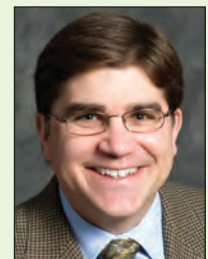
Development and Independence; Michael Schmitt, Kentucky Public Service Commission chairman; Drew Fellon, Trane Energy Supply Services, business leader



Rick Bender



Michael Schmitt



Drew Fellon

Business & School Panel Perspective

Energy efficiency has advanced at varying speeds across the different business sectors. A panel of business and school energy managers share steps taken and lessons assimilated.

Moderator: Billie Hardin, KCTCS Sustainability Project Manager;

Scott Spalding, Marion County Schools energy engineer; Britney Ragland, University of Kentucky

energy manager; Chris Adkins, Toyota Motor Manufacturing of Kentucky energy management specialist



Scott Spalding



Britney Ragland



Chris Adkins

Break — Refreshments and Trade Show

10:45 – 11 a.m.

Exhibit Area

Before Breakout Session A begins, enjoy refreshments and visit the Trade Show.

Break sponsored by CMTA

***Please note participation in ALL GENERAL SESSIONS is required for board member, EILA, finance officer and energy manager PDH credits**

A1 LED Lighting Options

(1 credit hour finance officer training)

Carriage Room

This session deals mainly with LED options for indoor lighting. Presenters give tips for reviewing information on specification sheets, including lumens per watt (efficacy) and the impact on future energy costs. Common indoor lighting products such as high bay lights, and office and classroom troffers are discussed; and new LED light fixtures and retrofit options are reviewed, along with the advantages and disadvantages of each.

Jason Staples, LHI Lighting; Phil Jones, Eco Engineering

A2 ENERGY STAR Certification

Derby Room

The session provides hands-on demonstration of ENERGY STAR's Portfolio Manager, showing the steps required to set up an account in the program and how to set up a building with the associated energy meters.

Jim McClanahan, energy manager, Scott County Schools/KSBA

Breakout Session A2 sponsored by N3D

A3 The Solar Option

Turfway Room

Solar energy credits and solar share facilities are among the options being offered by utility companies. What does that mean for schools when considering all available hours of sunlight?

Kenya Stump, Energy and Environment Cabinet; Ryan Stout, Performance Services

A4 Operational Savings

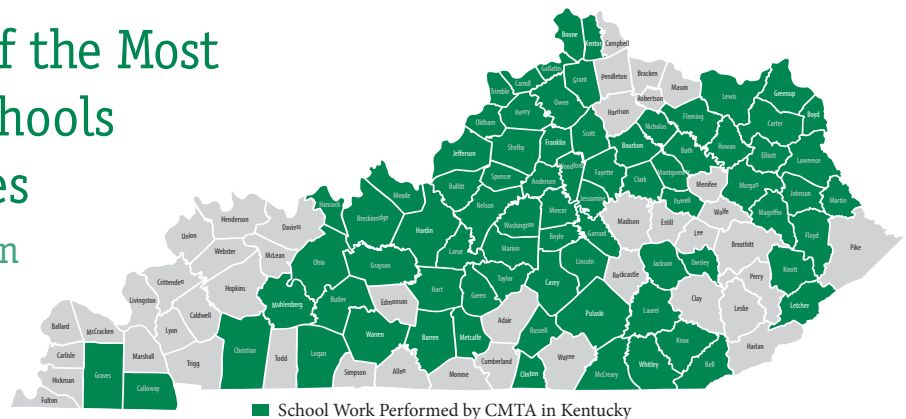
(1 credit hour board member training)

Ellis Room

Reducing overall energy use requires a district-wide strategy. Review the steps taken to achieve continued success, from leadership to investment and from partnership to recognition.

Brian Linder, Kentucky state representative, and energy manager, Grant County Partnership; Dan Logan, director of maintenance, Owen County Schools

Engineering Some of the Most Energy Efficient Schools in the United States through engineering design or guaranteed energy savings contracts



- 21 of the top 25 Best Performing Schools in Kentucky were engineered by CMTA
- 6 LEED certified schools (2 in KY)
- 6 operational Net Zero Energy Schools (2 in Kentucky)
- 36 Net Zero Capable Schools (EUI of 35 or Less) (27 in Kentucky)
- 140 ENERGY STAR certified schools (132 in Kentucky)



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Tuesday,
May 9

Lunch and Trade Show

11:50 a.m. – 1:30 p.m.

Exhibit Area

Join us in the Exhibit Area to get energized with lunch and then power up with learning from our trade show vendors.

Sponsored by LG&E/KU

CONCURRENT BREAKOUT SESSION B

1:30 – 2:15 p.m.

What You Need to Know about Utility Rebates

(1 credit hour board member training)

(1 credit hour finance officer training)

Rebates from utility companies help offset costs for upgrading or installing certain high-efficiency lighting, HVAC or other equipment. Learn about the support and various programs offered by your electric provider.

B1 LG&E/KU Rebates

Ballroom

— Bill Cooper, LG&E/KU, manager, Energy Efficiency Operations; Rhonda Truman, LG&E/KU, manager, Energy Efficiency Operations

B2 Electric Cooperative Rebates

Carriage Room

— Tom Castle, Touchstone Energy Cooperatives

B3 Kentucky Power Company Rebates

Derby Room

— E.J. Clayton, KPC, manager, Energy Efficiency and Consumer Programs

B4 Duke Energy Rebates

Ellis Room

— Maryanne McGowan, Duke Energy, manager, Business Strategy & Implementation

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CONCURRENT BREAKOUT SESSION C

2:30 – 5 p.m.

C1 Facility Tour - Norton Commons Elementary (2 credit hours board member training)

Meet at Convention Entrance Doors

Jefferson County's newest school, Norton Commons Elementary, opened in August 2016. The school was designed to meet the expectations of ENERGY STAR and its energy use intensity (EUI) has been trending as low as 20 EUI. Energy-efficient design items in the facility include insulated concrete forms, exterior walls, high-tech glazing, geothermal heating/cooling, solar hot water system, LED lighting throughout, energy management controls and occupancy sensors.

— John Niehoff, architect, Jefferson County Public Schools; Allyson Vitato, principal, Norton Commons Elementary; Pat Blackburn, VBN Architects and CMTA



C2 Pragmatic Practices in Energy Management: Basic Concepts at Work (2.5 credit hours finance officer training)

Ballroom

From classrooms to boiler rooms, school districts are discovering that sound energy management practices impact the bottom line. This session covers the concepts proven to transform your operations to produce improved energy efficiency and reduced operating costs.

— Jon Nipple, project manager, KSBA-SEMP

C3 Facility Tour - University of Louisville

Meet at Convention Entrance Doors

The University of Louisville is committed to building smarter and conserving energy and water on campus, as seen in the design and operation of many campus facilities. Explore behind the scenes in the design and construction of the new academic building; and tour the new Lynn Soccer Stadium, the Conn Center for Renewable Energy Research and its fully solar-powered "Phoenix House," and the LEED Gold Student Rec Center.

— John Stratton, senior architect, University of Louisville; Justin Mog, sustainability initiatives, University of Louisville and CMTA



Tuesday,
May 9

DINNER SESSION

6 – 8 p.m.

Tight Budgets, Leaky Roofs, and Old Equipment

(2 credit hours board member training)

(2 credit hours finance officer training)

Performance Contracting Basics - Working Dinner

Ballroom

With significant facility needs and little capital, how do you provide the best learning environment for your students? Using energy savings to fund capital improvements may be a good option. Gain an understanding of performance contracting and the questions to ask to get started.

— Lee Colten, Energy and Environment Cabinet; Kimberly Joseph, energy manager, Bullitt County Schools; Eric Neff, director of personnel, Covington Independent Schools; Tim Hockensmith, chief operating officer, Nelson County Schools

Reception and Trade Show

5 – 6 p.m.

Exhibit Area

Network with business professionals and colleagues while enjoying a snack prior to the working dinner.



Lee Colten



Kimberly Joseph



Eric Neff



Tim Hockensmith

R | S | A

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GENERAL SESSION*

Ballroom

8 – 9 a.m.

Kentucky's Battle of the School Buildings recognition

Winners of the inaugural contest will be recognized

Electric Utility Panel – The Role of Energy Efficiency in the Electric Utility of the Future

Utility executives discuss where the electric industry is going, future trends and cost drivers. They give insight into what customers can do to prepare for changes, and how utilities envision schools and the customer of the future.

Moderator: Ron Willhite, director, KSBA-SEMP; Lonnie Bellar, senior vice-president, LG&E/KU; Chris Perry, president, Kentucky Association of Electric Cooperatives; Matt Satterwhite, president, Kentucky Power Company; Chuck Session, vice president, Duke Energy Kentucky

***Please note participation in ALL GENERAL SESSIONS is required for board member, EILA, finance officer and energy manager PDH credits**



Lonnie Bellar



Chris Perry



Matt Satterwhite



Chuck Session

Break – Refreshments and Trade Show

9 – 9:15 a.m.

Exhibit Area

Before Breakout Session A begins, enjoy refreshments and visit the Trade Show.

Break sponsored by KAEC



Kentucky's Battle of the School Buildings



Congrats to top 10 finishers in the 2016 Kentucky's Battle of the School Buildings competition:

School Source Energy Reduction

1. Southside Elementary (Woodford Co.) 24.68%
2. Bourbon Co. Central Elementary 24.51%
3. Northside Elementary (Woodford Co.) 22.73%
4. Fairview (Ind.) Elementary School 19.80%
5. South Irvine P/K Center (Estill Co.) 14.40%

School Source Energy Reduction

6. Garth Elementary (Scott Co.) 13.73%
7. Straub Elementary School (Mason Co.) 12.88%
8. Bourbon Co. Preschool Head Start 12.07%
9. Estill Co. Middle School 10.42%
10. Safe Harbor (Woodford Co.) 9.55%

**An ENERGY STAR®
Battle of the Buildings™ Competition**



CONCURRENT BREAKOUT SESSION D

9:15 – 10:15 a.m.

Wednesday, May 10

D1 LED Lighting Options

(1 credit hour finance officer training)

Ellis Room

This session deals mainly with LED options for indoor lighting. Presenters give tips for reviewing information on specification sheets, including lumens per watt (efficacy) and the impact on future energy costs. Common indoor lighting products such as high bay lights, and office and classroom troffers are discussed; and new LED light fixtures and retrofit options are reviewed, along with the advantages and disadvantages of each.

Jason Staples, LHI Lighting; Phil Jones, Eco Engineering

D2 Building Controls

Derby Room

This session focuses on the role that building automation plays in providing an optimum learning environment. Topics include the latest technology advances and programs, as well as ideas for implementation in your district.

Justin Kubly, Johnson Controls, Inc.

D3 Energy-Efficient Building Design

(1 credit hour board member training)

Turfway Room

Designing an energy-efficient school requires a careful plan with many components. Learn strategies implemented at Clark County's George Rogers Clark High School, with an in-depth look at the school's chilled beam system.

Roland Mueller, RossTarrant Architects; Mark Saunier, Performance Services

D4 Life Cycle Project Costing - PART 1

(1 credit hour finance officer training)

Carriage Room

Reducing overall energy use requires a district-wide strategy. Review the steps taken to achieve continued success, from leadership to investment and from partnership to recognition.

Brian Linder, Kentucky state representative, and energy manager, Grant County Partnership; Dan Logan, director of maintenance, Owen County Schools

*Breakout Session D4 sponsored by
Ross, Sinclair & Associates*



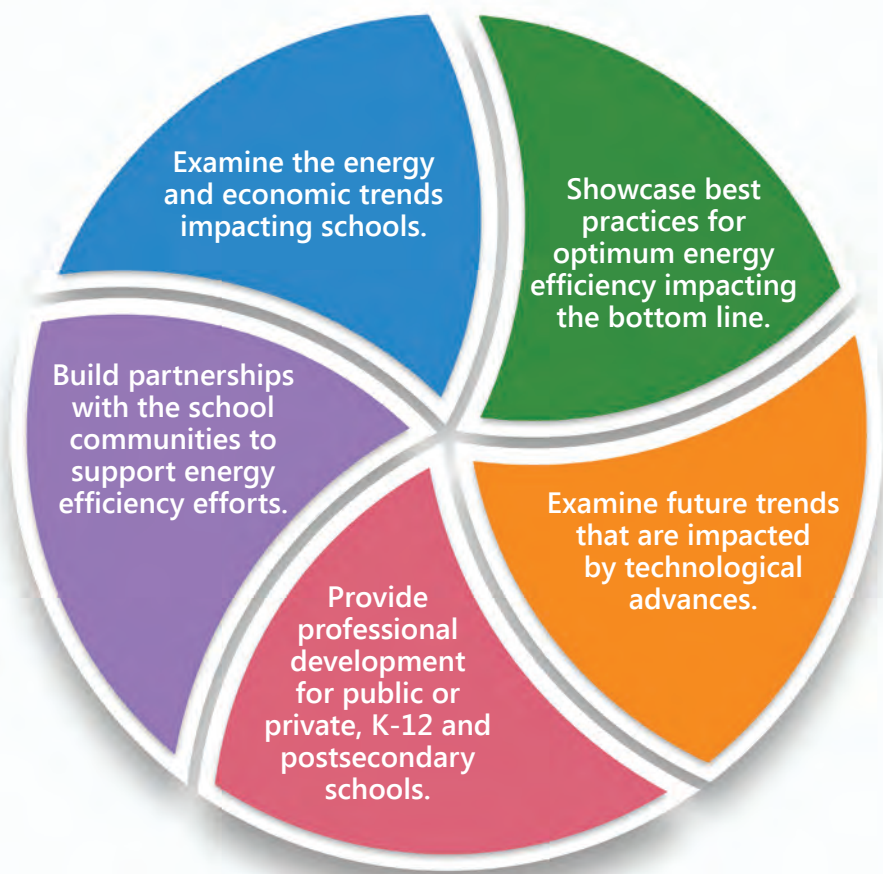
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The School Energy Summit is designed to:



CONCURRENT BREAKOUT SESSION E

10:30 – 11:30 a.m.

- E1** Why Not 25 EUI or Less? Anatomy of Efficient Net Zero Ready School Design
(1 credit hour board member training)

Derby Room

The average school in Kentucky's Climate Zone 4 uses 73 EUI annually. This session explores the myriad decisions required when designing a new school or renovating an existing school. Proven design strategies can cut energy consumption by 75 percent or more with the same up-front cost as traditional design.

Kenny Stanfield, Sherman Carter Barnhart; Doug Cage, GRW Engineering

- E2** Engaging Students

Ellis Room

Installation of high-efficiency equipment and effective facility procedures are critical to energy management, but faculty, staff and students all play a key role. Learn about Kenton County Schools' E=WISE, Construction 101 and Green Engineering Academy, and find out more about the energy conservation internships their high school students are receiving.

Chris Baker, Kenton County Schools energy manager; Charley Haupt, New Energy Technology, Inc.

- E3** Efficiency Through Innovation and Analytics

Turfway Room

The physical learning environment is critical to student achievement. Ensuring proper lighting and comfortable ventilation impact academic performance. Learn how the integration of technology, analytics and active monitoring can present the opportunity for energy savings.

Kyle Johnson, Harshaw Trane; John White, SchoolDude

Breakout Session E3 sponsored by Harshaw Trane

- E4** Life Cycle Project Costing - PART 2
(1 credit hour finance officer training)

Carriage Room

KRS 157.455 strongly encourages the use of a life-cycle cost, a holistic approach to building design that considers construction, operation and maintenance during the initial decision-making process. This session is directed to school districts constructing new buildings or renovating existing buildings. Learn the steps to implementing Life Cycle Project Costing.

Todd Smith, president, EBEB Solutions

Wednesday, May 10

Wednesday,
May 10

Lunch and Trade Show

11:30 a.m. – 1 p.m.

Exhibit Area

Join us in the Exhibit Area to get energized with lunch and then power up with learning from our trade show vendors.

CONCURRENT BREAKOUT SESSION F

1 – 1:50 p.m.

F1 Building Controls

Derby Room

Learn how “open systems” and integration platforms like Tridium’s Niagara Framework can result in an interoperable system, regardless of protocol. Gain the fixes that can allow you to engineer, monitor and control sites over the internet and provide aggregated data and analytics from all types of systems and locations in one place.

— Scott Cochrane, Cochrane Supply & Engineering

F2 Engaging Students

(1 credit hour board member training)

Ellis Room

Installation of high-efficiency equipment and effective facility procedures are critical to energy management, but faculty, staff and students all play a key role. Learn about Kenton County Schools’ E=WISE, Construction 101 and Green Engineering Academy, and find out more about the energy conservation internships their high school students are receiving.

— Chris Baker, Kenton County Schools energy manager; Charley Haupt, New Energy Technology, Inc.



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F3 The Solar Option

Turfway Room

Solar energy credits and solar share facilities are among the options being offered by utility companies. What does that mean for schools when considering all available hours of sunlight?

— *Kenya Stump, Energy and Environment Cabinet; Ryan Stout, Performance Services*

*Breakout Session F3 sponsored by the
Kentucky Department for Energy Development and Independence*

F4 Operational Savings

(1 credit hour finance officer training)

Carriage Room

Reducing overall energy use requires a district-wide strategy. Review the steps taken to achieve continued success, from leadership to investment and from partnership to recognition.

— *Todd Smith, president, EBEB Solutions*

GENERAL SESSION*

Ballroom

2 – 3:45 p.m.

Energy Leadership from the Top

Kentuckians have been learning to manage energy resources during the past 10 years. This was reinforced in 2008 with House Bill 2, which required all public school districts to track and report annual energy consumption, and to develop plans to reduce energy consumption. Since that time, a statewide infrastructure has been developed and local school district energy-efficiency efforts have succeeded.

Jim Gooch Jr., Kentucky state representative, chairman of the House Natural Resources and Energy Committee and member, Special Energy Subcommittee



Jim Gooch Jr.

Energy Leadership from the School Board

As energy costs began rising, local boards of education began recognizing they had an opportunity to control their districts' energy use and save money to be used for educational purposes. The outcome? Effective use of energy impacts the learning environment and thus the academic success of students.

Ed Massey, chairman, Boone County Board of Education, former president of the National School Boards Association and Kentucky School Boards Association



Ed Massey

Educational Leader Panel

Discussion

Education leaders share their experiences on energy management. They discuss how efficient and student-friendly facilities support the learning environment and how delivering quality education with reduced budgets is assisted by having a skilled energy professional.

Moderator: Mike Armstrong, executive director, Kentucky School Boards Association; Dr. Rob Stafford, superintendent, Owen County Schools; Leisa Schulz, superintendent, Archdiocese of Louisville Schools; Paul Gannoe, vice president, Eastern Kentucky University



Dr. Rob Stafford



Leisa Schulz



Paul Gannoe

***Please note participation in ALL GENERAL SESSIONS is required for board member, EILA, finance officer and energy manager PDH credits**

Exhibitors

BFW Engineering & Testing Inc.

Lance Allison, Director of Business Development
500 South 17th Street
Paducah KY 42003
lallison@bfwengineers.com

CMTA

Carol Ormay, Principal
10411 Meeting Street
Prospect KY 40059
cblevinsormay@cmtaegrs.com

Cochrane Supply & Engineering

Scott Grass, Regional Sales Manager
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Louisville KY 40299
sgrass@cochranesupply.com

Comfort & Process Solutions

Jeff Fristoe, Owner
100 Mercer Court Suite 100
Lexington KY 40511
Jeff@cpslex.com

Energy Systems Group

Teresa Barton, Sr. Account Executive
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Frankfort, KY 40601
tbarton@energysystemsgroup.com

Engineered Lighting Sales, Inc.

Fred Ernstberger, V.P. Sales
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Louisville KY, 40218
jmccall@engltd.com

Green Giant Lighting LLC

Jeff Lorch, President
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Lexington, KY 40515
jeff@greengiantlighting.com



Harshaw Trane

Kyle Johnson, Education Sustainability Leader
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Louisville, KY 40299
customercomments@harshawtrane.com

HMC Service Company

Wayne Turchetta, Vice President
6909 Enterprise Drive
Louisville, KY 40214
batdorfm@hmcservice.com

InnerSpace Strategies, Inc

Jay Mitchell, Sales Engineer
1165 Brock McVey Dr.
Lexington KY, 40509
bksheely@innerspacecontrols.com

KAEC

Chris Perry, President/CEO, KAEC
4515 Bishop Lane
Louisville, KY 40218
kgibson@kaec.org

Kentucky Purchasing Cooperative (KPC)

Sam Atkins, Director of Member Services
904 Rose Road
Ashland, KY 41102
sam.atkins@kedc.org

Kentucky NEED Project

Karen Reagor, State Director
440 Walnut Street, Unit 206
Knoxville, TN 37902
kreagor@need.org

Kentucky Power Company

E.J. Clayton, Energy Efficiency & Consumer Programs
12333 Kevin Ave.
Ashland, KY 41102
ejclayton@aep.com

Exhibitors

Kentucky School Plant Managers Association

Steve Griebel, Executive Director
1479 Chestnut Grove
Parksville, KY 40464
s.griebel@kspma.org

LG&E KU

Bill Cooper, Energy Efficiency Program Manager
220 West Main Street
Louisville, KY 40232
bill.cooper@lge-ku.com

LHI Lighting Sales, Inc.

Jason Staples, Sales
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Lynn Imaging

Amanda Schoonover, Director of Software Technology
328 Old Vine St
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Madisonville Community College

Jake Hildebrandt, Murray State University's
Electromechanical Engineering Technology
2000 College Drive
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Meade Concrete Products, Inc.

Bill Meade, President
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Musco Sports Lighting

Curt Mickey, Sales Representative
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N3D Group, Consulting Engineers | Planners

Scott Noel, Principal
1204 Winchester Road, Suite 200
Lexington, KY 40505
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New Energy Technology

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Performance Services

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msaunier@PerformanceServices.com

Ross, Sinclair & Associates, LLC

Wendell Emerson, Client Relations
325 W. Main Street, Ste. 300
Lexington, KY 40507
msmith@rsanet.com

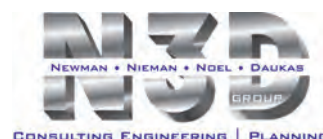
Thermal Equipment

Chris Tyler, CEO
680 Bizzell Drive
Lexington, KY 40510
lex@thermaleq.com

KSBA-SEMP would like to say

Thank YOU

to all of the School Energy Summit exhibitors.



About the Presenters

Chris Adkins has had multiple assignments over his 28-year career at Toyota Motor Manufacturing of Kentucky, from team leader and production engineering to skilled labor training coordinator and information systems. Currently, he works in energy management at the Georgetown plant, responsible for renewable energy initiatives both within Toyota and the community. Adkins also serves as a member of the Kentucky Green Schools Coalition and the Scott County Schools Energy Board. He holds a bachelor's degree in manufacturing engineering from Morehead State University.

Mike Armstrong is the executive director of the Kentucky School Boards Association. He came to KSBA in 2014 from Lawrence County Schools, where he was superintendent, having held previous posts as middle school principal, special education and preschool administrator, and special education teacher. Armstrong's career also includes a decade of managing state programs for special-needs students at the Kentucky Department of Education, and a year as a consultant to the Supreme Education Council in the Arab emirate of Qatar, helping that nation's schools develop classroom services to students with disabilities.

Chris Baker, energy systems coordinator for Kenton County Schools for the past 12 years, created and manages the district's energy management program. During that time, the district has realized over \$9 million in avoided energy costs, receiving national and state awards for its efforts. Baker also created the state's first district-wide student energy team program, which was recognized by the National Energy Education Development Project. Baker, a certified energy manager, holds an associate degree in applied science in electromagnetic engineering from Cincinnati State Technical and Community College.

Lonnie Bellar began his 30-year career in the electric and natural gas utility industry as an electrical engineer for Kentucky Utilities, and is now senior vice president – operations for Louisville Gas & Electric and Kentucky Utilities. He oversees all operations areas, including generation, energy supply and analysis, electric distribution and transmission, gas distribution and storage, and customer service. Bellar has bachelor's degrees in engineering arts and electrical engineering, and has completed executive education courses at the Harvard Business School and the Tuck School of Business at Dartmouth.

Rick Bender is executive advisor for the Kentucky Department for Energy Development and Independence. His career has included work in the oil and gas sector, both public and private. He is a former director of the state Division of Oil and Gas within the Department for Natural Resources. Bender is a registered professional geologist, a member of the American Association of Petroleum Geologists and a member of the Society of Petroleum Engineers. He holds a bachelor's degree in geology from the University of Kentucky.

Tom Castle has worked for Touchstone Energy for four years, starting in power distribution and now in demand-side management, where he is a power quality engineer, mostly supporting commercial and industrial accounts. He also manages the commercial and industrial energy efficiency and demand response programs. Castle has an associate degree in engineering technology, a bachelor's degree in electrical engineering and an MBA; he will become a registered professional engineer in August.

E.J. Clayton has 30 years of experience in the utility industry and has served as the energy efficiency and consumer programs manager for Kentucky Power since 2010. He holds a bachelor's degree in electrical engineering from the University of Kentucky and an MBA from Morehead State University. Clayton is a licensed engineer in Kentucky and is a certified energy manager.

Scott Cochrane is president and CEO of Cochrane Supply & Engineering, overseeing six branches in three states and one in Canada. The award-winning company is currently celebrating its 50th anniversary. Cochrane is an advisory council member for multiple industry manufacturers, such as Honeywell, Johnson Controls and Tridium. He also is an IBcon Digital Impact Award winner for going above and beyond to positively impact the smart building industry. Cochrane holds a bachelor's degree in business from Eastern Michigan University.

Lee Colten, who holds a master's degree in biology, started his career in environmental education in 1984. Since that time he has worked in education and in the consulting business doing community development projects. Colton joined Kentucky state government in 1988, working as an aquatic biologist, toxicologist and watershed manager. Since 2007, he has been assistant director of the Division of Efficiency and Conservation in the state Department for Energy Development and Independence.

About the Presenters

Bill Cooper is an energy efficiency program manager in the energy efficiency operations group for LG&E and KU, based in Louisville. He has an 18-year track record in utility energy efficiency program development and operations. His management experience with the utilities includes the Large Commercial Demand Response Program, the Energy-Saving New Homes Program and the online and onsite Home Energy Analysis Program. He is a past chairman of the Touchstone Energy Home Program Task Force, an advisory group to the National Rural Electric Cooperative Association's business committee.

Andrew R. Fellon is the business leader for Trane Energy Supply Services in Louisville. Prior to this role, he co-founded and headed the energy procurement and management company Fellon-McCord in 1992, which later became a business unit of Trane/Ingersoll Rand. Fellon also co-founded and led Constellation NewEnergy Gas and Alliance Gas Services, which eventually became Alliance Energy Services, one of the largest natural gas marketing companies in North America. Fellon graduated from Pennsylvania State University with a bachelor's degree in industrial and management systems engineering.

Paul Gannoe is associate vice president for Facilities Services and Capital Planning for Eastern Kentucky University. He previously worked for the state Finance Cabinet's Department for Facilities Services and served in the Naval Nuclear Propulsion Program. Gannoe, who holds a bachelor's degree in management from Tennessee Technological University, has also served on Kentucky's High Performance Advisory Committee and the Kentucky Capital Planning Advisory Board.

Jim Gooch Jr. is a member of the Kentucky House of Representatives, representing District 12, which covers McLean, Webster, and parts of Daviess and Webster counties in the western Kentucky coal fields. He was first elected to the House as a Democrat in 1994, but changed his party affiliation to Republican in December 2015, citing differences with the Obama administration, particularly over coal policy. Gooch chairs the Natural Resources and Energy Committee. He is co-owner of Western Kentucky Steel Construction Company, Inc.

Billie Hardin is the sustainability project manager for the Kentucky Community and Technical College System (KCTCS). She directs and supports the 16 KCTCS institutions and the KCTCS system office in establishing sustainable development strategies, and manages the system's space utilization initiative. Hardin chairs the Kentucky Environmental Education Council and is immediate past chair of the Kentucky Association for Environmental Education's board. She holds a bachelor's degree from University of Louisville and a master's degree in public administration from UK's Martin School of Public Policy and Administration.

Charley Haupt has spent 24 years in the energy management industry, focusing on designing, developing and implementing energy information systems. Most recently, he is the founder and CEO of New Energy Technology, Inc. and its EnergyCenter and Advanced Energy Management program. The company's AEM internship program empowers high school students to support a facility's management team in growing a high-performance energy conservation culture at their site. Ultimately, he hopes to build a 5,000-student conservation army across the U.S. Haupt has a bachelor's degree in business.

Tim Hockensmith has worked for Nelson County Schools since 1998, currently serving as chief operating officer. His duties include management of the district's finance, maintenance and transportation departments in addition to managing a nearly \$40 million budget. Prior to joining Nelson County Schools was an educational financial analyst with the Kentucky Department of Education, a grants administrator with the Kentucky Justice Cabinet and a manager in the Kentucky Revenue Cabinet. Hockensmith is an active member of the Kentucky Association of School Business Officials.

Kyle Johnson, education sustainability leader with Harshaw Trane, serves as an energy consultant for K-12 clients. He works with school building owners and operators to optimize their facilities by leveraging real-time data to sustain comfortable, efficient learning environments. Johnson joined Harshaw Trane in 1999 as a service account manager. He graduated from University of Kentucky with a bachelor's degree in economics.

Phillip Jones, sales director for Eco Engineering, has over two decades' experience in the electric industry, including electrical construction, electrical distribution/control equipment, lighting and lighting controls, and wholesale distribution. At both the state and local levels, he has advised partners from a broad range of market sectors encompassing commercial real estate, education, retail, construction, manufacturing and governmental agencies, leveraging several million dollars of energy and operational savings for his customers. Jones holds a bachelor's degree in electrical engineering from Marquette University, and an MBA in finance from Butler University.

About the Presenters

Kimberly Joseph has been Bullitt County Schools' energy manager for nearly five years. She previously worked with University of Louisville's Kentucky Energy Efficiency Program, where she helped 30 school districts create energy management programs. Joseph has just over 16 years of experience working with public institutions and grant projects. She has a bachelor's degree in environmental sciences from the University of Louisville and an MBA from the University of Louisville.

Justin Kubly is a performance infrastructure account executive for Johnson Controls, Inc., in Louisville, and previously worked in energy services with Hussung Mechanical Contractors and Harshaw Trane. His 20 years of experience encompasses work with school districts, local governments, colleges and universities across the Commonwealth to help them address their long-term facility and energy concerns. Kubly holds a bachelor's degree in mechanical engineering from Purdue University and an MBA from Indiana University-Southeast.

Brian Linder is energy manager for a partnership of Carroll, Gallatin, Grant and Owen county school districts, and Williamstown Independent. Previously, he worked 16 years as an account manager for Owen Electric Cooperative. As state representative for the 61st District, Linder sits on the Appropriations and Revenue, Natural Resources and Energy, Local Government and State Government committees; and co-chairs the Public Pension Oversight Board. Linder holds a bachelor's degree from the University of Kentucky in secondary social studies education and an MBA from Thomas More College.

Dan Logan is the director of maintenance for Owen County Schools. The knowledge that he has gained since 2010 and then applied to operating his schools has resulted in Owen County Schools being the most energy-efficient district in Kentucky two out of the past three years. A graduate of Northern Kentucky University, Logan had previously worked for Owen County Government as county road foreman and solid waste coordinator and at TruGreen as production manager.

Ed Massey is chairman of the Boone County Board of Education and former president of the National School Boards Association and Kentucky School Boards Association. Massey, whose parents are both retired educators, has been involved in education since 1989 when he began working as a substitute teacher in the Boone County system. He has been a school board member for two decades. A graduate of Eastern Kentucky University and Chase College of Law, Massey has law offices in Kenton and Grant counties.

Jim McClanahan has worked for the Scott County school district for over 10 years, currently serving as energy manager/assistant director of maintenance. For the past two years, he has also worked for KSBA-SEMP, assisting other school districts with their energy management program. A professional engineer, McClanahan holds an undergraduate degree in mechanical engineering, a master's degree in industrial engineering and an MBA, and is a certified energy manager. His career includes 26 years of experience in industry at IBM and Lexmark and two terms as a Scott County magistrate.

Maryanne McGowan has over 30 years of experience as an accountant and senior-level manager, most recently working to stimulate business markets in energy efficiency and energy conservation for Duke Energy. She serves on the Consortium of Energy Efficiency, the Association of Energy Engineers, and the Council of Women in Energy and Environmental Leadership and recently served on an Electric Power Research Institute steering panel for a research project. McGowan holds undergraduate degrees from the University of Cincinnati and an MBA from Xavier University.

Roland P. Mueller is a registered architect with more than a decade of experience designing educational facilities. He is a project manager with RossTarrant Architects, Kentucky's only architecture firm that is totally dedicated to education. He has worked on a wide range of projects, including both new construction and renovations and additions. A LEED Accredited Professional, Mueller uses his expertise in sustainable design in managing projects that incorporate high-performance characteristics of all types, including projects targeting an ENERGY STAR, Net Zero or LEED Certification.

Eric Neff has been a teacher, football and basketball coach, principal and central office administrator. He has been personnel director for Covington Independent Schools since 2010, and oversees the district's facilities and grounds, transportation and school-based decision making councils. Neff also serves on the Motz Group Focus on Innovation Advisory Board. He holds a bachelor's degree in elementary education from Western Kentucky University and a master's degree in education from Northern Kentucky University.

About the Presenters

Jon Nipple is the program manager for KSBA's School Energy Managers Project. He retired from IBM and Lexmark International in 2009 after 34 years in various engineering, management and executive-level positions, including director of worldwide management and leadership development. He came out of retirement in 2010 to work as energy manager for the Grant County school energy managers partnership, joining KSBA-SEMP three years later. Nipple, a certified energy manager, holds bachelor's and master's degrees in metallurgical engineering and materials science from Purdue University.

Chris Perry has been the president and CEO of the Kentucky Association of Electric Cooperatives and United Utility Supply Cooperative since 2014. He has worked in the electric cooperative community for more than 20 years, serving as engineering manager and CEO of Fleming-Mason Energy and systems engineer at Nolin Rural Electric Cooperative Corp. in Elizabethtown, as well as managing engineering services at a Florida electric co-op. Perry holds an electrical engineering degree from the University of Kentucky and an MBA from Embry-Riddle Aeronautical University in Florida.

Britney Ragland is the energy engineer for the University of Kentucky Utilities Division in Lexington. She is a professional engineer and certified energy manager with a degree in mechanical engineering from UK. Ragland recently managed the development of UK's largest solar PV array that was co-funded by the student body. She has also worked on multiple LED retrofits, energy metering upgrades and the campus Emissions Reduction Plan. Prior to working at UK she was the energy manager for Fayette County Public Schools.

Matthew Satterwhite is president and COO of Kentucky Power, serving 169,000 customers in eastern Kentucky. He previously served as senior counsel at American Electric Power, public utility master commissioner at the Supreme Court of Ohio and departmental legal director of the Public Utilities Commission of Ohio. Satterwhite holds an undergraduate degree in political science from the University of Kansas and a law degree from Capital Law School. He also has served eight years on a local school board in Ohio.

Mark Saunier switched career gears toward helping K-12 schools save energy, after spending 13 years in energy engineering and management. In 1999, he founded Comfort & Process Solutions, Inc., a performance contracting company recognized twice by the Greater Lexington Chamber of Commerce with the Small Business Innovation Award and the Green Initiative Award for efforts in saving energy for schools. The Energy Division of CPS merged with Performance Services in October 2014 and Saunier has been working with K-12 schools and their energy managers on energy savings.

Michael J. Schmitt was appointed to the Kentucky Public Service Commission by Gov. Matt Bevin on June 21, 2016 and currently chairs the panel. Prior to joining the PSC, Schmitt was a partner in the law firm of Porter, Schmitt, Banks & Baldwin in Paintsville. His clients included energy companies and 10 eastern Kentucky school boards. He has also worked for the Kentucky League of Cities, the Kentucky Association of Counties and the Kentucky Department of Education. Schmitt received his law degree from the University of Kentucky.

Leisa Schulz is superintendent of schools for the Archdiocese of Louisville, which serves 49 Catholic elementary and secondary schools in central Kentucky. She is the chairperson of the Kentucky Non-Public Schools Commission and a member of the board for EDChoice KY, Stage One, 55,000 Degrees, and the Committee of Practitioners for the Kentucky Department of Education. Schulz is also a member of the Board of Directors for the National Catholic Education Association and the Federal Assistance Advisory Committee for the United States Catholic Conference of Bishops.

Chuck Session is Duke Energy's vice president of government and community affairs. In addition to his governmental affairs duties, he supports the utility's regional economic development activities for both Ohio and Kentucky to enhance the performance of its natural gas and electric operations. Session has worked for Duke Energy and its predecessor companies for 36 years, including positions as district and area manager, and manager of its meter reading department. He holds a business degree from Brevard College and a bachelor's degree in business administration from MacMurray College.

Todd Smith is the president of EBEB Solutions, Inc., based in Dayton, Ohio. He previously was director of high-performance building solutions for Tremco, Inc. A certified energy manager and sustainable design professional, he also has held senior positions with Duke Energy and Trane, where he developed energy solutions and structured financial offerings to improve profitability and reduce risk for Fortune 500 companies, educational institutions, government facilities and health-care systems. Smith received a bachelor's degree in mechanical engineering and an MBA from the University of Dayton.

About the Presenters

Scott Spalding is the director of transportation and facilities for the Marion County Board of Education. He was hired by the district in 2003, working seven years as the assistant director and later the director of an after-school and summer program. He became transportation and facilities director in 2010 and added energy manager responsibilities in July 2014. The district now ranks third in the state in energy usage as measured by EUI. Spalding has a degree in information management and design.

Dr. Rob Stafford is superintendent of Owen County Public Schools. A 25-year educator, he began his career as a middle school social studies teacher and has been assistant principal, principal, finance officer, director of pupil personnel, director of student services and director of human resources. Under his leadership, Owen County Schools has been the most energy-efficient district in Kentucky two out of the last three years, which Stafford attributes to the hard work of faculty and staff, and a detail-oriented approach to facility issues.

Kenneth W. Stanfield is a principal with Sherman Carter Barnhart Architects, focusing exclusively on educational facilities. He is a nationally recognized leader in the planning and design of sustainable schools. For the past decade, he has led the design of groundbreaking, high-performance schools, including the first Net Zero Energy public school in the United States, eight Net Zero achievable public schools in Kentucky, Kentucky's first four ENERGY STAR schools, and the first insulated concrete form school in Kentucky, and the largest ICF school in the nation.

Jason Staples has been with LHI Lighting since 2015. Prior to joining LHI, Staples spent six years working as a project manager with a turnkey lighting design firm servicing the major energy services companies, primarily focused on public schools and universities as well as municipalities. He has been in the lighting and energy conservation industry since 1997 with a primary focus on retrofit and renovation work.

Ryan Stout is a renewable energy professional focused on implementing successful solar power solutions for K-12 schools. Since 2001, he has managed 40 installations and developed over 65 megawatts of solar projects in commercial, municipal and K-12 school markets. Stout joined Performance Services in 2015 to manage the company's national solar accounts. He has a passion for solar design and development, and technical expertise in solar power solutions.

Kenya Stump is the assistant director of renewable energy with the Kentucky Department for Energy Development and Independence. Prior to that, she managed the environmental assistance programs at the state Department for Environmental Protection and was an environmental scientist and policy advisor for the Division for Air Quality. She also has been an environmental consultant with the Kentucky Business Environmental Assistance Program at the University of Kentucky. Stump has master's degrees in environmental science and public administration from Indiana University and the University of Kentucky, respectively.

Rhonda Truman, a 33-year employee of LG&E and KU, currently is program manager for the Commercial Rebate Program, overseeing its day-to-day operations and administration. She has held a number of other positions with the utilities' Supply Chain Department, including senior support analyst for transaction efficiency, sourcing leader for goods and services, and inventory analyst and buyer. Truman did undergraduate work at Purdue University and received an MBA from Indiana Wesleyan University.

John White is a public K-12 account manager for SchoolDude. In his role, the Kentucky native provides the public K-12 market with resources and trends to help district facilities, operations and IT leaders in their day-to-day work. White's job is to ensure educational institution of all sizes understand how SchoolDude's maintenance, events, technology, energy and safety solutions make school operations more efficient, provide cost savings, and improve the teaching and learning environment.

Ron Willhite is the director of the KSBA-SEMP, which was initiated by the association in 2010 to assist districts in managing energy costs that significantly affect school budgets. Willhite's career spans over 40 years in the electric and gas utility industry, beginning with Kentucky Utilities Company. He has testified on numerous issues before the Kentucky Public Service Commission, Virginia State Corporation Commission and Federal Energy Regulatory Commission. He also has served on the Scott County school board. Willhite holds a bachelor's degree in electrical engineering from University of Kentucky.



Kentucky's Battle of the School Buildings



An ENERGY STAR® Battle of the Buildings™ Competition



2017 Competition Registration Form

The Kentucky Battle of the School Buildings recognizes:

- The top school building that reduces its energy use on a percentage basis over calendar year 2017, as compared with calendar year 2016.
- Any school that reduces its energy use as measured by the weather normalized site EUI (kBtu/sq ft) by at least 20 percent over calendar year 2017, as compared with calendar year 2016.

Here's all you need to do to participate:

- Complete the competition form below
- "Share the property" from Portfolio Manager with the SEMP Team
- Report the following by dates listed:

Aug. 1, 2017	Benchmark calendar year 2016 data in Portfolio Manager.
Aug. 15, 2017	Report 1st AND 2nd Quarter energy usage into Portfolio Manager.
Nov. 15, 2017	Report 3rd Quarter energy usage into Portfolio Manager.
March 15, 2018	Report 4th Quarter energy usage into Portfolio Manager.
May 15, 2018	KSBA-SEMP to communicate and recognize final results.

Complete this form and email to martha.casher@ksba.org by Aug. 1, 2017.

School Name: _____ District _____
Sq. Ft. _____ Year built _____ Number of students _____
Address: _____ City _____ Zip code _____
Principal _____ Energy Manager _____

We understand that we are responsible for tracking all energy used in our school and will enter that information into Portfolio Manager in order for our energy data to show our progress.

SCHOOL ENERGY MANAGERS PROJECT

The School Energy Managers Project (SEMP) was formed within Kentucky School Boards Association in 2010 to help school districts comply with KRS160.325 “in an effort to reduce rising energy costs that are straining school budgets.” The mission of SEMP was to put professionally trained energy managers into schools. Where school district sizes were small, partnerships were formed across district boundaries to share the energy manager.

The KSBA-SEMP program was named an ENERGY STAR Partner of the Year by the U.S. Environmental Protection Agency in both 2014 and 2015 in the category of *Program Delivery in Energy Efficiency* for introducing energy managers into schools. In 2016 and 2017, the EPA recognized the program for “Sustained Excellence.” A major reason for the recognitions were the program’s resultant energy and cost savings as measured by reduced energy consumption, reduced and avoided costs, and the increase in number of ENERGY STAR schools.

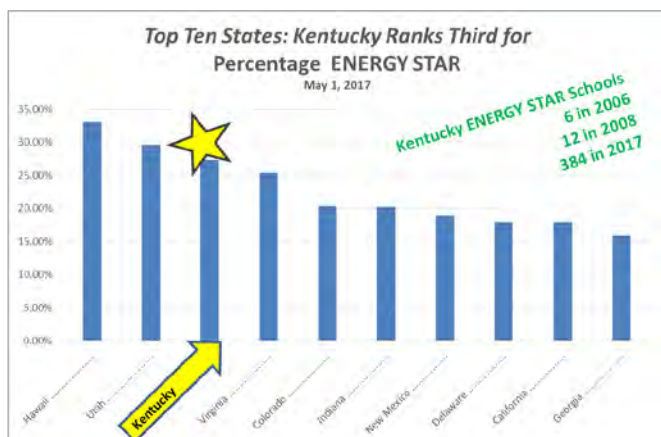


	2010	2016
National	73	73
Kentucky	65.4	52.0
ENERGY STAR	40-50	40-50
KY'S Best District	43	33.2
Net-Zero Ready	18	18

Kentucky’s 173 public school districts are using less energy today than they were using in fiscal year 2010. The statewide Energy Utilization Index has dropped from 65 KBTU/SF/yr to 52.0 KBTU/SF/yr during a time when the area of conditioned space has grown significantly.

	FY15-16	Cumulative
Consumption	\$ 36,000,000	\$ 108,100,000
Rebates	\$ 416,000	\$ 2,200,000
Refunds	\$ 0	\$ 850,000
Rate Correction	\$ 687,000	\$ 5,730,000
Rate Case	\$ 2,400,000	\$ 6,320,000
TOTAL	\$ 39,503,000	\$ 123,200,000

The corresponding costs savings through consumption savings, rate savings, refunds, etc. now totals over \$123 million dollars and is growing rapidly. These dollars go back into the classroom or facility instead of being spent on utilities.



Finally, the number of ENERGY STAR labeled school buildings has grown from six in 2006 to over 380 today. The significance of this number is not just the recognition, but is confirmation by an outside organization of school district stewardship and fiscal responsibility. Over 30 percent of Kentucky’s eligible public school buildings are ENERGY STAR labeled. That compares with approximately 10 percent nationally.

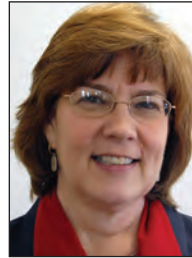
Meet your KSBA-SEMP team



Ron Willhite
SEMP Project Director
ron.willhite@ksba.org



Jon Nipple
SEMP Project Manager
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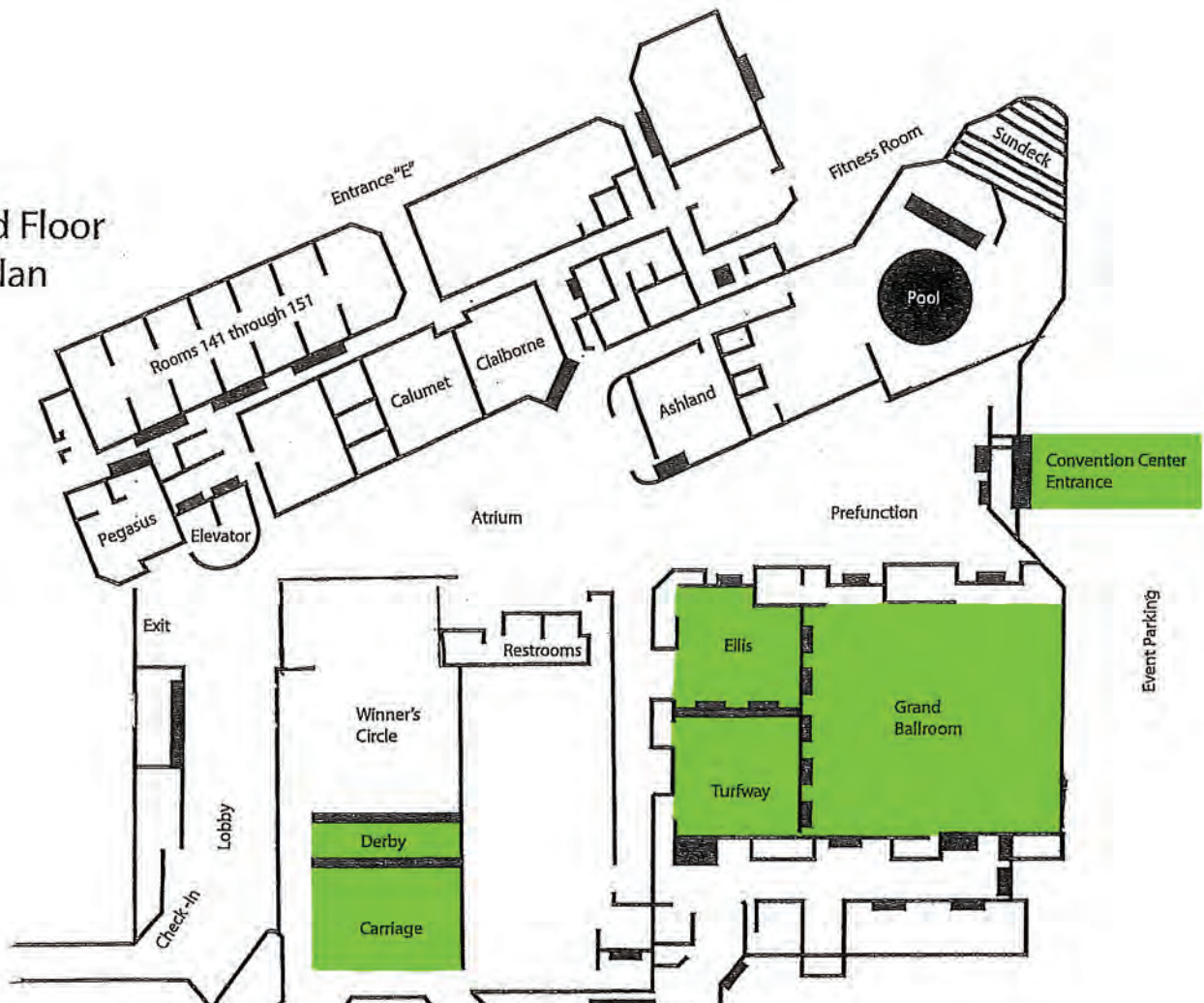


Martha Boles Casher
Energy Services Coordinator
martha.casher@ksba.org



Jim McClanahan
Energy Manager
jim.mcclanahan@ksba.org

Ground Floor
Floor Plan



We have better ways to help you save.



**Kentucky schools have already earned
more than \$4 million in rebates and incentives.**

NOW, THAT'S SMART SAVINGS.

The Commercial Rebate and Demand Conservation programs offered by LG&E and KU help educational facilities offset the cost of making energy-saving upgrades and better manage energy use throughout the year. On average, schools like yours earn thousands in rebates and incentives when they participate. Plus, you can realize long-term savings from reduced operating costs.


**For more information about these programs, visit
lge-ku.com/savingenergy to get started.**



Attachment C





KSBA-SEMP

Let's Save Energy Newsletters July 2016 - June 2017






Kentucky Power Company ENERGY STAR Schools






Russell Primary School
Russell High School
McDowell Intermediate School
North Magoffin Elementary School
Fleming Neon Middle School
Wurtland Middle School
Wurtland Elementary School
McKell Middle School
McKell Elementary School
Greysbranch Elementary School
Greenup High School
Stumbo Elementary
Betsy Layne High School
Allen Elementary School
Allen Central High
Adams Middle School
Boyd County High School



Fairview Elementary
4th place with 19.8%
reduction
in
Kentucky's Battle
of the School Buildings
An ENERGY STAR®
Battle of the Buildings™ Competition







LET'S SAVE ENERGY

School Energy Efficiency News

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



Utility-funded reduction could light all

October 2016

Kentucky high school football fields for more than 10 years!

With the crisp temperatures of fall, football practice and games are occupying time for many students, as well as parents and communities. What would it mean if those football fields could be illuminated at no cost? The amount of energy saved in FY2016 by 75 districts that are participating in utility-funded grants through KSBA-SEMP, is the equivalent to more than 10 years of no-cost energy for this sport!

The reduction in electrical energy, measured in kilowatt-hours (kWh), achieved over the 12-month period as compared to FY2015, was more than **enough to light all of Kentucky's high school football fields** for practice and games for over a decade. In fact, the energy reduction by those 75 districts would light, heat and cool more than seven high schools for one year.

Energy efficiency and elimination of wasteful practices has become a priority for Kentucky school districts. They are required by statute and board policy to develop energy management plans, and then report annually on the progress of those plans, as well as annual energy consumption. Recent and expected increases in utility costs are also giving districts further incentive to manage energy resources.

Funding from the Louisville Gas and Electric, Kentucky Utilities and Kentucky Power Company assist districts in implementing energy management measures through behavioral and facility improvements. This funding supports local energy managers to help identify, evaluate, implement and monitor energy efficiency measures.

The goal of the utility funding is to reduce energy (kWh) and demand (kW) by 2.5 percent annually. Results for FY2016 are:



Photo courtesy of Musco Lighting

Kentucky Power Company (KPC)

Seventeen out of 23 eligible districts receive funding through the Kentucky Power Company School Energy Management Program. Comparing FY2016 to FY2015, the energy reduction was 6.74 percent. Also important to note is the 9.72 winter peak demand reduction.

Kentucky Utilities Company (KU)

Fifty-four of 78 districts participate in the KU School Energy Management Program. This funding tracks "summer seasonal energy" (May through September) and "winter seasonal energy" (October through April), using FY2010 as a baseline. Summer seasonal energy reduction achieved is 27.8 percent and winter seasonal energy reduction is 14.4 percent. Significant is the summer peak demand reduction of over 24 percent.

Louisville Gas & Electric (LG&E)

The LG&E School Energy Management Program also tracks "summer seasonal energy" (May through September) and "winter seasonal energy" (October through April), using FY2010 as a baseline. Four districts participate in this funding. Summer seasonal energy reduction achieved is 4 percent and winter seasonal energy reduction is 7.1 percent. Also significant is the summer peak demand by 18 percent.

Don't Miss Out on Funding Opportunities

News from Utility Partners

SEMP Utility Funding:

Utility funding is available to school districts that receive electric service from LG&E, KU and Kentucky Power. This funding supports the requirements in KRS 160.325 and Board Policy 05.23 to focus on rising energy costs that are straining budgets. Training and support of local energy managers by KSBA-SEMP is provided throughout the grant to assist the district in meeting a goal to reduce energy and demand by 2.5 percent annually. There is *limited time to begin funding for FY2017* – contact ron.willhite@ksba.org for details.

Energy Projects and Utility Rebates:

LED bulbs and fixtures, high-efficiency equipment and HVAC controls may be eligible for utility company rebates. Other projects may also qualify. Districts may be eligible for a rebate if they have replaced outdated devices with energy saving devices in a renovation project. Check with local providers for details. Deadlines are approaching for the 2016 calendar year that will impact availability of the rebates. Here are links to a few provider websites:

www.lge-ku.com/rebate

www.kentuckypower.com/SaveBusiness

www.duke-energy.com

www.kaec.org



A unit of American Electric Power

Energy Savings Business Programs The 2017 Program Year is Coming!

The 2017 Program Year is rapidly approaching and we will be holding 2017 Kick-Off Meetings to review program changes. Come and hear about the 2017 program at:

Nov. 15

9:30 am – Perry County Public Library
– Hazard

3:00 pm – Pikeville Public Library (Lee Ave.) – Pikeville

Nov. 16

10:30 am – Pikeville Public Library (Lee Ave.) – Pikeville

2:00 pm – Floyd County Public Library
– Prestonsburg

Nov. 17

9:30 am – Boyd County Public Library
– KYOVA Mall Branch – Ashland

1:30 pm – Boyd County Public Library
– Main Branch – Ashland

No Registration Required!

NOTE: 2016 Program Year Ends on December 16.

Projects must be completed by then!



Schools within the LG&E and KU service territories are learning a valuable lesson – conserving energy not only keeps operating costs low, it can also earn cash rebates. Through the Commercial Rebate Program, schools can earn up to \$50,000 by making energy-saving improvements like upgrades to lighting. Kentucky schools have already earned more than \$3.5 million and much of that rebate money is being used to enrich the education of Kentucky's children. "Let our business partner, *Franklin Energy*, help you along the way. Visit lge-ku.com/rebate for more information on how your school can apply for our Commercial Rebate Program. "



KSBA-School Energy Managers Project Presents

Kentucky's Battle of the School Buildings

An ENERGY STAR®
Battle of the Buildings™ Competition



The race is on!

At the July halfway point in Kentucky Battle of the School Buildings, Estill County's **South Irvine P/K Center** topped the list in energy savings, with Bath County High School nipping at its heels. The chart below shows the top 10 standings at mid-year. The figures stand for the percentage of reduction from the source energy use intensity (EUI) during the first six months of 2015 compared with the same period this year. The yearlong competition is based on a calendar year.

Property Name	Source EUI Reduction
South Irvine P/K Center	24.70%
Bath County High School	22.31%
Safe Harbor	19.40%
Garth Elementary	18.30%
Southside Elementary	17.31%
North Middletown Elementary School	17.19%
Bourbon County Preschool Head Start	17.05%
Bloomfield Middle	16.12%
Fairview Elementary School	14.38%
Mt. Washington Middle School	14.29%

"The Battle" is not over until the last meter is read!
Good luck to all competitors!





Consider this project . . .

Hickman County Superintendent Casey Henderson describes the high school gym LED project by saying "These lights will dramatically cut our gym lighting expense."

KSBA **ENERGY STAR "Office"** Recognition



Since 2010, KSBA has worked to support energy-efficiency efforts for all Kentucky public school districts. In doing so, KSBA staff began applying strategies to eliminate wasteful practices in their own building and to learn to become an energy-efficient leader in their daily work.

In 2011 KSBA:

- Replaced inefficient HVAC equipment.
- Installed new lighting and programmable thermostats.
- Began using power strips for office equipment with timers.
- Increased insulation levels.
- Included energy reports at staff meetings.

This has meant \$2,000 in annual savings, which is significant to a small office building. These changes have now resulted in KSBA becoming an ENERGY STAR Office, one of 78 in Kentucky. To be an effective leader, you have to practice what you preach.



KSBA-SEMP Director Ron Willhite (far left) and KSBA Operations Manager Jeff Million (far right) **explain the strategies implemented at KSBA's office to reduce the energy use.** From left are: Willhite; KSBA Executive Director Mike Armstrong; Kentucky Energy and Environment Cabinet representatives Lee Colton, Eileen Hardy and Rick Bender; and Million.

LET'S SAVE ENERGY

School Energy Efficiency News

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



November 2016

History of Electric Lamps and Lighting and Opportunities to Consider

Lighting long has been a key component of schools. From classrooms making the best use of oil or gas lamps to classrooms designed to use natural light **"over the pupil's left shoulder,"** the evolution of lighting in the classroom has a long, rich history.

During those early days, windows were key to the classroom. Daylighting standards called for specific window area and window-to-floor area ratios, stating that 40 to 50 percent of the total wall area should be windows.

Thomas Edison's first commercial incandescent bulb in the 1870s indicated a potential for electric lighting for schools. However at that point, electric lighting levels were limited, as was the length of illuminating time.

In the late 1800s, a different technology called arc lamps provided improvements in lighting levels and

"burn time." As developments came in power generation, so did the types of arc lamps. The early carbon arc lamps were replaced with other types of discharge lamps like the mercury vapor, sodium and then fluorescent lamps.

Early standards for electrical classroom lighting were published in the early 1900s. Initially, with only expensive incandescent lighting being available, the **minimum requirements were "3 foot-candles of artificial light."** In the late 1930s, **fluorescent lighting was** three times more efficient than incandescent and quickly became the choice for schools. The minimum requirements for artificial lighting were raised to 30 foot-candles and then later to 50–70 foot-candles, depending on the classroom subject.

Over the past 50 years, the impact of several energy crises led to further advancements in lighting technology. Light Emitting Diodes (LEDs) technology was introduced and had been costly until the past few years. As the technology has advanced, **LEDs' energy efficiency** has increased and cost has been drastically reduced. Given the light quality and long life, coupled with the efficiency, LEDs are here to stay.

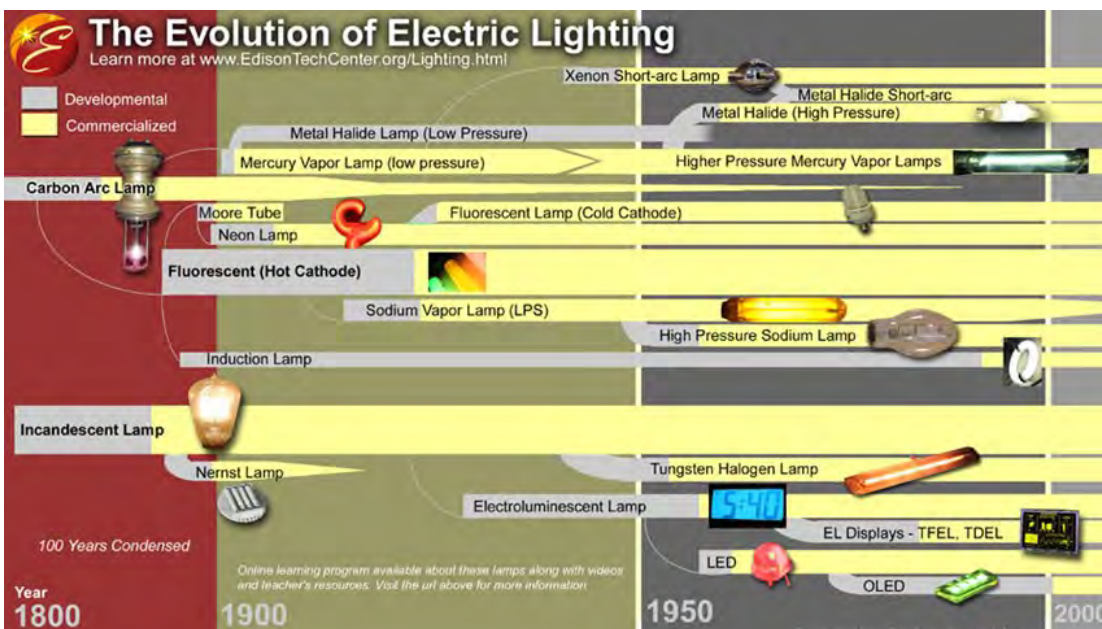


Illustration from:
www.edisontc.org/lighting/



Choosing the Best LED Project

There are a number of factors that should be considered before choosing LED lights. Choosing the best option for a specific application will likely include evaluating the following:

- *Lumen output* (compare apples to apples).
- *Color Rendering Index* (CRI) Color quality and appearance. ENERGY STAR requires qualifying fixtures have lamps with a CRI rating above 80.
- *Compatibility* with existing fixtures (warm white, cool white or daylight?).
- *Energy use* (wattage of the light fixture).
- *Luminous efficacy* (lumens per watt). Luminous efficacy is a measure of how efficiently a light source produces visible light. Lamps with higher lumens per watt have higher efficiency.
- *Light distribution and angle of view* (Lighting representative should provide you with a layout showing the foot-candle levels and what is recommended for the application).
- *Rated life* (L70) versus operational time
- *Life cycle cost*. Payback period based on hours of operation and cost of material and maintenance.
- *Warranty* (How long is the warranty and what does it cover?).
- *Dimming characteristics*
- *Are the fixtures rated for damp locations* (bus garages, warehouses, etc.).
- *Can occupancy sensors be installed in the fixture?*
- *Has the fixture been tested and approved by the Design Lights Consortium (DLC).* (PLEASE NOTE: some utility rebate guidelines require the DLC certification to be eligible for a rebate.)

Information provided by Energy Manager Terry Anderson, Fleming County Partnership. Contributing info from Greg Saylor, Arrow Electric



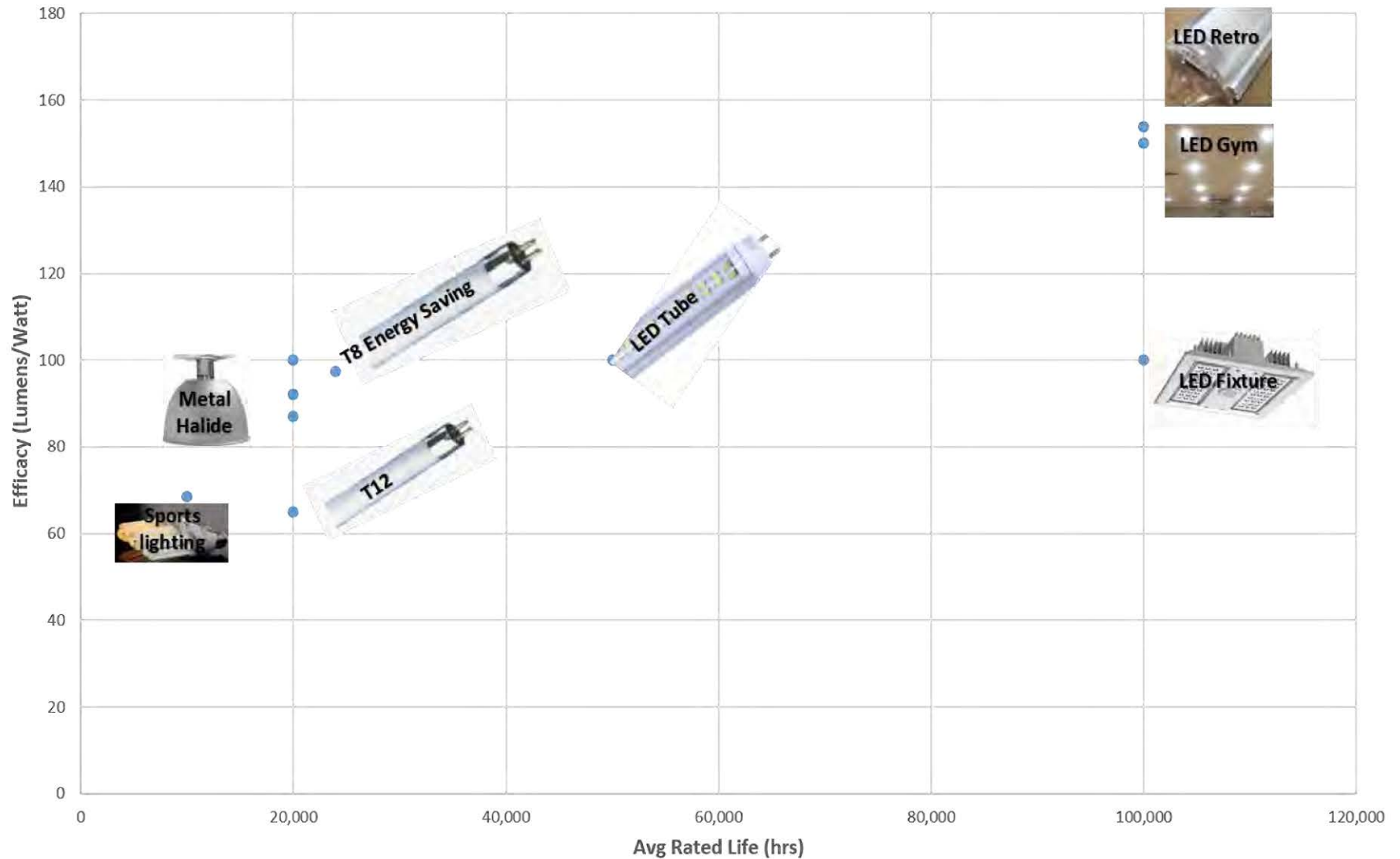
CONSIDER THIS . . .

From incandescent to CFL to LED, lighting technology has advanced with "warp speed!" Before making major lighting decisions, ensure you know the questions to ask and the terms to understand.

Enlightening Terms

<i>Ballast</i>	A collection of electronic parts that regulates the electric current through a fluorescent lamp.
<i>Diffuser</i>	A covering or shade over a light or lamp that generally softens or scatters the light and is usually used to eliminate spots and glare. May be made from glass or plastic.
<i>Efficacy</i>	A description of the efficiency of a light source, as measured in light produced (lumens) per unit of power consumed (watts).
<i>Fixture</i>	A complete lighting unit consisting of a lamp or lamps and the parts designed to distribute the light, position and protect the lamp(s), and connect the lamp(s) to the power supply.
<i>Foot-Candle</i>	A measurement of the intensity of light reaching a surface.
<i>Lamp</i>	In the lighting industry, "lamp" is the term for a light source. Technically, incandescent light bulbs, fluorescent tubes, CFLs, and LEDs are all considered "lamps," and table and desk lamps are referred to as fixtures.
<i>Lumen</i>	Measure of light.
<i>Rated life</i>	A lamp or light bulb's estimated lifetime measured in hours.
<i>Watts</i>	Measure of power, or energy consumed per unit of time.

Evolution of Efficacy and Avg. Rated Life (ARL)



You can see why we like LED Lighting: You get a lot of light for a low amount of energy (efficacy) and it lasts for a long time



Woodford County Schools Celebrates 100% ENERGY STAR Schools and Buildings



Five Woodford County schools, as well as the central office were recognized in October for their energy reduction and becoming an ENERGY STAR School OR ENERGY STAR Office Building. From left are: From left to right Southside Elementary – Stacy Rutledge and Pam Shouse; Safe Harbor – Garrett Wells; Northside Elementary – Emma Mulvihill; Woodford High School – Rob Akers; Central Office – Amy Smith; Middle School – Tracy Bruno and Jeff Rhode. Please note that Hunteartown Elementary and Simmons Elementary schools are also ENERGY STAR certified, but were presented certificates of recognition at an earlier date.



A band, chorus, and even a quintet, were part of the district-wide celebration for Woodford County Schools 100% ENERGY STAR recognition. Annual savings achieved are over \$80,000.



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**

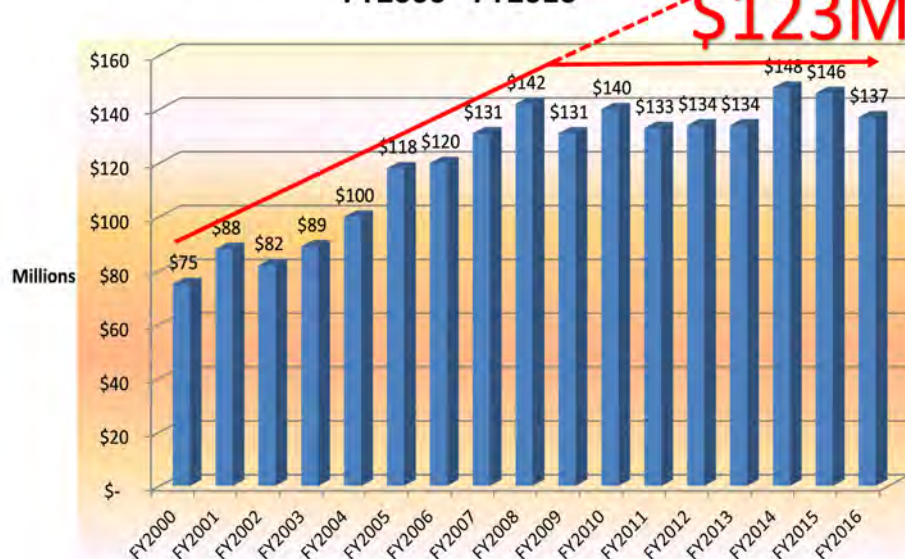


Figure 8 at left shows the MUNIS-reported school energy costs from fiscal year 2000 through fiscal year 2016. This graph shows that these costs had nearly doubled between fiscal years 2000 and 2008. The red lines on the graph illustrate the projected trajectory of costs and the cumulative savings of 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-Ve	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	Williamstov	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	Owensbor	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 Thom	51.3	72.2	142	Bowling Gre	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- Worthingto	60.5	67.0
14	Shelby	39.2	71.6	58	Clark	45.6	74.7	102	Harlan Cou	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	McCracker	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	Middlesbo	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 In	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	Muhlenbei	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 Sprin	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	Williamsbur	48.4	54.9	119	Washingto	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	Elizabethtow	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 Count	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 Grov	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				

LET'S SAVE ENERGY

School Energy Efficiency News

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



January 2017

Managing energy load leads to district savings

Utility energy-saving programs continue to evolve. Most utility companies have rebate programs to encourage high efficiency to be part of the equipment purchasing decisions. Some utility companies also have demand conservation programs, which means that a school district will be paid for reducing demand at peak times, called "events."

On the graph below, notice that the demand is not constant but rather fluctuates as the temperature changes throughout the year. Most of these changes are driven by customer desire for more warmth or cooling during extreme temperatures. During these peak times, power plants must either be "called on-line" to generate more electricity OR customers "called on" to reduce their electric consumption, thus lowering the instantaneous demand on the system. For those commercial customers who have the capability to respond and reduce demand during an event, the financial reward can be significant.

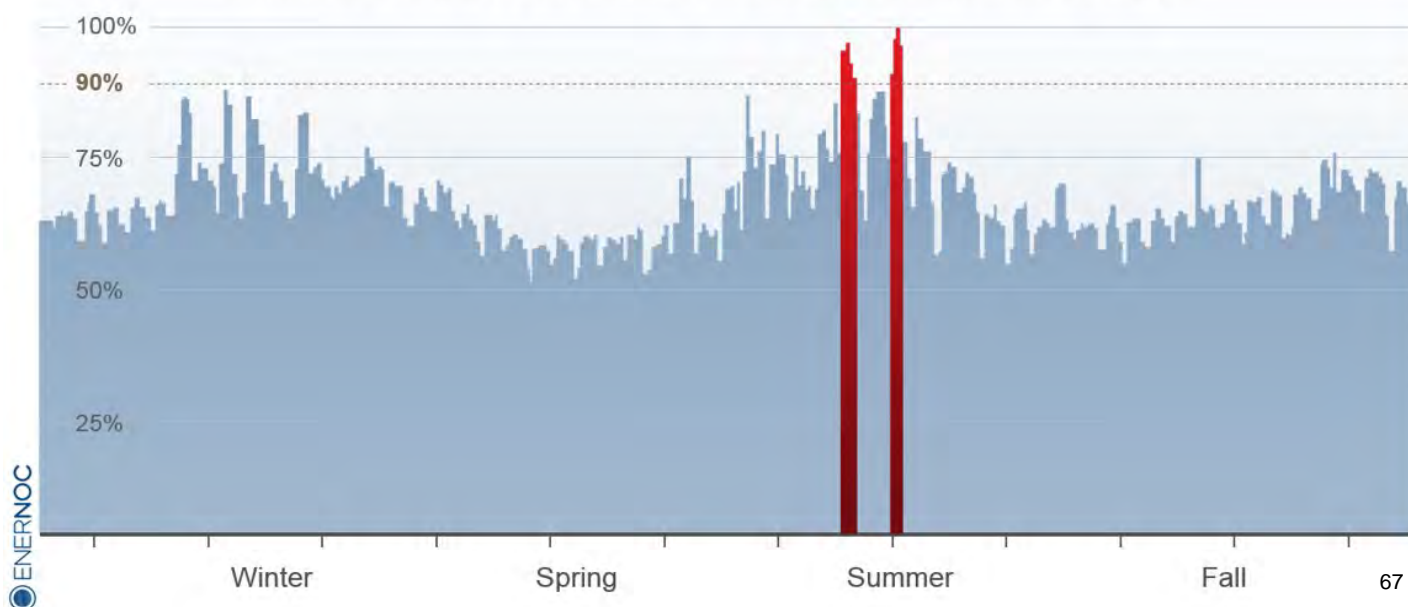
One such program is the Commercial Demand Conservation Program from Louisville Gas & Electric and Kentucky Utilities through a partnership with EnerNOC – a provider of energy intelligence software and demand response solutions.

In Scott County Schools, 13 of its 14 schools are served by KU. All 13 participate in KU's Commercial Demand Conservation Program. The district not only has been a leader in reducing energy consumption, but also a leader in reducing electric demand during peak time events.

"Success in participating in this program is a two-step process," says the district's energy manager, Jim McClanahan. "First, having an HVAC control system is a must – this allows us to automatically setback our equipment to meet the electric load reduction requested. Second, we communicate to faculty and staff that we are going to 'unoccupied mode' a little earlier than normal."

(continued on page 4)

Annual Electricity Demand As a Percent of Available Capacity





ENERGY STAR Recognitions

With the cumulative avoided energy cost for Kentucky schools now totaling over \$123 million, and the state energy utilization index dropping to 52 kBtu/sq. ft., the number of ENERGY STAR schools in the state continues to reflect that progress. As of January 4, 2017, that number is 375.

District efforts to make wise decisions on building and operating schools, and eliminating wasteful energy practices, should be recognized. ENERGY STAR is a recognized brand that provides an excellent recognition.

During December, a number of school districts across Kentucky were recognized with the Governor's Certificate for this achievement.



(L-R): Energy Manager Bruce Sauer, Caldwell County Schools Superintendent Carrell Boyd, Facilities Director Sam Haulk, and Energy and Environment Cabinet representative Eileen Hardy.



(L-R): Superintendent Taylora Schlosser, West Marion Elementary Principal Robby Peterson, S Charles Middle Principal Buffy Mann, Marion County High Principal Tom Brown, Lebanon Middle Principal Millie Blandford, Lebanon Elementary Principal Donna Royse, Glasscock Elementary Principal Angie Akers, Calvary Elementary Principal Sara Brady, and District Transportation/Maintenance Director Scott Spalding.



(L-R): Consulting engineer Baccus Oliver, Energy and Environment Cabinet representative Eileen Hardy, McCracken County High School Principal Michael Ceglinski, and Energy Manager David Dobbins.



Muhlenberg County School students celebrate having their first ENERGY STAR Schools. Greenville Elementary, Central City Elementary and Muhlenberg High School-East Campus became ENERGY STAR-certified in December 2016.



Photo at left are Muhlenberg County Superintendent Randy McCarty and Energy and Environment Cabinet representative Kenya Stump.



L/R: Todd County Schools Superintendent Wayne Benningfield, KSBA representative Martha Casher, Maintenance Supervisor Troy Winders and Facilities Director Ed Oyler.



(L-R): KSBA representative Martha Casher, Livermore Elementary Principal Carrie Ellis, McLean County High School Vice Principal John Gray, Board Chairman Bill Lovell, Board Member Otis Griffin, Calhoun Elementary School Principal Amy Bell, Superintendent Terry Hayes, Energy and Environment Cabinet representative Eileen Hardy, Sacramento Elementary Principal John Farley, Board member Joyce Sutton, Board Vice Chairman Wendell Miller, Board member Kelly Baird



Standing with the Bourbon Central Elementary Energy Team are L/R: State Sen. Stephen West, Principal Keith Madill, Bourbon County Judge-Executive Mike Williams, Bourbon Fiscal Court Magistrate Don McCarty, and State Rep. Sannie Overly.

Consider this project . . .



Crittenden County Elementary School students recently learned from Facilities Director Greg Binkley that replacing 60 T8 fixtures with 60 LED retrofit kits could save the school over 14,000 kilowatt hours annually, with a \$1,400 savings. That is a four-year **"payback"** on this project. This is just one of the many energy projects that districts are choosing to implement.

Special Energy Project Funding was made available to 79 districts in the LG&E and KU service territories; of those, 59 districts submitted proposals. Energy projects were submitted and approved to be implemented during 2016-17 for 316 schools in those districts.

Those districts together will save an estimated \$500,000 annually based on projected consumption savings of nearly 5 million kWh and energy savings of 1.7 MW per month.

Managing energy load *(continued from page 1)*

"KU will call early in a week when they see an extreme weather event coming, so we can ensure our control systems are all working properly," adds McClanahan. "They will then call an hour before we need to implement unoccupied temperatures, thus reducing our load for brief periods of time."

Because the response is called during June, July, August and September, and typically from 2 p.m. through late afternoon, the impact on the school day has been minimal. The financial return to the Scott County Schools, however, has been nearly \$16,000 for 2016, with four called events from KU. In addition to the financial return, participants also gain access to EnerNOC's Energy Intelligence Software platform, which provides real-time visibility

into how much energy and demand they are using. This insight helps participants optimize their performance during events and identify opportunities to run more efficiently throughout the year.

LG&E and KU offer the Commercial Demand Conservation Program at no additional cost to large commercial customers that have the ability to reduce electric load when requested. This generally requires school districts to have the ability to set-back HVAC when requested.

Over the past year, 97 schools in 17 school districts have participated in LG&E and KU's Commercial Demand Conservation Program. As districts continued to understand how the program works, success similar to that experienced by Scott County Schools is possible.

LET'S SAVE ENERGY

School Energy Efficiency News

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



June 2017

Eighteen districts recognized for 100 percent ENERGY STAR Schools



Why do Kentucky schools focus on ENERGY STAR? It is simple. ENERGY STAR recognition is a key measure indicating a school district is using taxpayer money efficiently.

Currently, 18 school districts in Kentucky have 100 percent ENERGY STAR Labeled schools. Those districts include:

Burgin Independent
Butler County
Caldwell County
Corbin Independent
Crittenden County
Elliott County
Frankfort Independent
Henry County
Lee County

Marion County
Middlesboro Ind
Pendleton County
Robertson County
Scott County
Southgate Independent
Walton-Vernon Ind
Williamstown Ind
Woodford County

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Districts with 100 percent ENERGY STAR school buildings received additional recognition during a recent KSBA conference. District representatives gathered above are, front row from left, Becky Barnes (Frankfort), Taylora Schlosser (Marion County), Robert Story (Walton-Verona Independent), Nancy White (Elliott County), JoAnna Fryman (Scott County), Jim Evans (Lee County). Back row from left, Jeremy Winters (Williamstown Independent), Tony Whaley (Henry County), Greg Duty (Southgate Independent), Anthony Strong (Pendleton County), Steve Martin (Middlesboro Independent), John Burns (Robertson County), Bill Asbridge (Crittenden County), Mike T aylor (Caldwell County), Bob Clark (Burgin Independent). Districts achieving that honor but whose representatives were not present for picture are Butler County, Corbin Independent and Woodford County.



School Energy Summit

Over a year ago when KSBA considered hosting a School Energy Summit, a dream attendance goal was set at 200 attendees, along with a realistic goal of 150. Now that the inaugural event has been held and 206 people were in attendance, plans are already in progress for the 2018 School Energy Summit.

School energy management requires involvement from many stakeholders. Board members, district administrators, faculty/staff, and vendors agree that a well thought-out process is important for success in reducing energy consumption and saving dollars. The Summit integrated those stakeholders with the end result of professional development for all.

Three general sessions were held during the Summit that featured leaders from all stakeholder groups. Senior leaders discussed current policy, industry changes and economic factors. Participant comments included such phrases as "Stellar Panel," "Best Session," "Best Q&A I have been in for a while," and "Loved seeing the top executives here."

Breakout sessions included two facility tours, an extended session on energy management basics and 12 different breakout sessions. Comments and evaluations were excellent for all sessions.

Learning objectives for the Summit included:

- Examine the energy and economic trends impacting schools.
- Showcase best practices for optimum energy efficiency impacting the bottom line.
- Examine future trends that are impacted by technological advances.
- Provide professional development for public or private, K-12 and postsecondary schools.
- Build partnerships with the school communities to support energy-efficiency efforts.

Nearly half of the written evaluation comments focused on the positive aspects of the networking that occurred among energy managers, vendors and other stakeholders. The challenge now is to turn the learning and networking into day-to-day savings. As one participant said, "Can't wait to see what you will do next year!" We can't wait to see, either!



Jeffersontown High School senior Lyric Hill opens the School Energy Summit with the national anthem, while the school's award-winning Color Guard presents the flag.

SEMP Program Manager Jon Nipple moderates the Electric Utility Executive panels with Chuck Session, vice president of DUKE Energy Kentucky; David Huff, director, Customer Energy Efficiency/Smart Grid Strategy Louisville Gas & Electric-Kentucky Utilities; Ranie Wohnhas, managing director, regulatory and finance, Kentucky Power; and Chris Perry, president of the Kentucky Association of Electric Cooperatives. One attendee wrote "Stellar Panel! Excellent to hear from leadership across the state."



CONSIDER THIS PROJECT:

SEPF projects to pay-back in less than three years

Clay County Schools has been working for several years to reduce energy use, but like most school districts, it was hampered by insufficient funds to **make improvements. That didn't stop the District Energy Team** from developing a list of recommended energy projects – at the time considered dream projects. The list included lighting needs that would eliminate an ongoing maintenance nightmare.



The majority of classroom lighting at the Clay County Middle School was the older

Superintendent William Sexton was part of the crew checking to be sure the lighting lens covers were secure in classrooms.

T12 fluorescent technology. Because of the age of the units, the light levels had degraded and components were being replaced as they failed.

When the Special Energy Project Funding became available in June 2016 through KSBA-SEMP, the district was immediately ready to apply for the funding. **Since the “dream” energy savings projects had already been identified**, district leaders had a plan to implement them over a six-month period. That plan replaced over 300 T12 lights in the classrooms and hallways, with installation accomplished by district maintenance and administrative staff during fall and winter breaks. Total cost for the project was around \$26,000, with \$12,000 of that coming from the SEPF.

With a reduction in usage of nearly 188,000 kWh, **the annual saving is projected around \$18,000.** “Our focus is always on creating success for our students. This funding has allowed us to significantly improve the learning environment, as well as capture energy savings to be used for our students,” said Clay County Schools Superintendent William Sexton.

Eighteen districts recognized

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The designation of ENERGY STAR is significant because a professional engineer or registered architect must affix a seal verifying facility data, energy data, and air quality levels provide a healthy environment. An ENERGY STAR Labeled school is operating as efficiently as the top 25 percent of K-12 schools nationwide.

The number of Kentucky ENERGY STAR Labeled schools has increased nearly 500 percent (from 68 to 388 schools) since 2010, when Kentucky public schools were required by KRS160.325 to begin reporting annual energy consumption and costs.

Historically, electricity prices in Kentucky were among the lowest in the nation, influenced by availability of coal. With recent changes in environmental regulations, those costs are steadily increasing. Schools have responded with a corresponding increased focus on being efficient.

A school's operating costs are directly related to its energy usage. As energy usage goes down, costs go down. The difference between operating at a national average energy usage versus an energy-efficient level can be tens of thousands of dollars annually for a single school. That is why the Kentucky School Boards Association's School Energy Managers Project coined the phrase “Dollars for Students, Not Energy.” That focus has resulted in a cumulative savings of

over \$123 million for districts to use in meeting other educational needs.

With tightened budgets and rising utility costs, it is more critical than ever to implement energy efficiency strategies. Resources from the ENERGY STAR program provide opportunities to recognize effective use of taxpayer money, translating to “Dollars for Students, Not Energy.”

School board decisions around energy have created some significant milestones:

*August 2011 - 100th ENERGY STAR Labeled school – Millbrooke Elementary, Christian County Schools
May 2012 – Twelve Highly-Rated ENERGY STAR schools (rating between 95-100)*

April 2013 - 200th ENERGY STAR Labeled School – Caneyville Elementary, Grayson County Schools

December 2015 – Announcement of 300th ENERGY STAR Labeled School – Southside Elementary School, Shelby County Schools

February 2016 – Recognition of 10 100 percent ENERGY STAR School districts at KSBA's Annual Meeting

February 2017 – Recognition of 18 100 percent ENERGY STAR School districts at KSBA's Annual Meeting

School's out . . . what do your buildings look like?

Summer setbacks should have an impact

Have you considered strolling through a school during the summer? It may be well worth the time as the impact of your district energy management plan can be easily reviewed. Below is an example of a summer setback checklist to help in your evaluation.

EXAMPLE OF A SCHOOL DISTRICT SUMMER SETBACK CHECKLIST

Name _____ School _____

Date _____ Time _____

Setback Action		Completed
1.	Turn off and unplug computers, TVs, DVD players, coffee pots, and any other non-essential classroom/office electronic equipment.	
2.	Turn off electronic whiteboards, projection systems, computer monitors, printers, scanners, etc. Confirm with district IT regarding turning off computers.	
3.	Clean out and unplug personal refrigerators. Leave the door open.	
4.	Turn off all classroom lights. Turn off AND unplug any personal lamps.	
5.	Turn off all interior lighting unless specific area is being occupied for a period of time.	
6.	Set exterior lights to turn off during daylight hours (this should be done at every day, but would be good to confirm).	
7.	Turn off nonessential exhaust fans.	
8.	Never hang items from ceiling where lighting sensors may be located	
9.	Turn off all display case lighting.	
10.	Check summer schedule for school use. Reset controls OR thermostats to recommended setback temperatures.	
11.	Unplug chilled-water fountains, except in occupied areas. Check and report any leakage of water fixtures.	
12.	Remove all animals and plants, including fish aquariums, during summer break.	
Notes/Observations		