



Energy Management Report FY2018 Annual Report To Kentucky Utilities

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Executive Summary

The application in Case No. 2013-00067 identified the primary goal of the Energy Management Program for Schools to “support school districts in utilizing energy more “wisely” with the overall objective for each school district to reduce consumption over time by an annual rate of 2.5% and achieve energy utilization indices (“EUI”) of fifty or lower. The participation goal was for all districts served by LG&E or KU to retain or employ an energy manager through at least FY2015 to maximize district response to KRS160.325. The dollars remaining from the original KU/LG&E grant covering FY2014 and FY2015 were approved in Case Nos. 2014 –00371 and 2014-00372 to extend the energy manager funding through FY2016.

Case Order 2015-00398 approved the Settlement of 2014-00371 and 2014-00372 extended the Energy Management Program for Schools and energy manager funding through FY2018. This is the fiscal year 2018 report.

From the FY2010 baseline, the KU districts achieved the following:

August Demand Reduction (13.4%)

January Demand Reduction (10.6%)

Summer Energy Reduction (16.7%)

Winter Energy Reduction (15.1%)

The August reduction is particularly significant as LG&E-KU is a summer peaking utility. Of the 78 Districts receiving KU electric service 43 districts now have District-wide EUI’s less than 50 KBTU/sf/yr.

The partnership established between LG&E-KU and KSBA provides a means for the School Energy Management Project (SEMP) to maintain a major presence within schools in Kentucky. During FY2018 53 school districts within the KU service area have benefitted financially and technically from this work.

The School Energy Managers serving these school districts benefit from continuity of employment, technical training and improved skills due to the funding which was provided. They and their schools benefit from the knowledge that has been gained by positioning them on a continuous improvement path. Knowing that an expectation of an annual reduction provides leverage for energy and demand conservation measures which may not otherwise be undertaken. Future results and further technological upgrades will be impacted.

District Funding

2018 LGE-KU Funding			
	Total	LGE	KU
Project Management			
SEMP Staff	\$ 24,170	\$ 4,109	\$ 20,061
Outreach	\$ 24,533	\$ 4,171	\$ 20,362
Travel	\$ 4,818	\$ 819	\$ 3,999
Sub Total	\$ 53,520	\$ 9,099	\$ 44,421
District Energy Manager Funding/Support			
Technical	\$ 103,864	\$ 17,658	\$ 86,207
Training	\$ 70,775	\$ 12,032	\$ 58,743
Salary Match	\$ 342,359	\$ 58,203	\$ 284,156
SubTotal	\$ 516,998	\$ 87,893	\$ 429,105
Total	\$ 570,518	\$ 96,991	\$ 473,527
*Indirect Costs @15% on all items except energy manager salary match			

Initiatives Implemented

Also included in the Case Order 2015-00398 was provision for \$1 million in Energy Efficiency Grants for Schools. Funded Energy Managers took the opportunity to obtain those grants to do project work in their schools. These energy grants known as the Special Energy Project Fund (SEPF) are being reported separately. However with the focus on SEPF, most districts spent their time and energy on executing projects which were funded through the availability of the energy grants.

ENERNOC

As districts and buildings develop capability, more have enrolled in ENERNOC.

Energy Contests

Energy Contests remain popular and are expanding as a way to engage students and staff in energy reductions. The contest costs are paid for from the energy savings that the school garners. So on a year to year basis the school is not out any money but pays for the cost of the energy contest through the savings.

Use of Students for Energy Audits

One of the state's technical career centers is now using students enrolled in the energy program to perform energy audits in the district's other buildings.

District Leadership

Many districts have now incorporated meetings and training with building principals and district personnel to engage them in energy savings.

Renovation and New Construction

Finally as renovation and new construction occurs in a district, energy is no longer an afterthought. While the state's larger districts have an ongoing renovation plan, the smaller districts only renovate or build new on a periodic basis. Even so, all these districts are using energy savings technologies as a part of their building blueprint.

Energy Utilization Indices

One of the key indicators for measuring energy performance is District-wide Energy Use Intensity, EUI, 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 the district divided by the square footage of **conditioned** area. The statewide average for District-wide EUI in FY2010 was 64.2 kBtu/sf/yr. By FY2017, the District-wide EUI had dropped to 49.7 kBtu/sf/yr.¹ Lower EUI indicates a more energy

efficient condition. The electric only EUI which calculates the EUI based on electrical usage only improved from 44.2 kBtu/sf/yr to 39.4 kBtu/sf/yr.

Table 1, on the following page, shows the data for KU funded districts. The table shows that most districts have improved in both their electric and overall EUI. This table also shows non-participating districts, the number of KU-served schools within the district and the number of ENERGY STAR schools which will be discussed later.

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 LG&E-KU have educated and focused school districts on the importance of valuing best energy management practices. While new school construction and renovation are very energy efficient, presentation of energy conservation measures by energy managers is leading to significant elimination of energy waste in both new and existing buildings.

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

Table 1, Data on KU served districts

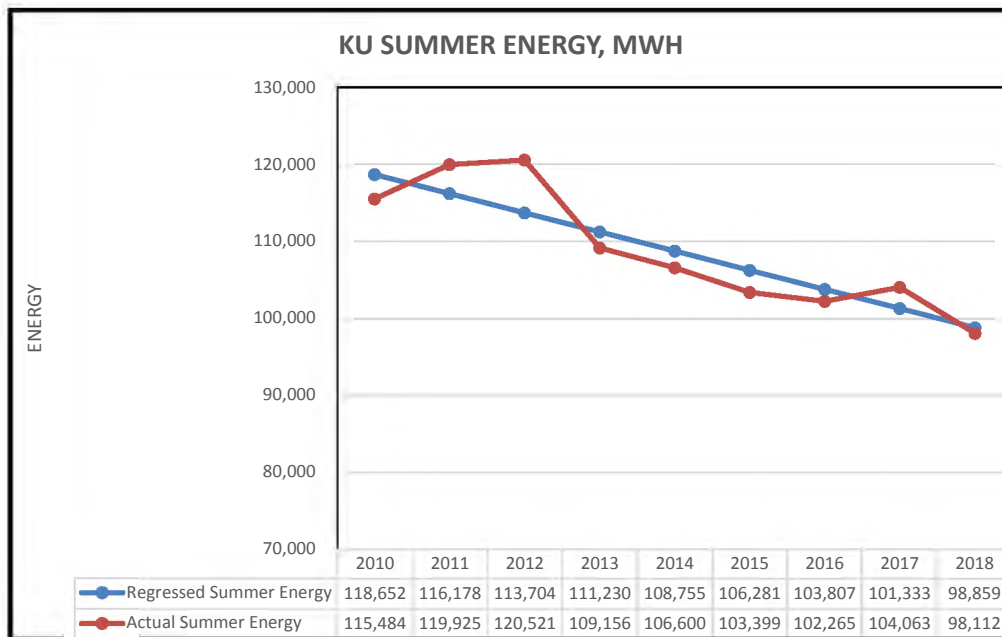
TABLE 1										
School Participation and Energy Data										
DISTRICT	KU Served Schools	LGE Served Schools	FY2017 SEMP Participation	KU SEMP Schools	LGE SEMP Schools	FY2010 EEUI	FY2017 EEUI	FY2010 EUI	FY2017 EUI	KU ENERGY STAR SCHOOLS
KU DISTRICTS										
Anderson	6		Y	6	0	38.5	31.7	52.3	39.1	3
Augusta	1			1	0	39.0	32.4	55.6	42.3	
Ballard	3		Y	3	0	52.8	44.2	80.1	59.7	
Barren	2				0	42.6	39.1	49.8	45.3	1
Bath	3				0	49.1	38.9	87.8	57.0	
Bell	7		Y	7	0	75.8	45.0	81.5	49.8	
Bourbon	6		Y	6	0	40.3	35.3	65.0	50.8	5
Boyle	5				0	47.8	46.5	65.9	57.3	1
Bracken	3				0	47.9	43.6	55.0	49.0	1
Burgin	2				0	47.8	41.8	60.5	48.0	1
Campbellsville	3		Y	3	0	41.0	33.6	76.4	47.1	
Carroll	4		Y	4	0	45.8	37.3	82.9	54.5	1
Casey	5				0	46.1	40.3	49.5	42.9	
Caverna	3		Y	3	0	45.3	36.5	84.2	50.2	
Christian	1		Y	1	0	45.4	31.1	70.1	37.4	1
Clark	9				0	41.3	33.8	74.7	44.2	4
Clay	2		Y	2	0	43.6	41.2	63.3	53.0	
Crittenden	3		Y	3	0	41.2	30.3	57.1	42.4	3
Danville	5		Y	5	0	40.5	35.2	64.6	48.8	2
Dawson Springs	1		Y	1	0	39.9	36.6	61.0	45.6	
East Bernstadt	1				0		37.3		37.3	
Elizabethtown	5		Y	5	0	38.0	39.9	76.9	63.5	
Eminence	2		Y	2	0	57.5	58.0	85.3	67.1	
Estill	3		Y	3	0	39.1	38.4	53.4	45.7	1
Fayette	50		Y	50	0	52.3	52.3	78.2	62.8	13
Fleming	3				0	44.4	37.2	69.8	49.6	1
Franklin	1		y	1	0	54.7	42.5	87.3	54.4	1
Gallatin	4				0	51.2	40.7	60.0	43.3	2
Garrard	2				0	39.4	44.3	51.5	52.6	
Grayson	5				0	41.1	38.3	60.0	48.6	6
Green	4				0	64.3	55.6	88.2	69.7	
Hardin	11		Y	11	0	42.4	37.4	54.3	43.4	3
Harlan County	8		Y	8	0	55.7	51.6	55.7	51.6	
Harlan Ind	3		Y	3	0	50.2	39.6	52.3	41.2	
Harrison	5				0	32.1	33.9	61.9	55.7	
Hart	6		Y	6	0	49.5	56.8	73.5	67.5	
Henderson	1				0	48.4	43.3	74.1	62.1	
Henry	5		Y	5	0	48.3	33.4	67.7	47.1	5
Hickman	2				0	48.1	45.2	67.6	57.4	
Hopkins	7		Y	7	0	49.1	39.8	71.7	53.0	4
Jessamine	3				0	37.1	31.1	50.3	37.9	1
Knox	3				0	50.7	36.2	64.8	45.6	2

TABLE 1 (Continued)										
DISTRICT			SEMP Participation	KU SEMP Schools	LGE SEMP Schools	FY2010 EEUI	FY2017 EEUI	FY2010 EUI	FY2017 EUI	KU ENERGY STAR SCHOOLS
LaRue	4				0	38.8	36.9	55.1	52.3	3
Laurel	7		Y	7	0		52.6		59.1	
Lee	2		Y	2	0	52.5	26.0	78.3	38.8	2
Lincoln	5				0	46.7	39.1	70.7	49.8	4
Lyon	3		Y	3	0	33.9	35.8	53.7	50.3	
Madison	12		Y	12	0	45.1	42.4	56.4	49.5	2
Marion	4		Y	5	0	49.6	32.3	60.3	37.8	5
Mason	4		Y	4	0	35.6	30.4	59.2	50.1	1
McCracken	4		Y	4	0	39.7	37.8	62.7	52.9	
McCreary	3		Y	3	0	70.2	37.9	94.8	43.2	
McLean	3		Y	3	0	32.7	30.3	45.9	42.0	3
Mercer	3				0	51.5	50.2	78.3	66.0	1
Middlesboro	4		Y	4	0	52.6	21.7	97.2	41.9	3
Montgomery	7		Y	7	0	50.6	50.3	70.2	63.8	
Muhlenberg	9		Y	9	0	46.7	41.5	68.5	52.1	5
Nelson	3		Y	3	0	43.8	32.0	51.5	33.6	3
Nicholas	2		Y	2	0	46.2	58.1	80.7	73.5	
Ohio	4		Y	4	0	43.3	37.5	64.4	45.4	1
Pendleton	1		Y	1	0	33.0	30.8	55.9	48.1	1
Pineville	2		Y	2	0	51.3	35.7	58.5	38.6	
Pulaski	7		Y	7	0	43.0	37.6	60.9	50.9	
Robertson	1			1	0	69.0	31.7	114.5	39.9	1
Rockcastle	4				0	58.4	56.4	59.9	56.6	1
Rowan	2		Y	2	0	44.9	40.9	72.3	55.6	
Russell	4		Y	4	0	65.7	51.4	80.5	54.7	
Science Hill	1		Y	1	0	56.5	47.5	56.5	47.5	
Scott	13		Y	13	0	46.1	31.7	53.3	35.4	13
Shelby	8		Y	8	0	60.9	36.7	71.6	39.4	6
Somerset	3		Y	3	0	47.4	43.7	89.8	66.2	
Taylor	3		Y	3	0	47.8	37.8	64.7	47.9	
Trimble	2		Y	2	0	32.6	28.9	52.3	42.4	1
Union	5		Y	5	0	39.1	29.3	69.1	47.9	2
Washington	2		Y	2	0	64.7	48.9	83.5	53.0	
Webster	5		Y	5	0	45.2	34.6	75.5	55.7	3
Williamsburg	1				0	43.6	36.1	54.9	41.1	
Woodford	7		Y	7	0	49.4	34.8	63.5	40.6	7
Totals	362		53	284	0					130

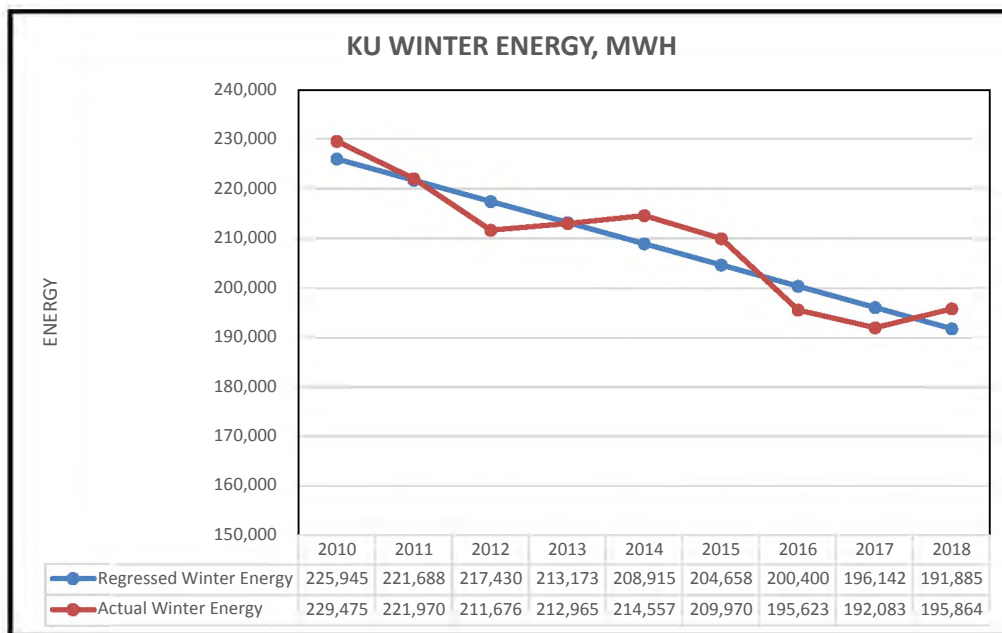
Note: Shaded districts do not have a participating energy manager

Consumption Reduction and Annual Comparison

ENERGY REDUCTION (MWH)

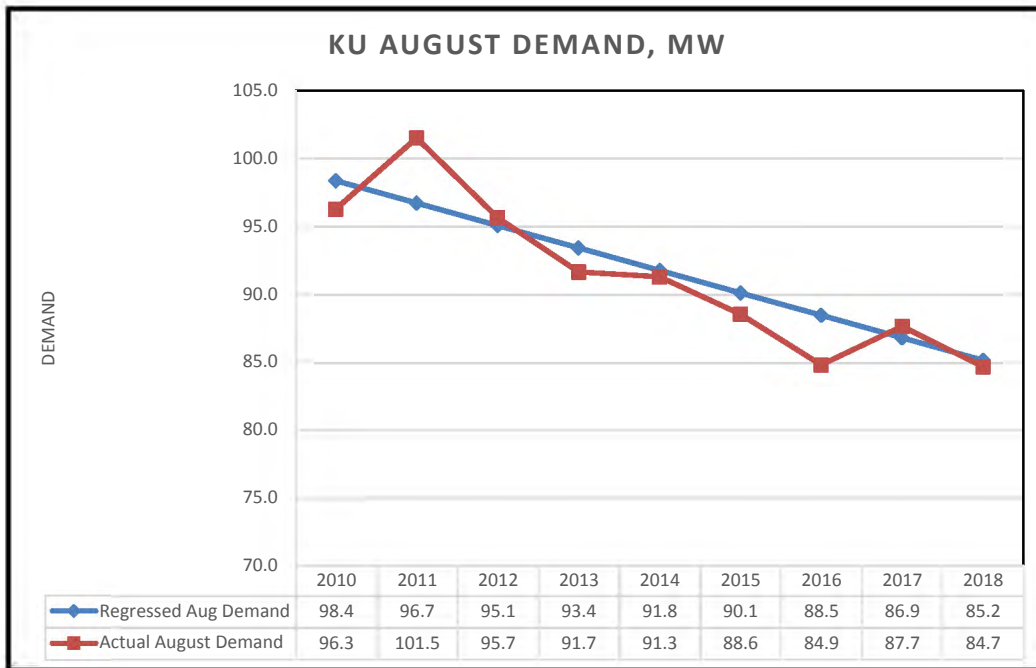


KU Summer Seasonal Energy Reduction of 16.7% since fiscal year 2010.

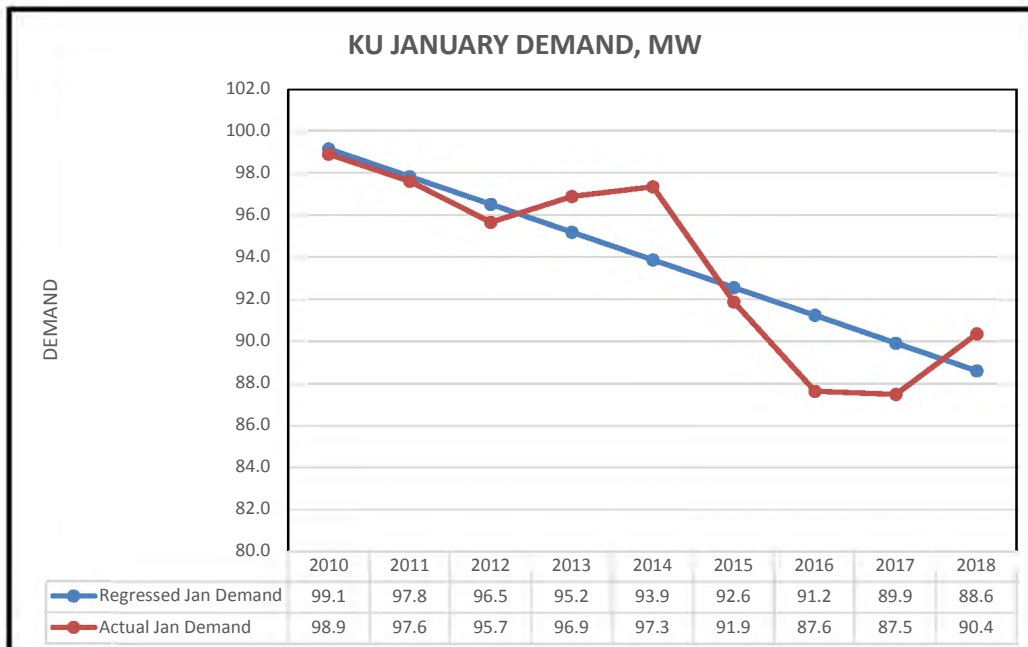


KU Winter Seasonal Energy Reduction of 15.1% since fiscal year 2010.

DEMAND (KW) REDUCTION



KU August Demand Reduction of 13.4% since FY2010.



KU January Demand Reduction of 10.6% since FY2010.

ENERGY STAR Schools

A major focus of SEMP is district achievement of ENERGY STAR certification for its K-12 schools. While there are many agencies which offer or provide external certification, ENERGY STAR was chosen as a metric because 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. Having a building which is ENERGY STAR labeled is international recognition for energy efficiency and contrary to other certifications such as LEED, ENERGY STAR only acknowledges energy efficiency in their scoring methodology. i.e. ENERGY STAR doesn't give extra scoring if you have a "rain garden" on your property since rain gardens contribute little to energy efficiency. The significance of this number is not just the award but is confirmation by an outside organization of school district stewardship and fiscal responsibility. Currently over 37% of Kentucky's eligible public school buildings are ENERGY STAR labeled. That compares to approximately 11% nationally.

Additional recognition has been given for the districts that have all schools ENERGY STAR labeled. In total there are currently 26 districts, fourteen of who have a school served by KU. Those fourteen districts are: Bourbon County, Burgin Independent, Crittenden County, Grayson County, Henry County, LaRue County, Lee County, Marion County, Middlesboro Independent, Pendleton County, Robertson County, Scott County, Trimble County and Woodford County.

Figure 1 shows the number of KU served ENERGY STAR labeled buildings has grown steadily since FY2010 indicating greater energy efficiency.

Figure 1

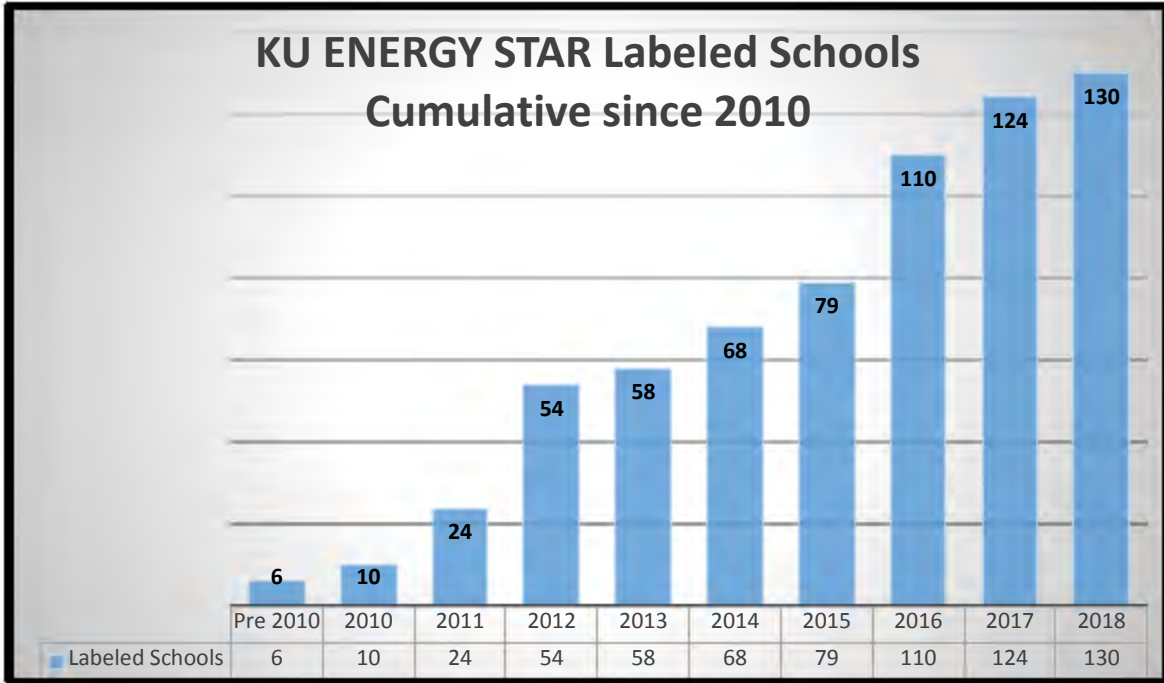
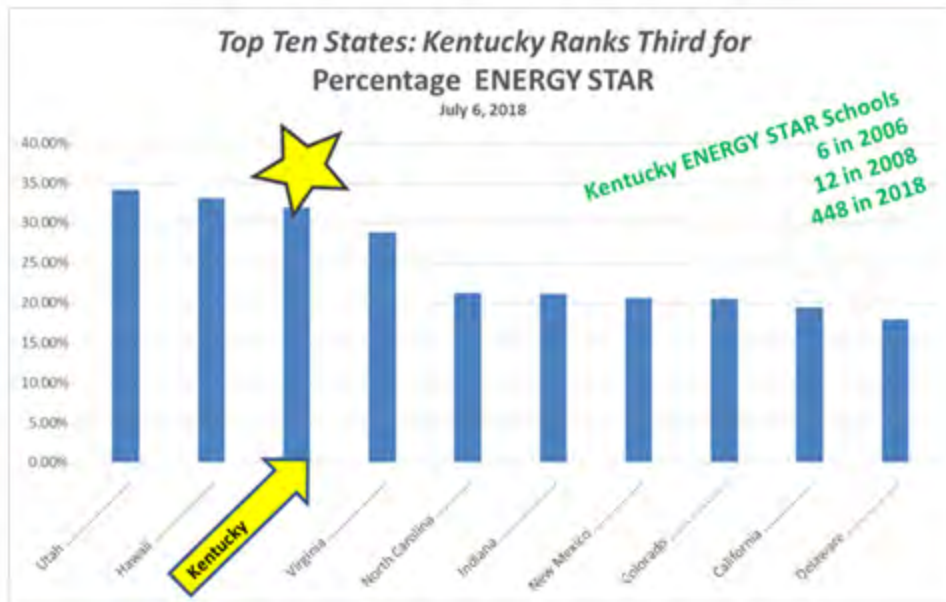


Figure 2 shows that Kentucky ranks third in the nation in percentage of ENERGY STAR labeled schools.

Figure 2.



Participation

The participation goal was for all districts served by LG&E or KU to retain and employ an energy manager to maximize response to KRS 160.325. From a practical standpoint, some districts do not participate because the number of KU or LG&E schools in their district is small leading to smaller grant awards. Table 2 shows the overall participation for schools and districts within the KU or LG&E service territories. Overall participation for schools is approximately 85% while for districts it is approximately 70%. It should also be noted that the participation changes slightly each year due to energy manager retirements, district desires and financial capabilities.

Table 2

Participation			
K-12 Schools	LGE	KU	Total
Total	171	362	533
Participating	169	284	453
Districts			
Total	6	78	84
Participating	5	53	58

Energy and Demand Savings Compared to Application Metrics

The Application in Case No. 2013-00067 (and subsequently in Case Nos. 2014-00371 and 2014-00372) identified the primary goal of the Energy Management Program for Schools to “support school districts in utilizing energy more wisely” with overall objectives for each school district:

1. to reduce consumption over time by an annual rate of 2.5 percent and
2. to achieve energy utilization indices (EUI) of 50 kBtu/sf/yr or lower.

1. Demand and Energy Reduction

The SEMP base year is FY2010 and the first reporting year under the KU program was FY2014. The data reported is for metered energy and demand for continuous accounts from the base year through FY2018. The reported demands are the summation of metered demands for demand billed accounts and calculated demands for the energy only billed accounts and are thus the accumulated non-diversified class demand. Next the accumulated demands were normalized for weather and then as in the Application a seventy five percent coincident factor was assumed for converting the accumulated demands to a system peak demand.

It should be noted that the demand reductions are conservative for two reasons:

1. A 75% coincident peak factor has been assumed for calculating coincident demands the even though the actual factor may be closer to 90%.
2. FY2010 is denoted the base year even though the first year of having energy managers in place was FY2011. Using FY2011 where the data reported is believed to be more accurate as the base year, the percentage improvements would be much greater.

With these conservative approaches, the KU districts are performing at a 1.7% annual reduction for coincident peak demand reduction in August and an overall annual energy reduction of 2.0

The following table lists the demand results for August and the annual energy usage by year.

KU Data

(Data is shown in fiscal years)

August Demand, MW													
Year	Actual						Normalized					Norm class CP at 75%	
	August MW	incr	%	cum	%		August MW	incr	%	cum	%		
2010	96.3						98.4					73.8	
2011	101.5	-5.2	-5.4%	-5.2	-5.4%		96.7	1.6	1.7%	1.6	1.7%	72.5	1.7%
2012	95.7	5.8	5.7%	0.6	0.7%		95.1	1.6	1.7%	3.3	3.3%	71.3	3.3%
2013	91.7	4.0	4.2%	4.6	4.8%		93.4	1.6	1.7%	4.9	5.0%	70.1	5.0%
2014	91.3	0.3	0.4%	5.0	5.2%		91.8	1.6	1.8%	6.6	6.7%	68.8	6.7%
2015	88.6	2.7	3.0%	7.7	8.0%		90.1	1.6	1.8%	8.2	8.4%	67.6	8.4%
2016	84.9	3.7	4.2%	11.4	11.8%		88.5	1.6	1.8%	9.9	10.0%	66.4	10.0%
2017	87.7	-2.8	-3.3%	8.6	8.9%		86.9	1.6	1.9%	11.5	11.7%	65.1	11.7%
2018	84.7	3.0	3.4%	11.6	12.0%		85.2	1.6	1.9%	13.2	13.4%	63.9	13.4%

January Demand, MW													
Year	Actual						Normalized					Norm class CP at 75%	
	Jan MW	incr	%	cum	%		Jan MW	incr	%	cum	%		
2010	98.9						99.1					74.4	
2011	97.6	1.3	1.3%	1.3	1.3%		97.8	1.3	1.3%	1.3	1.3%	73.4	1.3%
2012	95.7	1.9	2.0%	3.2	3.3%		96.5	1.3	1.3%	2.6	2.7%	72.4	2.7%
2013	96.9	-1.2	-1.3%	2.0	2.1%		95.2	1.3	1.4%	3.9	4.0%	71.4	4.0%
2014	97.3	-0.5	-0.5%	1.5	1.6%		93.9	1.3	1.4%	5.3	5.3%	70.4	5.3%
2015	91.9	5.5	5.6%	7.0	7.2%		92.6	1.3	1.4%	6.6	6.6%	69.4	6.6%
2016	87.6	4.2	4.6%	11.3	11.5%		91.2	1.3	1.4%	7.9	8.0%	68.4	8.0%
2017	87.5	0.2	0.2%	11.4	11.7%		89.9	1.3	1.4%	9.2	9.3%	67.4	9.3%
2018	90.4	-2.9	-3.3%	8.5	8.7%		88.6	1.3	1.5%	10.5	10.6%	66.5	10.6%

Total MWH												
Year	Actual						Normalized					
	Total MWh	incr	%	cum	%		Total MWh	incr	%	cum	%	
2010	344,959						344,597					
2011	341,895	3063.8	0.9%	3063.8	0.9%		337,866	6,732	2.0%	6,732	2.0%	
2012	332,196	9699.1	2.8%	12762.9	3.7%		331,134	6,732	2.0%	13,463	3.9%	
2013	322,121	10075.3	3.0%	22838.3	6.6%		324,402	6,732	2.0%	20,195	5.9%	
2014	321,157	963.7	0.3%	23802.0	6.9%		317,670	6,732	2.1%	26,927	7.8%	
2015	313,369	7788.6	2.4%	31590.6	9.2%		310,939	6,732	2.1%	33,659	9.8%	
2016	297,888	15480.8	4.9%	47071.4	13.6%		304,207	6,732	2.2%	40,390	11.7%	
2017	296,146	1741.7	0.6%	48813.1	14.2%		297,475	6,732	2.2%	47,122	13.7%	
2018	293,977	2169.2	0.7%	50982.4	14.8%		290,744	6,732	2.3%	53,854	15.6%	

2. Schools Achieving EUI Less Than 50kBTU/sf/yr

As noted earlier, of the 78 districts receiving KU electric service in school buildings, 43 (55%) districts now have District-wide EUI's less than 50kBTU/sf/yr. (Compared to 3 in 2010).

These lower EUI numbers are easily attributed to the work of the energy managers and the commitment by their districts to improve.

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 KU/LGE grant and other funding opportunities. Because some districts had transition in personal assigned as energy manager, individual sessions were held with the new energy managers.

KSBA also had the help of a part-time energy manager on staff who served districts and worked with them to establish and execute energy goals. This service worked well to jump start small districts who were struggling with the concepts of energy management, or districts that were not located such as to participate in the sharing of an energy manager.

In April 2018 KSBA hosted its second annual Energy Summit with Program Objectives:

- To examine energy and economic trends impacting schools
- To showcase best practices for optimum energy efficiency impacting bottom line costs
- To examine future trends that are impacted by technological advances
- To provide professional development for public or private, K-12 and post-secondary schools
- To build partnerships with the school communities to support energy efficiency efforts.

LG&E and KU were active in the summit by hosting a session titled, “Emerging Technologies”. This session focused on Advanced Metering, Solar Offerings, and on upcoming Commercial Rebate Changes. Additionally, Jeff Myers participated on our event planning board.

A complete Energy Summit Program is included in Appendix B.

Outreach and Awareness

An important deliverable for SEMP is to keep school district board members, leadership and staff;



KSBA



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.

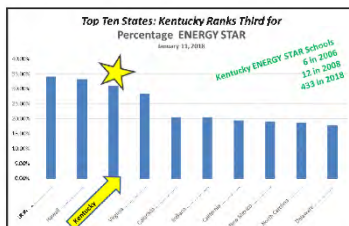
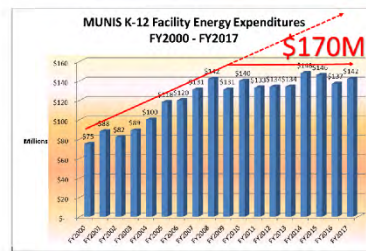
The KSBA-SEMP program was named an ENERGY STAR Partner of the Year by the U.S. Environmental Protection Agency in both 2014 and 2015 in the category of Program Delivery in Energy Efficiency for introducing energy managers into schools. In 2016 and 2017, the EPA recognized the program for "Sustained Excellence." 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	2017
National	73	73
Kentucky	65.4	49.7
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 49.7 KBTU/SF/yr during a time when the area of conditioned space has grown over 13 percent.

The corresponding costs savings through consumption savings, rate savings, refunds, etc. now totals over \$170 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 430 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 a third of Kentucky's eligible public school buildings are ENERGY STAR labeled.

January 12, 2018

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 LG&E-KU along with other funding made possible presentation, exhibits, and monthly newsletters to fulfill this objective during the reporting period.

Presentations were made to the following:

- July 2017 - Kentucky Organization of School Administrative Assistants (KOSAA) – School Energy Management Reminders
- October 2017 - Kentucky School Plant Management Association (KSPMA) Annual Conference – Resource for all energy related sessions

- December 2017 - KSBA Winter Symposium – “Tough Questions and Best Practices for Tackling Facilities Projects” (3 hour session)

KSBA-SEMP writes and distributes the “*Let’s Save Energy*” newsletter (*APPENDIX A*) 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:

- Consider this project . . . Union county Schools save with replacement lighting (August 2017)
- Seeds planted turned into innovative “energy light” for Washington County High School – (October 2017)
- What’s your game plan for winter break? – (November 2017)
- \$170 million saved in seven years – (December 2017)

Data Gathering

Energy Usage and Demand data was gathered by account by month for each district beginning with July 2009 through June 2018.¹ School districts use a range of data collection tools ranging from Purchased Software (EnergyCap, Energy Watchdog, and SchoolDude) to excel spreadsheets. Where historical data was missing from district records, LG&E-KU regional customer support managers were contacted to fill in the required data.

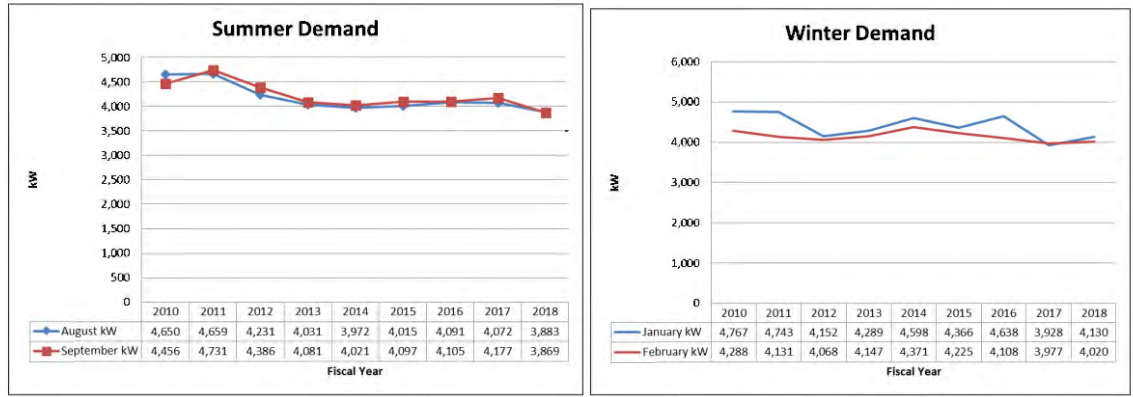
Data Scrubbing

Only those accounts which were present in FY2010 and still remaining today were analyzed. Accounts which have been vacated since FY2010 were eliminated from the data analysis. Accounts which are new since July 2009 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.

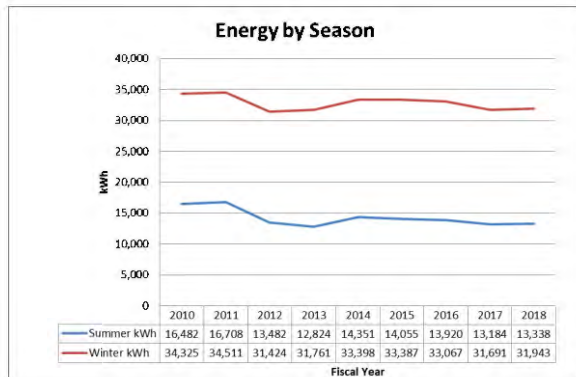
Data Analysis

Following the scrubbing of the data, each district’s data was graphed showing the individual performance on energy and demand reductions. For the demand accounts, data was plotted as Summer Demand, Winter Demand and Energy by Season. For the non-demand accounts, a load factor was calculated using the demand accounts and then applied to calculate a demand value for the accounts where demand was not captured. Samples of the district-level non-normalized graphs are shown below.

Finally, all data was rolled-up into an LG&E or KU Summary and weather normalized.



¹ Data is provided to KSBA for analysis and reporting on a quarterly basis. Since June 2018 data is not completely available for all districts at the due date of this report, the June 2017 data was used as a proxy where necessary.



APPENDIX A – Newsletters

LET'S SAVE ENERGY

School Energy Efficiency News

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



August 2017

2017 Solar Eclipse . . . impact on energy

In recent times, Carly Simon has sung about seeing "a total eclipse of the sun" and Pink Floyd about "the sun is eclipsed by the moon." The eclipse even inspired Bonnie Tyler's song about "a total eclipse of the heart." With more modern technology, a new analysis has come: the impact the 2017 solar eclipse will have on solar generation.

The US Energy Information Administration (EIA.gov) reports that 2 percent of the nation's electric generation is from solar power. Bloomberg News has calculated the impact of the 2017 solar eclipse on the grid to be more than 9,000 megawatts across the 70-mile-wide shadow, from Oregon to South Carolina.

With the increase in solar panels and the interconnections with electric companies, utility companies across the nation have been encouraged to coordinate in advance to address potential additional power generation requirements.

Patrick Walshe, TVA Operations & Analysis manager, explains that as the largest public utility in the United States has been readying for this event for months. "We are absolutely ready because we've been preparing for this eclipse like a major storm or

2017 Total Solar Eclipse's Path Across the U.S.



Casting a 70-mile wide shadow across the US, Hopkinsville, Ky. is named as the "point of greatest eclipse." (illustration from NASA.gov)

temperature event that could affect our ability to keep electricity flowing to our consumers." Walshe adds, "We don't put all of our eggs in one generating basket, so we'll have plenty of clean, low-cost, reliable power to meet the demand."

TVA serves parts of 28 counties in Kentucky and operates one 41 kW solar site in Bowling Green. Pennyrile RECC and Hopkinsville Electric System are two TVA distribution companies in Hopkinsville area, which has been identified as the "point of greatest eclipse."

Over ninety percent of **Christian County Schools'** electric service is provided by one of the two mentioned distribution companies. Superintendent Mary Ann Gemmill

(continued on back page)

Double play: PSC reduces impact of utility rate hike on schools, paves way for special tariff

The utility bills of public schools served by Louisville Gas & Electric and Kentucky Utilities will not take as large a hit as originally projected, thanks to KSBA and other groups that intervened in the companies' latest rate hike submission. But other action by the state Public Service Commission in the case could have even more significant implications.

The PSC signed off on an order in late June reducing the size of the rate request. "LGE-served schools will see their electric costs rise by approximately \$1.1 million less than originally requested by LGE, and KU-served public schools should realize an estimated \$1.5 million less of an increase than initially sought," said Ron Willhite, director of KSBA's School Energy Managers Project. LGE natural gas-served school buildings also will be less affected compared with the original rate request.

This isn't the first success KSBA has had in intervening on behalf of schools in utility rate cases. But in this most recent case, the settlement has the potential for generating long-term change. As part of the agreement, the PSC approved special rate tariffs for schools, both public and private, in a pilot program.

While those tariffs will provide immediate energy cost avoidance, the benefit would be more long-lasting if they are continued, Willhite said.

The process

KSBA is in the process of filing a plan with the PSC for choosing the schools that will receive the special pilot tariffs and for implementing the overall program. The association will work with the Kentucky Non-Public Schools Commission – which certifies private schools – on this process, Willhite said.

"Every school (in the LGE-KU service area) won't be eligible because they're already on a tariff that costs them less than the pilot tariff, so it doesn't make any sense for them

to switch," he explained. The pilot tariffs could produce estimated decreases of \$5,000 to \$15,000 in participants' annual school utility bills from the otherwise applicable tariff.

The PSC set a cap on the amount of savings that the pilot schools can generate with the new tariffs: a total of \$750,000 for each utility. "Those tariffs will stay in effect until the earlier of the companies' next rate cases or July 1, 2020," Willhite said. Those figures are included in the overall savings he cited as a result of the entire settlement.

Of the 84 districts involved, 71 have a school that would be eligible for the pilot tariffs, "and every district that has an eligible school will have a school in the pilot," Willhite said.

He said there could be as many as 100 eligible public and private schools in each utility's territory. KDE enrollment numbers for the schools will be used to ensure that there is a proportionate ratio of public to private schools in the pilot.

KSBA-SEMP will track the data generated with the new tariffs, which the PSC will use to determine whether to expand the pilots or make the system permanent. "One of the goals of this project is to gather information to support continuing or discontinuing the pilot rates," Willhite said.

Energy managers

As part of the settlement in the case, LG&E and KU have agreed to apply to the PSC for authorization to continue providing funds to supplement the salary of about three dozen energy managers serving school districts in their coverage area. The current funding, also achieved through KSBA's intervention in earlier rate cases, will end June 30, 2018. The utilities will file later this year to ask PSC to approve their funding of \$1.45 million for the energy managers. That new infusion would support these professionals through June 30, 2020.

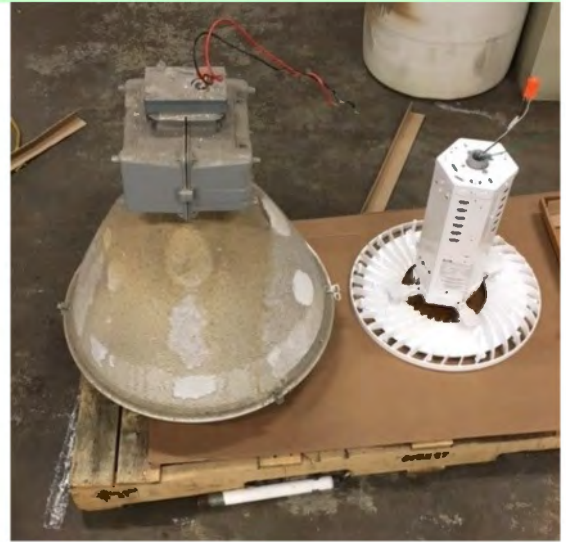
CONSIDER THIS PROJECT:

Union County Schools save with replacement lighting

With diminished metal halide lighting in three buildings, energy manager Steve Buckman didn't have to look long to identify an energy project to submit for the Special Energy Project Funding (SEPF). Between two schools, a parking lot and the bus garage, seventy-three metal halide fixtures are being replaced with appropriate LED fixtures.

Superintendent Patricia Sheffer stated, "We appreciate the opportunity to participate in the SEPF. This has allowed us to replace old, outdated lighting, which would have otherwise been more difficult to replace." She added, "The improvement in lighting and reduced maintenance time/costs, will be a nice addition to the 2017-18 school year!"

Buckman serves as the district's maintenance supervisor, along with responsibilities as energy manager.



Shown above are the outdated 458 watt metal-halide fixture, alongside the 108 watt LED replacement fixture, used for the high school auxiliary gym. Improvement in lighting levels and, when completed, saving an estimated 70,000 kWh annually are a plus for the district.

Anderson County Schools announces \$2 million in energy savings

After eight years of a district-wide focus on energy management, Anderson County Schools is celebrating over \$2 million in cumulative savings.

Gary Stinnett, the district's energy manager, has been involved with the program since its beginning. "Constant monitoring to ensure our unoccupied building temperatures are within district guidelines of 68 degrees in winter and 74 degrees in summer, is key," said Stinnett. "Also working with the

custodians to keep lights off in the unoccupied areas of the building, and to involve them in looking for ways to reduce has helped our district."

Superintendent Sheila Mitchell is quick to give accolades to Stinnett for his continuous monitoring and tracking of energy. She has also seen the importance of involving the full district. "The challenge in school energy management is that saving significant energy dollars requires the consistent execution of hundreds of energy-saving actions by hundreds of faculty and staff members every minute of every day," Mitchell said. "We appreciate their commitment to using all resources wisely."

From the beginning of the program, district staff removed small appliances from classrooms and developed monthly and yearly incentives to keep others in the district involved. Their habit of reviewing procedures to identify opportunities for optimal energy savings – such as the timing of hallway and gym lighting – also helped the district save energy.



As Anderson County Schools prepares for another school year, Energy Manager Gary Stinnett will continue routine monitoring of each building.

2017 Solar Eclipse . . . impact on energy (continued from page one)

states, "Because of the impact of the expected influx of visitors and related traffic congestion on the community and the district, Christian County Schools are closed on August 21 and 22." The district has four "Solar Eclipse Viewing Sites" in which spaces are being sold online. She adds, "Here in Hopkinsville, we have embraced the news of the Solar Eclipse and its relevancy to our community. It has afforded our schools with numerous educational opportunities."

Warren County Schools has amended its school calendar to also close schools on August 21. Jay Wilson, the district's energy manager, notes, "When school is not in session, we ensure all schools in the district are on unoccupied mode, using the least amount of energy." Because of this, he expects little impact on Richardsville Elementary, the nation's first net-zero school site, that provides approximately 348 kW.

For more information on the solar eclipse, check out the following websites:



<http://www.eclipseville.com/>



<https://eclipse2017.nasa.gov>

Should you miss the 2017 solar eclipse, mark your calendars now for the April 8, 2024 solar eclipse. Kentucky should be a good viewing location then, as well!

Kentucky's Battle . . . Registration open until August 15

Send your list of schools to compete, along with the building address, to: martha.casher@ksba.org



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



September 2017

Annual utility reporting shows continued energy reduction and savings

The partnership KSBA has with Louisville Gas & Electric, Kentucky Utilities Company and Kentucky Power Company requires annual reports to monitor the progress for the one-of-a-kind grant from each company. Annual reports covering FY2017 were submitted by KSBA-SEMP on August 15.

Each grant continues to show participating school districts reducing demand (kW) and energy (kWh). As a district improves its energy efficiency, it becomes more difficult to continue to improve. However, there are districts that have developed energy projects or initiatives to generate further reductions.

"These are more of a pay-for-performance grant," describes Jon Nipple, SEMP project manager. "It is a win for the school district's budget to reduce demand and energy, as well as a benefit to the utility company to reduce the 'load,' thereby delaying the future construction of expensive power plants."



Reporting is made annually to utility partners.

KU FY2017 Annual Report

Compared with the FY2010 baseline, the KU districts achieved the following:

- August Demand Reduction (14.9%)
- January Demand Reduction (12.3%)
- Summer Energy Reduction (15.2%)
- Winter Energy Reduction (12.9%)

LG&E FY2017 Annual Report

Compared with the FY2010 baseline, the LG&E districts achieved the following:

- August Demand Reduction (10.5%)
- January Demand Reduction (3.5%)
- Summer Energy Reduction (6.9%)
- Winter Energy Reduction (10.5%)

Kentucky Power Company (KPC) FY2017 Annual Report

Compared with the FY2015 baseline, the KPC districts achieved the following:

- Summer Demand Reduction (9.56%)
- Winter Demand Reduction (13.72%)
- Total Energy Reduction (9.66%)

As Kentucky schools continue to deal with the reductions in education funding, energy efficiency is an expense for which reductions can be found, when properly managed.

Why energy management, if there's no funding?

Morgan County Schools find a reason

Many stories in Let's Save Energy are about districts that receive funding to make utility efficiency improvements from the electric provider. While the goal of KSBA-SEMP is to identify a level of funding for all districts, that is difficult to secure.

This does not mean districts that don't have access to these kinds of funds should have no interest in energy management. School energy costs should be a top priority for all, as it this can be a managed expense.

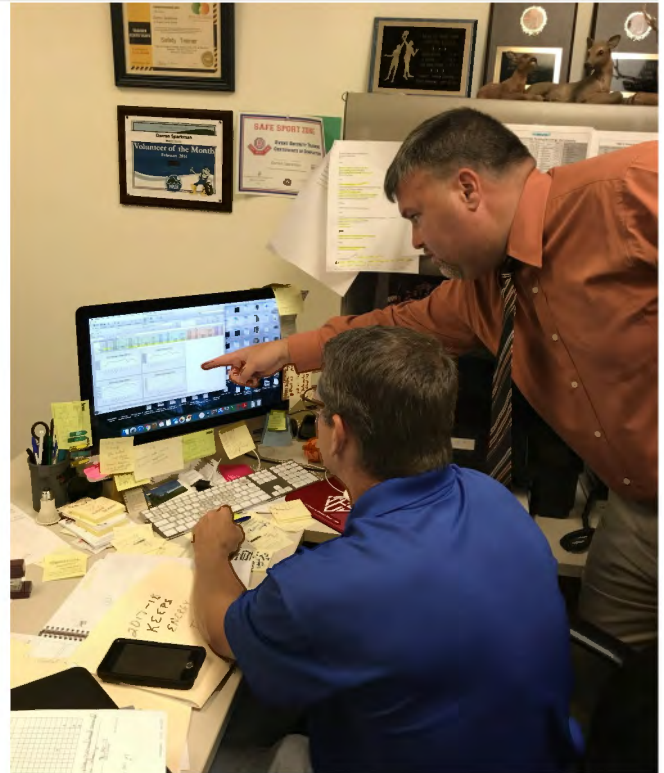
When this effort began in 2010, a few significant, and quick to accomplish, opportunities were uncovered. A few include:

- *Correcting HVAC control systems that were running 24/7/365, meant a monthly saving of \$2,500/month, per school.*
- *Correcting utility billing to remove state sales tax meant a savings of \$6,500/annually for one school.*
- *Ensuring that control systems are working properly and updating lighting where possible – and involving students and staff – could have an estimated 10 percent impact on energy reduction.*

Morgan County Schools has not had access to funding from utilities to make energy efficiency improvements, but that did not stop Facilities Director Darren Sparkman, from participating in training from KSBA-SEMP. It was a challenge for him to attend this training because his other responsibilities included safety, health, construction projects and middle school athletics.

After attending regional training in Morehead in 2012, Sparkman left the session with the goal of reducing energy consumption and costs in his district, where energy use was significantly above the state average energy utilization index (EUI) of 65. "We saw this as a way to free up monies that were being spent on utility costs for use on needs of our students and staff in the classroom," Sparkman said.

District efforts started paying off, and in 2014 the district EUI was in the low 60's



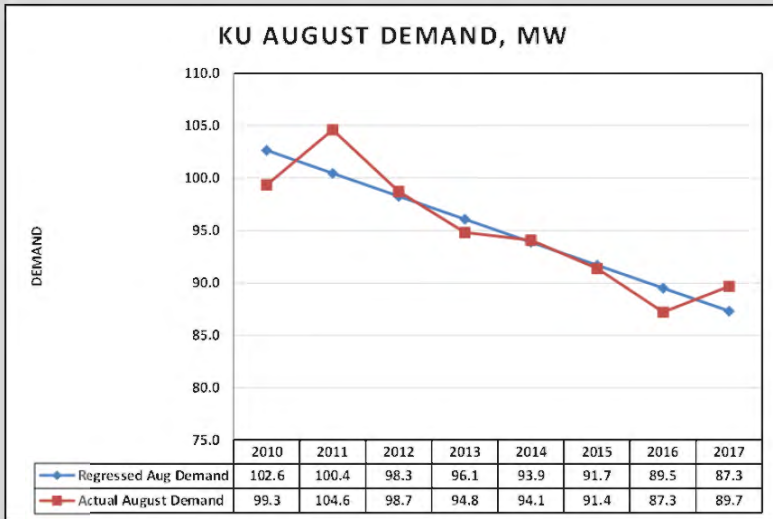
Morgan County Schools Facilities Director, Darren Sparkman, and Superintendent, Dr. Thomas Potter, review the annual energy reporting.

and gaining on the statewide EUI that had continued to drop to 60. The cumulative consumption savings at that point was over \$500,000.

The district had done everything it could to reduce energy consumption but still had to address HVAC, plumbing and lighting upgrades that were desperately needed in four of the six schools. "In the summer of 2016, we began a guaranteed energy savings contract (aka performance contract) in four of our six schools buildings which addressed our critical needs," said Sparkman. The projects were completed in about six months, with a \$107,000 guarantee of additional energy savings.

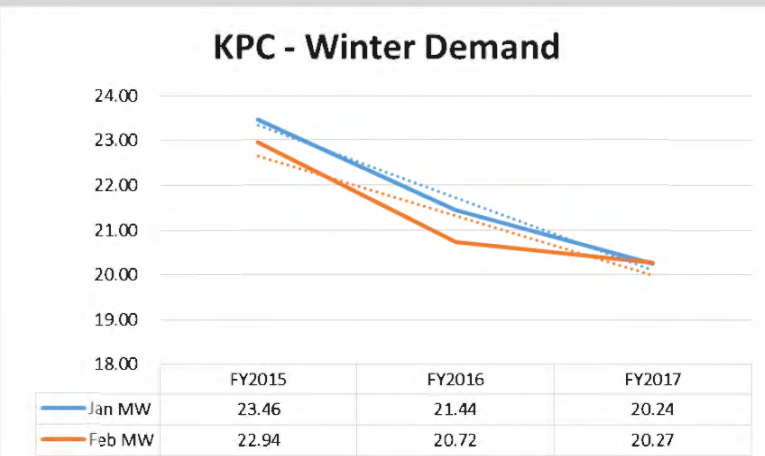
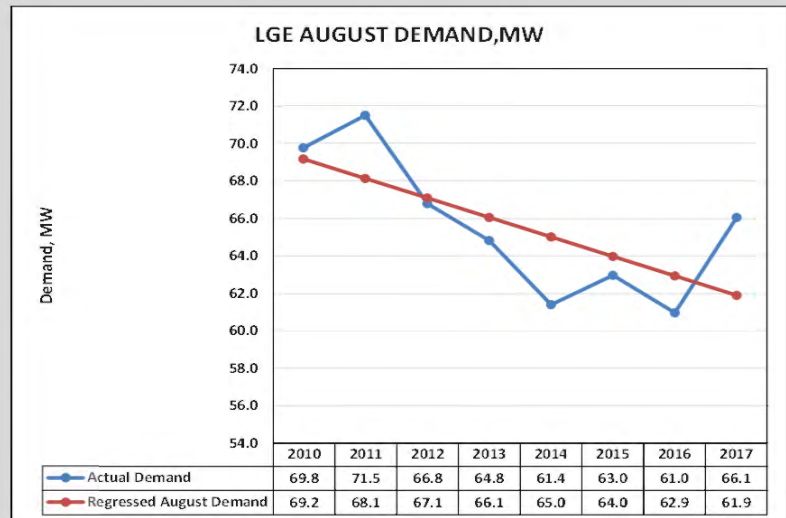
Now, five of the district's six schools are labeled as ENERGY STAR, and Sparkman encourages other districts to, "look at all options in dealing with school energy management issues."

As Kentucky schools continue to deal with the reductions in education funding, energy efficiency is an expense for which reductions can be found, when properly managed.



The August reduction is particularly significant as LG&E-KU is a summer- peaking utility. Of the 78 districts receiving KU electric service, 40 districts now have district-wide energy use intensity (EUI) measures of less than 50.

Like the KU-supplied districts, the August reduction is particularly significant as LG&E-KU also is a summer-peaking utility. Of the six districts receiving LG&E electric service, four districts have a district-wide EUI of less than 50kBtu/sf/yr.



The Winter Demand reduction is particularly significant as Kentucky Power Company is a winter-peaking utility. Districts show a 13.72 percent reduction in January Demand and an 11.66 percent reduction in February Demand from FY2015 to FY2017. Of the 17 districts receiving KPC electric service, five districts have a district-wide EUI less than 50kBtu/sf/yr.

LET'S SAVE ENERGY

School Energy Efficiency News

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



October 2017

Seeds planted turned into innovative "energy light" for Washington County High School

In 2010, plans were being made to renovate Washington County Middle/High School. School and community members, as well as professional architects and engineers met to discuss all options and the many ideas suggested for the renovation work. One person participating in those discussions was then-energy manager TJ Poliske, who served six area school districts.

Aware of the utility costs to run a school, and the importance of tracking both consumption and demand, Poliske offered a unique suggestion: "Let's use an energy light to let the staff and students know how much they are using." He had seen this in a building in another state where he had been working. Even though Poliske moved to Indiana, the "seed" he planted grew.

As the group continued its work, the school board decided in April 2012 not to renovate but to build a new school. Renovation versus new construction was a tough decision with valid arguments on both sides. Yet, as a result of the board's progressive thinking, they made the tough choices to execute a new building design incorporating features that lowered their long-term operational costs.

Implementing the "energy light" idea became a priority for the school district, since it was a



WCHS student Derrick Milburn keeps his eye on the school's energy light to let others in the building know if the energy use is getting too high.

simple way to alert students and staff when the building was consuming electricity at a higher rate than normal. The challenge was given to the designers and engineers from RossTarrant Architects and CMTA Consulting to implement this idea.

Eric Steva of RossTarrant and CMTA's Brad Reeves worked closely with the district during the design phase. Reeves recalled, "Through our discussions, we decided it would be good to make our energy light like a stoplight with green, yellow and red -



Kentucky's Battle of the School Buildings



An ENERGY STAR® Battle of the Buildings™ Competition



We compete on the court, the field, and the track, why not compete at the meter! Kentucky's Second Annual Battle of the School Buildings is now underway!

Kentucky's Battle of the School Buildings provides the opportunity for recognition for faculty, staff and students who are involved in saving energy . . . and money! Kentucky's P-12 schools have made significant progress in the last five years in eliminating wasteful spending on energy. School boards, staff, and students have become focused on implementing best energy efficiency practices.

The competitors who will face off in 2018 Kentucky's Battle of the School Buildings are:

District	School	School
<i>Anchorage Independent</i>	Anchorage Independent School	
<i>Barren County Schools</i>	College Street Campus	Temple Hill Elementary
	Barren County Middle School	Eastern Elementary
	North Jackson Elementary	Hiseville Elementary
	ROTC	Trojan Academy
	Barren County High School	Park City Elementary
	Red Cross Elementary	Austin Tracy Elementary
<i>Bath County Schools</i>	Crossroads Elementary School	Chenault Agriculture Center
<i>Bourbon County Schools</i>	Cane Ridge Elementary School	Bourbon County Preschool Head Start
	North Middletown Elementary School	Bourbon County High School
	Bourbon County Central Elementary	Bourbon County Middle School
<i>Bullitt County Schools</i>	Freedom Elementary School	Pleasant Grove Elementary School
	Zoneton Middle School	Bernheim Middle School
	Hebron Middle School	Bullitt Lick Middle School
	Eastside Middle School	Mt. Washington Middle School
	Old Mill Elementary School	Bullitt Central High School
	Mt. Washington Elementary	Bullitt East High School
	Shepherdsville Elementary	North Bullitt High School
	Cedar Grove Elementary	Roby Elementary School
	Lebanon Junction Elementary	Overdale Elementary School
	Maryville Elementary School	Crossroads Elementary School
Nichols Elementary School	Brooks Elementary School	

Continued on next page



2018 Kentucky's Battle of the School Buildings (continued)		
District	School	School
Clark County Schools	Baker Intermediate School	
Crittenden County Schools	Crittenden County Elementary School	
Eminence Independent	Eminence Independent School	
Estill County Schools	West Irvine Elementary School Estill County High School Estill County Middle School	Estill Springs Elementary School South Irvine P/K Center
Fairview Independent	Fairview Elementary School	Fairview Middle/High School
Franklin County Schools	Western Elementary Peaks Mill Elementary School The Academy Bondurant Middle School Bridgeport Elementary School Collins Lane Elementary School Elkhorn Elementary School	Early Learning Village Elkhorn Middle School Franklin County High School Hearn Elementary School Western Hills High School Westridge Elementary School Franklin County Career & Technical
Henry County Schools	New Castle Elementary Campbellsburg Elementary School Eastern Elementary	Henry County Middle School Henry County High School
Hopkins County Schools	Madisonville North Hopkins High School	
Lee County Schools	Lee County Elementary Schools	Lee County Middle High School
Mason County Schools	Mason County Intermediate School	Mason County High School Campus
Morgan County Schools	Morgan County Middle School East Valley Elementary School	Morgan Central Elementary School Ezel Elementary School
Rowan County Schools	McBrayer Elementary School Rowan County Senior High School Clearfield Elementary School	Rowan County Middle School Rodburn Elementary School Tilden Hogge Elementary
Scott County Schools	Anne Mason Elementary Royal Spring Middle School Eastern Elementary Stamping Ground Elementary Northern Elementary Preschool	Garth Elementary Georgetown Middle School Southern Elementary SCHS/9th Grade/SCMS Campus Elkhorn Crossing School Lemons Mill Elementary
Trimble County Schools	Milton Elementary Bedford Elementary School	Trimble County High School Trimble County Middle School
Woodford County Schools	Woodford County High School Woodford County Middle School Huntertown Elementary Northside Elementary	Southside Elementary Simmons Elementary Safe Harbor

Washington County High School's energy light (continued from pg 1)

green meaning low energy consumption, yellow being average and red being high energy consumption."

Reeves said the electrical design was already in place to have separate electric meters for lighting, HVAC, kitchen and other areas. These meters are integrated within the building management system, making it possible to take the totals of those meters and activate the proper light based on the current demand.

The ranges at which the green, yellow and red lights are activated are all adjustable within the building management system. The initial ranges were based on the expected energy usage and can be modified as usage patterns need to be adjusted.

Superintendent Robin Cochran said that the "energy light" has been a simple approach to

involving students and staff in reducing energy consumption. "A student keeps his eye on the energy light and if it is yellow or red, he will communicate with other students and teachers to turn off unnecessary lights or adjust thermostats." She added, "He will then continue monitoring until the stoplight is back to green."

Reeves added that if a school has electrical demand meters connected to the building management system, it becomes easier to implement the energy light. It becomes an issue of interconnecting the wiring and integrating with the Building Management System. The task becomes easier using a single color-changing LED light.

Seeds were planted and grew into a simple process for involving students and staff. Where will the next seed fall?



ENERGY STAR in the news:



Bourbon County Middle School was recently recognized as the district's fourth ENERGY STAR School. From left are: KSBA representative Martha Casher, BCMS Principal Travis Earlywine, student Elizabeth Toohey, KSBA Energy Manager Jim McClanahan, Superintendent Amy Baker, Energy Manager Chuck Tanner and Comfort & Process Solutions representative Rick Valentine.

During the September meeting of the Northern Kentucky Cooperative for Educational Services, Beechwood Independent Schools Superintendent Dr. Mike Stacy (below left) and Boone County Schools Superintendent Dr. Randy Poe were recognized for schools in their districts that were recently certified as ENERGY STAR. The schools were: Beechwood Independent School and Boone County Schools: Camp Ernst Middle School, Erpenbeck Elementary, Gray Middle School and R.A. Jones Middle School .



LET'S SAVE ENERGY

School Energy Efficiency News

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



November 2017

What's your game plan for winter break?

When preparing for a new sports season, coaches always discuss the "game plan" with all players. In the same way, as the district is preparing for upcoming winter break, it is important to have a game plan and communicate it to all faculty and staff.

First, consider how the district performed during previous school breaks. Did the energy consumption drop from the typical in-school days/weeks? If so, faculty and staff may have been involved in energy saving measures, and it's probable that the HVAC system was setback to "unoccupied." If there has been no reduction, district and school leaders should seriously consider developing a new game plan.

Second, it is important to ensure all HVAC controls are working properly. Use the existing controls and whether they use a basic mercury thermostat or a sophisticated building automation system, make sure they are in working order and, if applicable, that the HVAC schedule has been confirmed. Either control can be setback.

Third, distribute the game plan to faculty and staff, using a Winter Break Shutdown Checklist customized to the district. See the sample checklist on next page.

Finally, assign someone to walk through the buildings to confirm all setbacks were done properly. If mechanical noises can be heard when the staffer enters the building, the HVAC may not have setback.

With energy costs continuing to rise, KRS160.325 requires districts to track, manage and report energy consumption. Because energy is a manageable resource, knowing your district game plan for winter break is a must.



Bullitt County Student Energy Team is part of the district's communication strategy to involve others in the district.



EXAMPLE OF A SCHOOL DISTRICT
WINTER SETBACK CHECKLIST



Name _____
Date _____

School _____
Time _____

Setback Action	Completed
1. Close all windows and blinds to reduce heat loss.	
2. Turn off electronic whiteboards, Elmos, computer monitors, printers, scanners and similar devices. Check with district IT regarding turning off computers.	
3. Turn off and unplug TVs, DVD players, coffee pots, and any other non-essential classroom/office electronic equipment.	
4. Clean out and unplug personal refrigerators and leave the door open.	
5. Turn off all classroom lights and turn off and unplug any personal lamps.	
6. Do not hang items from ceiling where lighting sensors may be located.	
7. Turn off nonessential exhaust fans.	
8. Set exterior lights to turn off during daylight hours (this should be done at every day, but it's a good idea to confirm that this is done during winter break.	
9. Turn off all display case lighting.	
10. Set control system or thermostats to recommended setback temperatures.	
11. Unplug chilled-water fountains, except in occupied areas. Check and report any leakage of water fixtures.	
12. If temperatures fall below 20 degrees, plan on inspecting buildings on days that no one is working in the building to ensure proper operation.	
Notes/Observations:	



Kentucky's Battle of the School Buildings



An ENERGY STAR® Battle of the Buildings™ Competition



Kentucky's Battle of the School Buildings for 2018 has 110 schools in the competition! Recognition will be given during April to the Top School Building that reduces its energy use on a percentage basis over calendar year 2017, as compared with calendar year 2016.

Additionally, any school that reduces its energy use as measured by the weather normalized source EUI (kBtu/sq. ft.) by at least 20% over calendar year 2017, as compared with calendar year 2016.

Because of data issues in Portfolio Manager, the current standings are only based on the first six month of energy usage. As of June 30, 2017, the top thirty standings include:

Property Name	District	Reduction	Position
East Valley Elementary School	Morgan County Schools	-44.34%	1
Morgan County Middle School	Morgan County Schools	-42.65%	2
Morgan Central Elementary School	Morgan County Schools	-37.33%	3
Trimble County Middle School	Trimble County Schools	-26.19%	4
Northside Elementary	Woodford County Schools	-26.02%	5
Mt. Washington Elementary	Bullitt County Schools	-23.09%	6
Southside Elementary	Woodford County Schools	-20.23%	7
Bourbon County Central Elementary	Bourbon County Schools	-19.04%	8
Bourbon County Middle School	Bourbon County Schools	-14.82%	9
Maryville Elementary School	Bullitt County Schools	-13.51%	10
Peaks Mill Elementary School	Franklin County Schools	-13.35%	11
Franklin Co Career & Technical School	Franklin County Schools	-9.88%	12
Fairview Elementary School	Fairview Independent	-9.20%	13
Shepherdsville Elementary	Bullitt County Schools	-8.30%	14
Bourbon County Preschool Head Start	Bourbon County Schools	-7.71%	15
Madisonville North Hopkins High Sch	Hopkins County Schools	-7.63%	16
Bullitt Central High School	Bullitt County Schools	-7.57%	17
Stamping Ground Elementary	Scott County Schools	-7.21%	18
Anchorage Independent School	Anchorage Independent	-6.93%	19
Henry County High School	Henry County Schools	-6.83%	20
Bridgeport Elementary School	Franklin County Schools	-6.62%	21
Elkhorn Elementary School	Franklin County Schools	-6.46%	22
Zoneton Middle School	Bullitt County Schools	-6.43%	23
The Academy	Franklin County Schools	-6.32%	24
McBrayer Elementary School	Rowan County Schools	-5.97%	25
Southern Elementary	Scott County Schools	-5.27%	26
Bourbon County High School	Bourbon County Schools	-4.99%	27
Huntertown Elementary	Woodford County Schools	-4.55%	28
Westridge Elementary School	Franklin County Schools	-4.48%	29
Temple Hill Elementary	Barren County Schools	-4.10%	30

KGAP – potential gas supplier savings

School districts are faced with many responsibilities, one of the greatest being providing quality learning environments for students. Utilizing the Kentucky Gas Aggregation Program (KGAP) may create savings that could be reinvested in those learning environments. The program, established by the Kentucky School Boards Association and Trane Energy Supply Services (formerly Fellon-McCord)* enables school districts to benefit from a coordinated buying effort and shared market intelligence.

The partnership was formed in 2011 to create a natural gas supply purchasing strategy for school districts in market areas that offer a deregulated "choice" option. Because of this, school districts have competitive options for



natural gas supply, which represents about 70 percent of their total gas utility bill. KGAP provides an objective view of the best procurement options, typically yielding 10-15 percent savings on the negotiated gas rate.

This year, the program is open for the first time to private and parochial school districts in deregulated market areas.

The program has no out-of-pocket expense to school districts. District leaders interested in joining the no-cost KGAP may contact Steve Smith or Ron Willhite at KSBA at 800-372-2962 or Christy Fetsch at (502) 468-7470 or christy.fetsch@trane.com.

*Fellon McCord was acquired by Trane in 2013 to form the Trane Energy Supply Services Team

ENERGY STAR



in the news:

Simpson County Schools' Lincoln Elementary was recognized for becoming an ENERGY STAR School during the October school board meeting. From left are Superintendent Dr. James Flynn, KSBA Executive Director Kerri Schelling, Operations Manager Robert White and board Chairman (and KSBA President) David Webster.



Warren County Schools' 23rd ENERGY STAR School, Lost River Elementary, was recognized during the school board's October meeting. The district is the 20th school in Kentucky that is 100 percent ENERGY STAR certified. KSBA Executive Director Kerri Schelling presented a certificate of recognition from Gov. Matt Bevin to Principal Jeff Goff. Also pictured, from left, are board members Becky Evans, Amy Duvall, Don Basham, Chairman Kerry Young and Vice Chairman Garry Chaffin.

Announcing . . .

**Sutton Elementary
Owensboro Independent**

**Kentucky's
400th ENERGY STAR School**

LET'S SAVE ENERGY

School Energy Efficiency News

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



December 2017

\$170 million saved in seven years

Saving \$170 million is no small feat, but that is what Kentucky school districts have done by reducing energy demand and consumption.

It has been said many times that "What gets measured, gets done." With facility costs nearly doubling between 2000 and 2008, state leaders directed all districts to begin measuring and managing energy resources. While a few districts initiated local programs, this directive was the impetus for KSBA to begin a statewide program to support district efforts.

By the 2010 fiscal year, Kentucky districts began "measuring" by tracking and reporting annually the energy consumption and costs for all school facilities. Additional supports from KSBA became available and districts began understanding the complexities of managing energy resources. The graphs below reflect the significant statewide success.

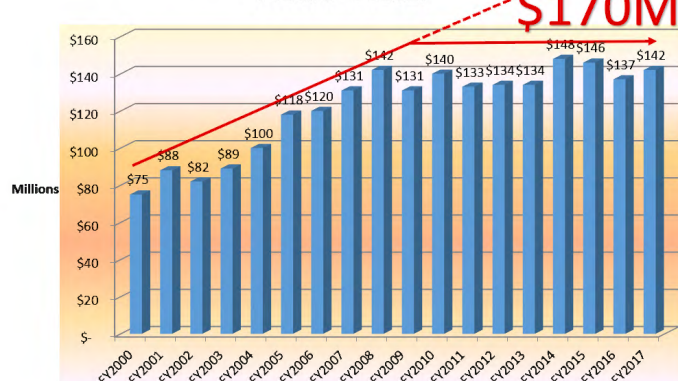
Here are a few major milestones over the past eight years:

- One of the key measurements became the Energy Utilization Index (EUI)*, also called KBTU per square foot. Nationally, the EUI for schools is 73. Statewide district EUIs have improved since

2010, moving from 65 KBTU per square foot per year to 49.6 KBTU per square foot per year.

- In 2010, Butler County Schools was the most efficient district in Kentucky with an EUI measurement of 42.7. Butler County is the second most efficient district in 2017 and has improved more than 20 percent over the time period. (*The best made more than a 20 percent improvement!*)
- The 2017 leader is Owen County Schools, which improved its EUI measurement from 62.5 in the 2010 fiscal year to 33.2 in the 2017 fiscal year.
- In 2013, three districts were operating below an EUI of 40. Today, 21 districts operate below an EUI of 40 with several pushing the threshold of 30 EUI.
- Corresponding consumption savings, rate savings, refunds, etc. now total more than \$170 million and continue to grow rapidly.
- Even with conditioned space growing about 1 percent annually and after numerous rate increases, Kentucky is spending nearly the same today on energy as it did in the 2010 fiscal year. (The commonwealth is heating and cooling more space and has offset rate increases through greater energy efficiency!)
- The number of ENERGY STAR-labeled buildings has grown from six in 2006 to 422 today, indicating another measurement of success.

MUNIS K-12 Facility Energy Expenditures
FY2000 - FY2017



When Kentucky districts were directed to measure and manage energy resources, many stakeholders came together and, along with KSBA, changed the profile of Kentucky's energy utilization for schools.

Saving energy means saving money for educating our kids!

Truly what gets measured is getting done.

*the amount of energy consumed, measured in thousands of British Thermal Units (KBTU), and divided by the gross conditioned area in square feet.



FY2017 District Ranking by Energy Use Intensity



Rank	District	2017 EUI	2010 EUI	Rank	District	2017 EUI	2010 EUI	Rank	District	2017 EUI	2010 EUI	Rank	District	2017 EUI	2010 EUI
1	Owen	33.2	62.5	45	McCreary	43.2	94.8	89	Danville	48.8	64.6	133	Bardstown	55.2	72.9
2	Butler	33.5	42.8	46	Gallatin	43.3	60.0	90	Bracken	49.0	55.0	134	Anchorage	55.3	73.8
3	Nelson	33.6	51.5	47	Meade	43.4	48.7	91	Paducah	49.4	73.9	135	Pikeville	55.6	81.9
4	Walton-Verona	34.2	44.6	48	Hardin	43.4	54.3	92	Boyd	49.4	81.2	136	Rowan	55.6	72.3
5	Scott	35.4	53.3	49	Allen	43.7	57.1	93	Madison	49.5	56.4	137	Ashland	55.6	75.1
6	Oldham	35.8	45.7	50	West Point	44.2	dnr	94	Fleming	49.6	69.8	138	Harrison	55.7	61.9
7	Jackson County	36.7	55.2	51	Clark	44.2	74.7	95	Bell	49.8	81.5	139	Webster	55.7	75.5
8	Bullitt	37.0	53.7	52	Murray	44.3	47.2	96	Mayfield	49.8	60.9	140	Rockcastle	56.6	59.9
9	Newport	37.2	44.5	53	Clinton	44.3	53.5	97	Lincoln	49.8	70.7	141	Bath	57.0	87.8
10	East Bernstadt	37.3	dnr	54	Cloverport	44.4	72.7	98	Calloway	50.0	56.2	142	Boyle	57.3	65.9
11	Christian	37.4	70.1	55	Logan	44.5	54.5	99	Glasgow	50.0	62.6	143	Johnson	57.3	78.2
12	Marion	37.8	60.3	56	Carter	44.5	59.3	100	Mason	50.1	59.2	144	Hickman	57.4	67.6
13	Fulton County	37.9	69.4	57	Martin	44.8	dnr	101	Caverna	50.2	84.2	145	Dayton	58.4	67.4
14	Jessamine	37.9	50.3	58	Floyd	44.9	52.0	102	Russellville	50.2	52.5	146	Adair	58.5	71.1
15	Corbin	38.2	51.6	59	Spencer	45.0	dnr	103	Lyon	50.3	53.7	147	Bowling Green	58.5	73.6
16	Warren	38.2	50.7	60	Daviess	45.1	53.9	104	Pike County	50.5	64.9	148	Bellevue	58.9	68.4
17	Pineville	38.6	58.5	61	Barren	45.3	49.8	105	Breathitt	50.8	64.0	149	Breckinridge	58.9	72.1
18	Lee	38.8	78.3	62	Ohio	45.4	64.4	106	Bourbon	50.8	65.0	150	Laurel	59.1	dnr
19	Anderson	39.1	52.3	63	Dawson Springs	45.6	61.0	107	Pulaski	50.9	60.9	151	Ballard	59.7	80.1
20	Shelby	39.4	71.6	64	Knox	45.6	64.8	108	Fulton Ind	51.3	69.0	152	Barbourville	60.7	76.8
21	Robertson	39.9	114.5	65	Estill	45.7	53.4	109	Beechwood	51.4	68.8	153	Cumberland	61.5	71.1
22	Greenup	40.4	64.1	66	Silver Grove	45.8	69.2	110	Harlan County	51.6	55.7	154	Henderson	62.1	74.1
23	Woodford	40.6	63.5	67	Williamstown	45.9	63.3	111	Fort Thomas	51.9	72.2	155	Fayette	62.8	78.2
24	Elliott	40.8	dnr	68	Kenton	45.9	64.9	112	Muhlenberg	52.1	68.5	156	Fairview	62.9	79.7
25	Erlanger	41.0	56.9	69	Jenkins	45.9	dnr	113	Graves	52.3	dnr	157	Powell	63.0	97.0
26	Williamsburg	41.1	54.9	70	Ludlow	46.4	107.9	114	LaRue	52.3	55.1	158	Elizabethtown	63.5	76.9
27	Harlan Ind	41.2	52.3	71	Caldwell	46.5	60.7	115	Livingston	52.5	56.9	159	Montgomery	63.8	70.2
28	Hancock	41.2	57.8	72	Edmonson	46.6	58.7	116	Garrard	52.6	51.5	160	Berea	64.2	75.7
29	Trigg	41.2	60.2	73	Monroe	46.6	54.7	117	McCracken	52.9	62.7	161	Boone	65.5	74.0
30	Hazard	41.3	87.2	74	Paintsville	46.8	53.3	118	Perry	53.0	67.0	162	Campbell	65.6	70.2
31	Southgate	41.7	47.2	75	Henry	47.1	67.9	119	Knott	53.0	dnr	163	Mercer	66.0	78.3
32	Owensboro	41.9	70.1	76	Magoffin	47.1	64.7	120	Clay	53.0	63.3	164	Somerset	66.2	89.8
33	Middlesboro	41.9	97.2	77	Campbellsville	47.1	76.4	121	Hopkins	53.0	71.7	165	Marshall	66.4	70.9
34	Paris	41.9	59.6	78	Lawrence	47.4	68.6	122	Washington	53.0	83.5	166	Eminence	67.1	85.3
35	Morgan	42.0	116.8	79	Leslie	47.4	69.4	123	Raceland-Worthington	53.1	67.0	167	Hart	67.5	73.5
36	McLean	42.0	45.9	80	Owsley	47.4	dnr	124	Letcher	53.5	62.9	168	Simpson	68.6	73.6
37	Whitley	42.3	57.7	81	Russell Ind	47.5	70.3	125	Lewis	54.2	65.6	169	Green	69.7	88.2
38	Augusta	42.3	55.6	82	Science Hill	47.5	56.5	126	Franklin	54.4	87.3	170	Menifee	71.1	90.4
39	Trimble	42.4	53.7	83	Wayne	47.8	64.2	127	Carroll	54.5	82.9	171	Covington Ind.	72.7	80.5
40	Wolfe	42.4	dnr	84	Union	47.9	69.1	128	Todd	54.7	70.0	172	Nicholas	73.5	80.7
41	Crittenden	42.4	57.1	85	Taylor	47.9	64.7	129	Russell County	54.7	80.5	173	Jackson Ind	100.1	117.6
42	Metcalfe	42.8	60.9	86	Burgin	48.0	60.5	130	Grant	54.9	70.7				
43	Casey	42.9	49.5	87	Pendleton	48.1	55.9	131	Jefferson	55.1	68.2				
44	Frankfort	43.1	80.7	88	Grayson	48.6	60.0	132	Carlisle	55.2	46.9				

*Energy Utilization Intensity (EUI) is the amount of energy consumed, measured in thousands of British Thermal Units (KBTU), and divided by the gross conditioned area in square feet.

Appendix B – Energy Summit Program

KSBA-SEMP presents the 2nd annual

School Energy SUMMIT



April 16-17
2018

Embassy Suites,
Lexington

**Building Skills for
Energy Efficiency**



Discover What's Possible

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Welcome



Dear School Energy Summit participants:

Welcome to the 2018 School Energy Summit!

Since 1936, 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, the enactment of KRS160.325 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 expand services to include a level of energy management support to districts through our School Energy Managers Project.

This year's Summit offers you opportunities for increased knowledge on issues impacting school energy management. State and national leaders open the conference with an overview of the Changing Energy Landscape that affects us all; breakout sessions provide strategies for implementing energy and cost savings. Tuesday morning's general session features a panel on engaging district leadership, and vendors on both days showcase their latest products and technologies for reducing energy use within schools. The closing session is led by Kentucky Education Commissioner Dr. Stephen Pruitt and focuses on how the classroom environment impacts the learning environment; and the winner of Kentucky's Battle of the School Buildings also will be announced. We hope you will take the opportunity to listen, learn and exchange ideas to support your schools in becoming more energy efficient.

Sincerely,

Kerri Schelling
Executive Director, KSBA

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

Registration and Trade Show

Monday, April 16

8 - 9 a.m.

While you are waiting for the opening session to begin, visit the Trade Show area to visit with the vendors participating at this year's School Energy Summit. You can collect tickets from vendors to win door prizes

OPENING GENERAL SESSION

Monday, April 16
9 - 10:30 a.m.

Coldstream III

Welcome

Kerri Schelling, KSBA executive director

Presentation of the Flag

Henry Clay (Fayette Co.) High School Color Guard

Student performance

Henry Clay (Fayette Co.) High School student

Moderator

Tom Abele, vice president, Harshaw Trane, Diamond Level Sponsor

The Changing Energy Landscape

The energy landscape continues to be a challenge in managing energy costs. Government and industry leaders discuss the current energy landscape and progress made through technological advances in energy efficiency as well as the impact of state and federal regulations.

Rep. Rocky Adkins, minority floor leader, Kentucky House of Representatives

Dr. Carolyn Snyder, director, Climate Protection Partnerships Division, U.S. Environmental Protection Agency

Drew Fellon, business leader, Trane Energy Services



Rocky Adkins



Dr. Carolyn Snyder



Drew Fellon

“The goal was to become more energy efficient and, as a result, reduce energy usage and energy cost outlay. Since that time, **energy efficiency has become a priority for most school districts.** ... it has led to over \$170 million in cumulative cost savings since 2010.”

– Rep. Rocky Adkins, on HB2, which passed in 2008 and envisioned public school districts developing and implementing energy management plans and reporting on savings from those plans annually to the General Assembly

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

The Breakout Sessions have been designed so that practitioners of all skill levels can find training appropriate for their needs and growth.

- ▶ **Introductory sessions** are available for understanding the basics of energy management.
- ▶ **Intermediate sessions** have been created with topics specific to seasoned energy managers.
- ▶ **Advanced/Finance sessions** are geared for advanced energy and finance practitioners to hone their skills.

However, if you see a topic of specific interest to you, feel free to attend that session regardless of the skill level.

Thanks to the 2018 School Energy Summit Planning Team:

- ▶ **Jeff Fristoe** – Comfort Process Solutions
- ▶ **Billie Hardin** - KCTCS
- ▶ **Eileen Hardy** – Department for Energy Development and Independence
- ▶ **Jeff Myers** – LGE-KU Energy
- ▶ **Chris Tyler** – Thermal Equipment

“What gets measured gets done.”

– **Tom Peters**, writer on business management practices

BREAKOUT SESSION A

Monday, April 16
10:45 – 11:45 a.m.

A-1: Before the Basics

Bourbon Room

Introductory

Your district has decided to get serious about energy management, yet you're not sure where to begin. This session lays out a process for the overall journey that provides the novice with an understanding of the key steps and resources available to succeed.

Martha Boles Casher, energy services coordinator, KSBA School Energy Managers Project

A-2: Energy Audit 101

Clark Room

Intermediate

Identifying energy projects to reduce energy use is a must. The presenter reviews basic steps to assessing potential procedures/projects that impact schools, along with a review of a simple audit form.

Tom Nicolas, mechanical engineer, CMTA Energy Solutions

A-3: Emerging Technologies

Coldstream III

Intermediate

Advancements in technology have influenced the programs now offered by utility companies. Learn about the options/changes that are coming, including advanced metering, solar power choice and changes to utility rebates.

Jay Robertson, emerging technologies program manager, Rhonda Truman, energy efficiency operations program manager, and Kevin Craft, energy efficiency analyst, LG&E-KU Energy

A-4: Renovation Best Practice – Air Barrier Is Key to Efficiency

Fayette Room

Advanced–Finance

Unintended air infiltration into school buildings is widely overlooked and often a key cause of increased energy costs and poor classroom comfort. This session shows how the preliminary visual inspection is validated by pre- and post- blower door tests. The presenter shares calculations that connect air barrier solutions to the entire HVAC system, making the financial and environmental impact case for change.

Todd Smith, president, EBEB Solutions

Trade Show and Lunch

Monday, April 16

11:45 a.m. – 1:45 p.m.

Here is your opportunity to visit with the exhibitors, receive tickets for door prizes, identify more opportunities and have lunch.

BREAKOUT SESSION B

Monday, April 16
1:45 – 4:30 p.m.

B-1: Addressing the Questions of Energy Management

Coldstream III

Introductory – laptops or calculators required

This workshop (participant work required) addresses many of the questions energy managers may have, including how to get started, how to determine current energy conditions and opportunities to improve them, what improvements make the most sense financially, and what cumulative savings to expect.

Jon Nipple, energy program manager, KSBA School Energy Managers Project

B-2: Lighting Audit Workshop

Clark Room

Intermediate – laptops or calculators encouraged

Participant work is required in this workshop, which takes attendees through the steps of assessing current lighting fixtures and defining potential energy- and money-saving lighting replacements. Participants use the conference site

to complete a high-level lighting audit, and receive a tool to do the same in their schools.

Jim McClanahan, energy manager, Scott County Schools; Terry Anderson, energy manager, Mason and Rowan county schools; and Bruce Sauer, energy manager, Hopkins County Schools Partnership

B-3: Facility Tour – University of Kentucky **Meet in the lobby**

Advanced – Finance

The Utilities and Energy Management Group at the University of Kentucky strives to balance campus needs for life safety, human and creature comfort, along with energy savings. The tour at the University of Kentucky includes Delta Room operations, scheduling optimization, communications and funding decisions, plus a review of the University Sustainability Plan.

Jeff Zumwalt, director of utilities and energy management, Galen Tolliver, manager of Delta Room, Mike Baldwin, Delta Room operations, and Shane Tedder, sustainability coordinator, University of Kentucky

T Join us at the School Energy Summit TAILGATE PARTY Y

5-7 p.m.

Monday, April 16

Embassy Suites Ballroom

Lexington, KY

THANK YOU TO OUR PARTNERS FOR EFFICIENT SCHOOLS

Harshaw Trane | Thermal Equipment

Comfort Process Solutions | CMTA | Dude Solutions

Energy Optimizers | LG&E and KU Energy | KAEC

Play games at the Tailgate Party to earn more tickets for door prizes

Door prizes will be given at Tailgate Party and Closing Luncheon

MUST BE PRESENT TO WIN

MORNING GENERAL SESSION

Tuesday, April 17
8 – 9:20 a.m.

Coldstream III

Engaging District Leadership

The responsibility for energy management involves many tasks and people. It's important that district leadership and board members both support and understand this complicated business. Scott County Superintendent Dr. Kevin Hub presents his methods for engaging leadership and then moderates a panel of board members to gain their insight.

Dr. Kevin Hub, superintendent, Scott County Schools; Todd Earlywine, Bourbon County school board chairman; Tony Whaley, Henry County school board chairman; Carl Wicklund, Kenton County school board chairman



Dr. Kevin Hub

BREAKOUT SESSION C

Tuesday, April 17
9:35 – 10:25 a.m.

C-1: Student-led Energy Activities

Clark Room

Introductory

How do you involve building occupants with real concerted efforts to conserve energy? Let the students lead the effort! Learn how students in the Kenton County school district drive change and work with faculty and staff to affect their energy consumption and the financial bottom line.

Chris Baker, energy systems coordinator, Kenton County Schools; Chris Bryson, college and career coordinator, Kenton County Schools Academies of Innovation and Technology; students who are advanced energy management interns from the Kenton County Schools Academies of Innovation and Technology

C-2: Operations Best Practices

Coldstream III

Intermediate

Schools often are the hub of community activities and therefore open during extended days and weekends. Learn the procedures that a panel of facility and energy managers use to optimize the use of school buildings



Two-part session on Life Cycle Costing

Todd Smith, president of EBEB Solutions, will lead two sessions – C-4 and D-4 – on the use of life cycle costing. Part 2 will begin in the same room at 10:40 a.m.

while still ensuring their energy-efficient use.

Chris Tyler (moderator), Thermal Equipment; Jimmy Arnold, CIO and energy manager, Butler County Schools; Dan Logan, director of maintenance, Owen County Schools; Scott Caslow, energy manager, Somerset Independent Schools Partnership

C-3: Renovations, Preventive Maintenance & Indoor Air Quality

Bourbon Room

Intermediate

A school's indoor environment, including indoor air quality, can have a significant impact on children's health and learning. Learn best practices for healthy, efficient and reliable school buildings, and how Estill Springs Elementary protects indoor air quality. Presenters share tools and resources for preventive maintenance practices and protecting indoor air quality during energy-efficiency upgrades and retrofits.

Kudret Ütebay, deputy program manager working with ENERGY STAR for the U.S. EPA; Jeff Saylor, superintendent, Jeremy Simpson, energy manager, Estill County Schools

C-4: Life Cycle Costing (Part 1)

Fayette Room

Advanced – Finance

State energy management law encourages the use of life cycle costing, an approach to building design that considers construction, operation and maintenance during the initial decision-making process. This session is directed toward school districts constructing new buildings or renovating existing buildings, and outlines the steps to implementing life cycle project costing.

Todd Smith, president, EBEB Solutions

BREAKOUT SESSION D

Tuesday, April 17
10:40 – 11:30 a.m.

D-1: Getting to ENERGY STAR

Bourbon Room

Introductory

ENERGY STAR certification continues to be a key metric for Kentucky schools, enabling them to provide a better learning environment and operate more efficiently than typical schools. Presenters provide a hands-on demonstration in benchmarking schools in EPA's ENERGY STAR Portfolio Manager, using data from Paris Independent Schools. Participants also will learn the benefits of benchmarking and ENERGY STAR certification.

Kudret Ütebay, deputy program manager working with ENERGY STAR for the U.S. EPA; Jim McClanahan, energy manager, Scott County Schools; Ken Bicknell, superintendent, Paris Independent Schools

D-2: Building Maintenance Best Practices

Coldstream III

Intermediate

The need to retain equipment as long as possible is even more pressing in this time of budget cuts. Learn from a panel of facility and energy managers some of the best practices in preventive maintenance for keeping equipment in tip-top shape while extending the usable life.

Jeff Fristoe (moderator), Comfort Process Solutions; Greg

Binkley, director of maintenance, Crittenden County Schools; Charlie Bryant, director of maintenance, Anchorage Independent Schools; Linda Hackworth, coordinator of facility support/energy manager, Floyd County Schools

D-3: Emerging Technology - Is It Time for Solar?

Clark Room

Intermediate

How would you like to receive a check from your electric company, instead of a bill? Kentucky is pushing the envelope, or the sun, with the construction of another net zero energy school. Learn more about the possibilities.

Kenny Stanfield, Sherman Carter Barnhart Architects

D-4: Life Cycle Costing (Part 2)

Fayette Room

Advanced-Finance

This continuation of Breakout C-4 focuses on the life cycle costing approach to building design that considers construction, operation and maintenance during the initial decision-making process. Participants learn the steps to implement life cycle project costing. This session is directed toward school districts constructing new buildings or renovating existing buildings.

Todd Smith, president, EBEB Solutions

Trade Show: Last Call

Tuesday, April 17

11:30 a.m. – 12:30 p.m.

This is the last chance to visit with the exhibitors to receive tickets for door prizes and identify more opportunities.



Kentucky's Battle of the School Buildings



Congrats to the top finishers in the 2018 Kentucky's Battle of the School Buildings competition:

School..... Source Energy Reduction

1. East Valley Elem. (Morgan Co.)41.41%
2. Maryville Elem. (Bullitt Co.).....40.67%
3. Mt. Washington Elem. (Bullitt Co.).....36.08%
4. Morgan Co. Middle32.15%

School..... Source Energy Reduction

5. Morgan (Co.) Central Elem.....31.49%
6. Bourbon Co. Middle24.03%
7. Chenault Agriculture Center (Bath Co.).....22.75%
8. Northside Elementary (Woodford Co.).....21.03%

An ENERGY STAR® Battle of the Buildings™ Competition



CLOSING LUNCHEON SESSION

Tuesday, April 17
12:30 – 2 p.m.

Coldstream III

Student performance

Western Elementary School - Students in Marcie Wright's class

Lunch will be served

Impacting the Learning Environment

Recent studies show the classroom environment can affect a student's learning and academic progress by as much as 25 percent. Kentucky's education chief discusses opportunities to make a difference for Kentucky schools.

Dr. Stephen Pruitt, commissioner, Kentucky Department of Education



Dr. Stephen Pruitt

2018 Winner of Kentucky's Battle of the School Buildings will be recognized and door prizes will be announced.

Meet your KSBA-SEMP team



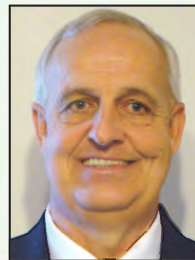
Ron Willhite
SEMP Project Director
ron.willhite@ksba.org



Jon Nipple
SEMP Project Manager
jon.nipple@ksba.org



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



Jim McClanahan
Energy Manager
jim.mcclanahan@ksba.org

THEMAL EQUIPMENT



SALES
SERVICE
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Alpha Energy Solutions

Dave Hellman, Director of Energy and Performance
7200 Distribution Drive
Louisville KY 40258
dave.hellman@aamservice.com

Ameresco

Lisa Collins, Account Executive
111 Briarwood Road
Versailles KY 40383
lcollins@ameresco.com

Clotfelter-Samokar Architects

Jane Crickard, Director, Business Development
228 E. Reynolds Road
Lexington KY 40517
jcrickard@clotfelter-samokar.com

CMTA

Carol Ormay, Director of Marketing
10411 Meeting Street
Prospect KY 40059
cblevinsormay@cmtaegrs.com

Cochrane Supply & Engineering

James D. Young, Sales
11501 Plantside Dr., Suite 1
Louisville KY 40299
jyoung@cochransupply.com

Comfort & Process Solutions

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

Dude Solutions

John White, Account Representative
11000 Regency Parkway, Suite 110
Cary NC 27518
john.white@schooldude.com



Energy Optimizers

Belinda Kenley, Vice President
7950 South County Road 25A
Tipp City OH 45371
bkenley@energyoptusa.com

Energy Systems Group

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

Facility Commissioning Group

Brandon Moore, Procurement Manager
158 Burt Road
Lexington KY 40503
brandon@facomgrp.com

Garland Company, Inc

Zach Hadden, Garland Representative
3800 East 91st Street
Cleveland OH 44105
bfreechack@garlandind.com

Green Giant Lighting LLC

Jeff Lorch, President
4828 Pleasant Grove Road
Lexington, KY 40515
jeff@greengiantlighting.com

Harshaw Trane

Chris Jagers, Account Manager
12700 Plantside Drive
Louisville, KY 40299
CJagers@trane.com

Kentucky Association of Electric Cooperatives

Chris Perry, President/CEO, KAEC
1630 Lyndon Farm Court
Louisville, KY 40223
kgibson@kaec.org

Exhibitors

KCTCS

Billie Hardin, Sustainability Project Manager
300 North Main Street
Versailles KY 40383
billie.hardin@kctcs.edu

Kentucky Purchasing Cooperative

Sam Atkins, Chief Development Officer
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 School Plant Mangers Association

Steve Griebe, Executive Director
1479 Chestnut Grove
Parksville, KY 40464
s.griebe@kspma.org

LG&E KU

Jeff Myers, Manager Energy Efficiency Operations
220 West Main Street
Louisville, KY 40232
jeff.myers@lge-ku.com

LHI Lighting Sales, Inc.

Jason Staples, Sales
3943 Central Avenue
Louisville, KY 40218
jstaples@lhilightingsales.com

Lumenation

Alex Moore, Vice President
312 New Venture Drive
Louisville, KY 40214
Alex@lumenation.net

Lynn Imaging

Amanda Schoonover, Director of Software Technology
328 Old Vine St
Lexington, KY 40507
mking@lynnimaging.com

Musco Sports Lighting

Curt Mickey, Sales Representative
100 1st Ave. W
Oskaloosa, IA 52577
curt.mickey@musco.com

Performance Services

David Dowdell, Kentucky Sales
1051 Floyd Drive, Suite 170
Lexington, KY 40505
ddowdell@PerformanceServices.com

Rexel

Kevin Chandler, Lexington Branch Manager
1693 Jaggie Fox Way
Lexington, KY 40511
Kevin.Chandler@RexelUSA.com

Ross, Sinclair & Associates, LLC

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

Sherman Carter Barnhart

Kenny Stanfield, Principal
2405 Harrodsburg Road
Lexington KY 40504
kstanfield@scbarchitects.com

Thermal Equipment

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



About the Presenters

Jimmy Arnold is CIO and energy manager for Butler County Schools, named the most energy-efficient district in Kentucky in 2010. His CIO duties expanded in 2004 to energy management. Arnold, a certified energy manager, has been a resource for other districts, as his own district continues to find ways to improve.

Rocky Adkins, House minority floor leader from Sandy Hook who represents the 99th District, has been called “the South’s lead legislator on energy.” He was instrumental in 2008 legislation that became the law requiring Kentucky school districts to focus on energy tracking and reporting, and energy management plans. Adkins serves on the House Appropriations and Revenue Committee, Committee on Committees and Rules Committee.

Terry Anderson is the energy manager for Mason and Rowan county school districts, having previously served as regional energy manager for the seven-district Fleming County Schools Partnership. He spent 21 years as a residential and commercial energy adviser for Kentucky Utilities Co. and worked for the Brock-McVey Co. in Maysville.

Chris Baker, energy systems coordinator for Kenton County School District for the past 13 years, created and manages the district’s energy management program. During that time, the district realized over \$11 million in avoided energy costs, receiving national and state awards for its efforts. Baker, a certified energy manager, also created the state’s first district-wide student energy team program, which was recognized by the National Energy Education Development Project.

Ken Bicknell, a 26-year education veteran, is superintendent of Paris Independent Schools. He is a former educational recovery leader with the Kentucky Department of Education. Bicknell also served as principal at B. Michael Caudill Middle School in Madison County.

Greg Binkley has been director of maintenance for Crittenden County Schools for 25 years. As a licensed plumber and electrician, he has dealt with every facet of facility services. Binkley is a former president of the Kentucky School Plant Managers Association and added energy manager to his titles four years ago; the district has been focused on energy management for eight years.

Charlie Bryant is the director of maintenance and energy manager for Anchorage Independent Schools. Prior to joining the school district, Bryant was self-employed and also worked for the University of Louisville with the HVAC and controls departments. At Anchorage, Bryant has been implementing energy-conscious facility choices to benefit the district as well as the environment.

Martha Boles Casher is energy services coordinator for KSBA’s School Energy Managers Project, joining the project at its 2010 inception. She retired from LGE-KU after spending 22 years in customer services, marketing and human resources positions, and spent eight years as a teacher in public schools. Casher is a certified energy efficiency practitioner.

Scott Caslow is the energy manager for Somerset and Science Hill independent districts, and for Wayne, Russell and McCreary county systems. Caslow primarily focuses on HVAC controls in his collaborative, proving the worth of temperature control during unoccupied periods and after hours. A certified energy manager since 1995, he is a member of The American Society of Heating, Refrigerating and Air Conditioning Engineers.

Kevin Craft is an energy efficiency analyst and manages the day-to-day operations of LG&E/KU’s Advanced Meter Early Adoption Program and its Green Energy Program. He supports the organization’s goals with data analysis, market research, and program design and evaluation.

Todd Earlywine, a Bourbon County Schools alumnus, has been a member of the Bourbon County school board since 2005, and has served as chairman since 2007. He is the owner of E and E Drilling, specializing in geothermal loop installation. The company has worked at numerous schools around Kentucky.

About the Presenters

Andrew R. Fellon is the business leader for Trane Energy Services in Louisville. Prior to this role, he co-founded and headed the energy procurement and management company Fellon-McCord, which later became a business unit of Trane/Ingersoll Rand. Fellon also co-founded Alliance Gas Services, which eventually became Constellation NewEnergy Gas, one of the largest natural gas marketing companies in North America.

Dr. Kevin Hub is superintendent of Scott County Schools and previously held that position for Logan County Schools. Hub also worked in Madison County Schools during his 24-year career in public education. He is an adjunct instructor for the University of the Cumberlands and has been an adjunct instructor for Eastern Kentucky University off and on since 1995.

Linda Hackworth is Floyd County Schools' coordinator of facility support and energy manager. A 23-year employee of the school system, she works with the district's facilities director in making energy-informed decisions to make Floyd County Schools an energy-efficient district.

Dan Logan is the director of maintenance for Owen County Schools, which has been the most energy-efficient district in Kentucky two of the past three years due to his efforts. Logan previously was county road foreman and solid waste coordinator for Owen County government and also has worked as production manager at TruGreen.

Jim McClanahan has worked for Scott County Schools for over 10 years, currently serving as energy manager/assistant director of maintenance. For the past three years, he also has worked for KSBA-SEMP, assisting other school districts with their energy management program. A professional engineer, McClanahan's career includes 26 years at IBM and Lexmark and two terms as a Scott County magistrate.

Tom Nicolas is a mechanical engineer with CMTA Energy Solutions. Most of his nearly 20-year career in the energy field has been focused on identifying traditional energy saving opportunities, but he has also been involved with nationally recognized renewable and behavioral change projects. A certified energy manager, Nicolas has received the Technology Award from the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Jon Nipple is the project manager for the School Energy Managers Project. He is a certified energy manager with over 40 years of engineering, management and executive experience, mostly in the business sector.

Dr. Stephen Pruitt has been Kentucky's education commissioner since 2015. He has an extensive background in education at the local, state and national levels, and he currently sits on the board of directors for the national Council of Chief State School Officers. The Georgia native has served as senior vice president for Achieve, Inc., a national, nonpartisan, nonprofit education reform organization based in Washington, D.C. He also was mathematics program manager and director of academic standards at the Georgia Department of Education.

Jay Robertson is program manager of Emerging Technologies for LG&E/KU Energy. A licensed electrical engineer, he serves as a subject-matter expert on emerging technologies in the utility industry. Robertson's areas of expertise include solar energy, electric vehicle charging, battery storage, smart grid technology and distributed generation.

Bruce Sauer has been the energy manager for the Hopkins, McLean and Caldwell county districts and Dawson Springs Independent Schools for seven years. Prior to that, Sauer, a certified energy manager, owned and operated a building inspection company. Most recently, he has been serving on the Paducah Board of Adjustments.

Jeff Saylor is superintendent of the Estill County school district. Prior to coming to Estill County, he worked in Bell County Schools as a teacher, principal and central office administrator. Saylor is in his 33rd year of serving students in eastern Kentucky.

About the Presenters

Jeremy Simpson is the district technology coordinator, chief information officer and energy manager for Estill County Schools. He has taught chemistry and physics at Estill County High School and at Nelson County High School, and worked several years in technology and textbook sales.

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.

Dr. Carolyn W. Snyder is director of the U.S. EPA's Climate Protection Partnership Division, which includes ENERGY STAR as one of its flagship programs. She has worked in public and private positions on strategy, organizational design, change management and regulatory strategy for McKinsey & Company. Snyder has been a White House Fellow in the federal Office of Management and Budget and worked in Delaware state government's Division of Energy and Climate.

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 and its next one; and on Kentucky's first four ENERGY STAR schools.

Rhonda Truman, a 34-year employee of LG&E and KU, is program manager for the Commercial Rebate Program, overseeing its day-to-day operations and administration. She has held 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.

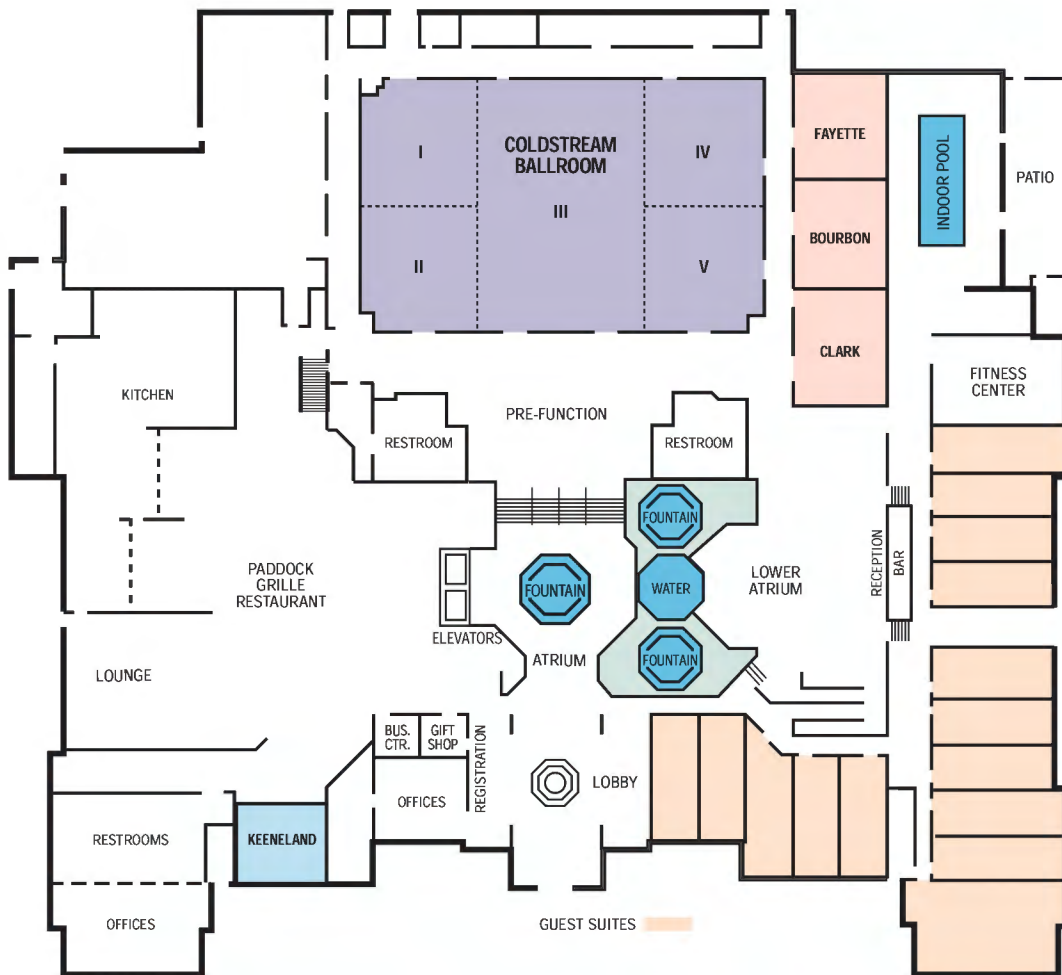
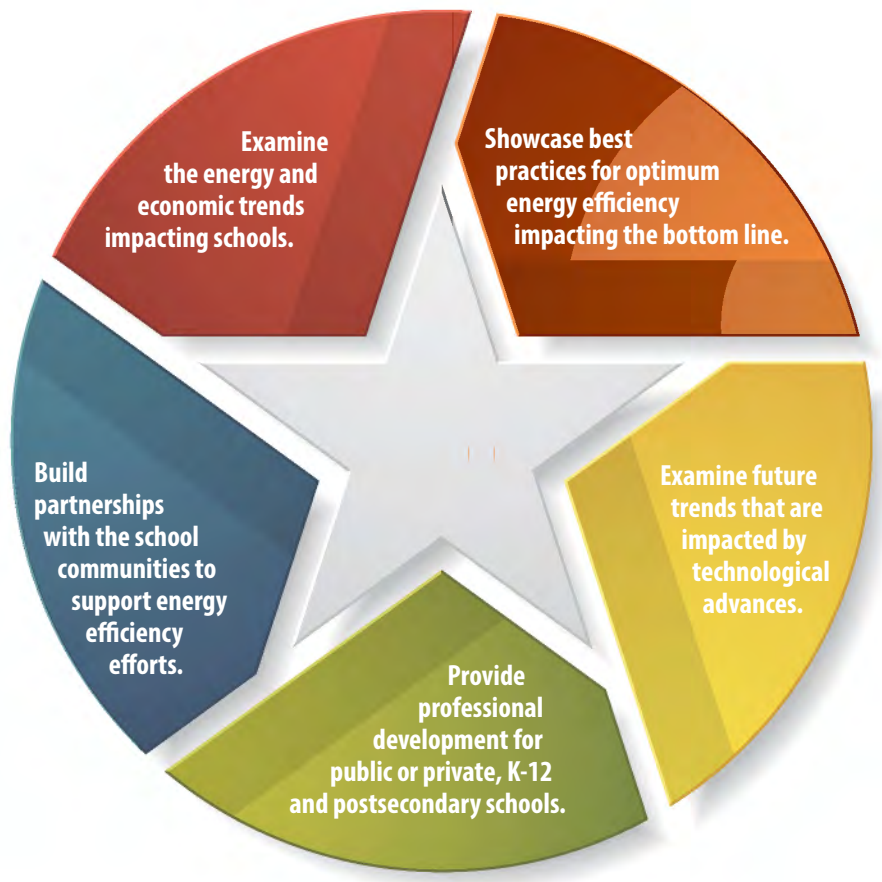
Kudret Ütebay has over 22 years of experience in the education, research, energy, science and technology fields. He is deputy program manager for the U.S. EPA's ENERGY STAR commercial and industrial program support. He also works closely with hundreds of school districts to evaluate building energy performance, and with trained professionals on energy efficiency and indoor air quality. Ütebay has been a technical adviser to the Green Schools Alliance National Advisory Board since 2008.

Tony Whaley has served on the Henry County school board since 2013 and currently serves as chairman. He has been active in the school system from which he graduated and has chaired its Education Foundation. Whaley is a 31-year State Farm Insurance agent and has a beef cattle farm in Henry County.

Carl Wicklund chairs the Kenton County school board, on which he has served since 1991. A Warren G. Proudfoot Outstanding School Board Member honoree, he has served on the boards of KSBA and its Educational Foundation. Wicklund, a Kentucky Association of Manufacturers board member, has helped organize partnerships for the Kenton County Schools Academies. He is a member of the Northern Kentucky Chamber of Commerce Education Alliance.

Ron Willhite has been the director of the KSBA-SEMP since it was founded in 2010 to assist school districts in managing energy costs. His career spans over 40 years in the electric and gas utility industry, beginning with Kentucky Utilities Co. A former Scott County school board member, Willhite has testified on utility issues before the Kentucky Public Service Commission, Virginia State Corporation Commission and Federal Energy Regulatory Commission.

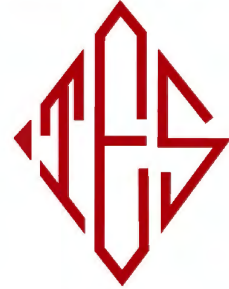
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