

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

**APPLICATION OF KENTUCKY)
UTILITIES COMPANY FOR AN)
ADJUSTMENT IN ITS ELECTRIC RATES)
AND FOR CERTIFICATES OF PUBLIC)
CONVENIENCE AND NECESSITY)**

CASE NO. 2018-00294

TESTIMONY OF
RONALD L. WILLHITE
KENTUCKY SCHOOL BOARDS ASSOCIATION

FILED: January 16, 2019

INTRODUCTION

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3 **Q. Please state your name and business address.**

4 A. My name is Ronald L. Willhite and business address is 7375 Wolf Spring Trace,
5 Louisville, KY 40241.

6 **Q. By whom are you engaged?**

7 A. I have been engaged by the Kentucky School Boards Association (KSBA) and the
8 Kentucky Non-Public School Commission (KyNPSC) to represent the interest of public
9 and private K – 12 schools. The Kentucky School Boards Association (KSBA) is a
10 nonprofit corporation of school boards from each public-school district in Kentucky. The
11 association, founded in 1936, now has over 75 years of serving school board members
12 and school districts in such areas as governmental relations, board member and team
13 development, risk management, facility planning, energy management, legal services,
14 policy services, publications and community relations. It is governed by a 27-member
15 board of directors made up of representatives elected as regional chairpersons or as
16 directors-at-large. With nearly 900 school board members, KSBA is the largest
17 organization of elected officials in Kentucky. The KyNPSC, Inc. is a diverse group
18 drawing membership from religiously-affiliated schools, private independent schools, and
19 home schools.

20

21 **Q. Please describe your regulatory and public-school experience.**

22

23 A. In December 2001 I retired from LG&E Energy Services. During my tenure at the
24 Companies I testified before this and other commissions on numerous rate and regulatory
25 matters. In addition, my responsibilities included load research and analysis. In March
26 2010 I was employed by KSBA to develop and direct the School Energy Managers
27 Project (SEMP). The SEMP was closed this past August. From 1989 to 1998 I served on
28 the Scott County Board of Education, the last six years as its chairman, and since 2009
29 have served on their Energy Committee. I graduated from the University of Kentucky in
30 1969 earning a B.S. in Electrical Engineering.

31

32 **Q. What specific issues are you addressing?**

33 A. I will address the following; 1) increase impact on schools, 2) pilot school tariffs SPS and
34 STOD, 3) Rates PS and TODS rate design, 4) Rates PS and TODS switching, and 5)
35 school energy management initiatives.

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IMPACT ON SCHOOLS

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39 **Q. How will the requested increase impact schools?**

1 A. Kentucky's schools continue to be severely impacted by today's economic conditions.
2 After personnel, energy is the second highest cost for schools. Unlike businesses that can
3 increase sales or prices to offset cost increases, schools must either cut programs or
4 attempt to raise taxes or tuition.

5 While schools understand the Company is faced with challenges the revenue increase as
6 proposed would be unfair to schools and their students. Public school districts continue to
7 be disadvantaged as many of their schools are required to take service under rate
8 schedules along with commercial and industrial customers. I will address options for the
9 Commission to mitigate the impact on public schools.

10 **PILOT SCHOOL TARIFF SPS and TODS**

11 **Q. Please overview the implementation process for Pilot School Tariffs SPS and TODS**
12 **that were authorized in Case Nos. 2016-00370.**

13 A. The Commission approved the Pilot Rates by Orders of June 22, 2017 in Case Nos. 2016-
14 00370 to be effective for service on and after July 1, 2017. Participating schools in the
15 Pilot were to receive annual cumulative savings of \$750,000. Pursuant to the Order
16 KSBA filed a Pilot School Tariff Implementation Process on July 17, 2017. The Process
17 was developed in collaboration with the KyNPSC. Using the Kentucky Schools Directory
18 eligible public and private schools were identified. Next using enrollment data from the
19 Directory, the apportionment of approved savings among the groups was determined.
20 After assembling specific account information a list of candidate accounts was provided
21 to the Company on July 20, 2017. A few of the 225 chosen accounts required some
22 follow up to clarify the applicable rate and account number. The Company chose August
23 18, 2017 as the effective date and prorated initial billings for accounts whose billing
24 period straddled that date. KSBA had expressed concern on August 3, 2017 that with
25 each passing day the intended savings was decreasing unless adjustments were made to
26 reflect the rate change effective on bills on and after July 1, 2017.

27 **Q. What is the impact of August 18, 2017 being chosen by the Company as the effective**
28 **date?**

29 A. Approximately \$100,000 ($48/365 \times \$750,000$), or 13 percent of the promised annual
30 savings was not provided.

31 **Q. Was there a windfall created by ending the Pilot Tariffs with the filing of the**
32 **Company Application on September 28, 2018.**

33 A. Yes. With the proposed May 1, 2019 effective date of the requested increase the
34 Company will receive seven months of the otherwise reduced revenues from schools, or
35 approximately \$437,000 ($7/12 \times \$750,000$). I believe this to be an inadvertent oversight
36 in the June 22, 2017 Order as that Order envisioned establishment of a regulatory liability
37 to record the difference between the pilot and otherwise effective rate should the next

1 case not be filed until after the authorized pilot termination date of July 1, 2020. The
2 Order went on to state the reserved amount would be handled in a future case.

3 **Q. Have you reviewed the School Pilot Tariffs Reports filed by the Company as**
4 **directed by the Commission’s June 22 Order?**

5 A. Yes, the Company filed the required semi-annual reports on December 21, 2017, June 22,
6 2018 and December 21, 2018. The first report was brief as there was little to report as
7 only limited data had been gathered. The second report contained hourly load data for
8 December 2017 through March 2018. The Company made preliminary statements of
9 findings based on still very limited data. The third report provided analysis of hourly load
10 data recorded from November 2017 through October 2018 and statements of findings
11 which I discuss next.

12 In the second and third reports the Company provided tables setting forth a comparison of
13 the pilot school accounts to a sample of non-school accounts on three factors that drive
14 the cost of providing service: 1) load factor, 2) coincidence factor and 3) loss of load
15 probability. From the second to third reports the Company changed their interpretation of
16 the coincidence factor information comparing the school accounts to the sample from
17 being “about the same” to “slightly lower”. For coincident peak (CP) and non-coincident
18 peak (NCP) load factors they changed the interpretation from “approximately the same”
19 to “slightly lower”.

20 **Q. Do you agree with their conclusion?**

21 A. No. As you can observe from the below Report tables there is a significance difference in
22 each of the measurement factors. An average coincidence factor 5.0 percent lower for the
23 KU pilot schools compared to the sample is certainly significant, “not slightly lower” as
24 is the case for the CP and NCP load factors. The coincidence factor is most significant
25 as it relates directly to generation plant cost causation and as such is reflected in
26 developing the generation cost allocator in the Company’s cost of service study.

27

Kentucky Utilities Company			Percent Difference
	Customers Taking Service Under the Pilot Rates for Schools	Sample of Customers Taking Service Standard Rates	
Average Coincidence Factor	0.674012	0.707894	5.0 %
Average CP Load Factor	0.680610	0.744180	9.3 %
Average NCP Load Factor	0.458739	0.526757	14.8 %

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2 **Q. What is the significance of the coincidence factor, and coincident (CP) and non-**
3 **coincident (NCP) demands?**

4 A. As the Company states in their Report No. 3 “The CP demands are important because
5 they represent each school’s demand during the hour of KU and LG&E’s combined
6 monthly system peak. Because KU and LG&E must install or purchase sufficient
7 generation capacity to meet their combined system peak demands, CP demands are
8 important determinants of the Utilities’ cost of providing service, particularly production
9 demand-related costs. NCP demands represent the maximum monthly demand of each
10 customer. NCP demands are important because KU and LG&E must install delivery
11 capacity (transmission and distribution capacity) to serve each customer’s maximum
12 demand. Both CP and NCP demands are utilized to allocate costs in KU and LG&E’s
13 class cost of service studies. Coincidence factor represents the ratio of the customer’s
14 CP demand to its NCP demand and, therefore, provides a measure of whether a
15 maximum demand occurs at the time of KU and LG&E’s combined system peak. In
16 other words, coincidence factor provides information about the portion of a customer’s
17 total demand that occurs at the time of the utility’s peak load.”

18 **Q. Did the Company perform additional analysis?**

19 A. Yes, the Company also evaluated and compared the Loss of Load Probability (“LOLP”)
20 for the pilot schools and the sample group as the “LOLP represents the probability that a
21 utility system’s total demand will exceed its generation capacity during a given hour.”
22 The production demand allocator used in the Company’s Cost of Service Study (COSS)
23 is the sum of each class’s load-weighted LOLP. As stated by the Company the LOLP
24 methodology is a key measure in planning generation resources and as such is used in the
25 Company’s cost of service study to allocate production costs. The Company presented
26 results in the below tables comparing the LOLP on both a per CP (coincident peak) kw
27 basis for the pilot schools and non-school accounts for both Rate Power Service (PS) and
28 Rate TOD Service secondary (TODS). The Company concludes there is little difference
29 between the pilot school and the non-school accounts and as a result from the perspective
30 of production cost allocation there would be little difference and no reason to separate the
31 schools into a different rate category.

Kentucky Utilities LOLP per CP kw Summary		
	Power Service	TOD Service
Schools	0.003482	0.003575
Non-Schools	0.003630	0.003646

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1 Q. How does the Company’s LOLP analysis compare to similar data provided on a
2 rate class basis?

3 A. The Company in the Report’s Conclusion section (pages 6 - 7) goes on to present the
4 following tables showing LOLP per CP (coincident peak) kw by rate class.

5

Kentucky Utilities				
Rate Class	LOLP per Customer	LOLP Per CP kW	NCP Load factor	12 CP Load Factor
Residential Rate RS	0.220	0.006051	16.3%	51.5%
All Electric Schools Rate AES	0.258	0.004442	23.0%	54.7%
General Service Rate GS	2.637	0.006777	23.0%	74.2%
Power Service Secondary Rate PSS	5.394	0.006578	29.6%	67.6%
Power Service Primary Rate PSP	8.083	0.005870	41.0%	69.7%
TOD Secondary Rate TODS	30.386	0.006136	43.3%	68.7%
TOD Primary Rate TODP	169.396	0.006088	45.2%	76.5%
Retail Transmission Service Rate RTS	575.438	0.006022	58.6%	84.4%
Fluctuating Load Service Rate FLS	6067.113	0.006014	45.5%	84.5%
Street Lighting Rate (RLS, LS)	0.001	0.001464	40.3%	279.7%
Lighting Energy Rate LE	0.017	0.001630	36.9%	295.0%
Traffic Energy Rate TLE	0.016	0.005239	79.2%	93.2%
Outdoor School Lighting Rate OSL	0.340	0.003357	4.7%	84.6%

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8 KU’s All Electric Schools Rate (“AES”) shown above with an LOLP per kw of
9 “.004442” provides a reasonableness check for the Company’s calculations for the pilot
10 schools. As would be expected the pilot schools would likely have an LOLP per CP kW
11 less than AES since many of the pilot accounts do not have electric space heating load.
12 The tables below summarize the LOLP per kW for the relative classes. Noticeably, the
13 Company computed PS and TODS LOLP per CP kw for the non-school sample accounts
14 that are significantly lower than the below stated LOLP per CP kw of “.006578” for the
15 KU Power Service Secondary class and “.006136” for Rate TOD Secondary class.

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KU	KU Rate AES	Schools	Sample	Class
PS	.004442	.003482	.003630	.006578
TODS	.004442	.003575	.003646	.006136

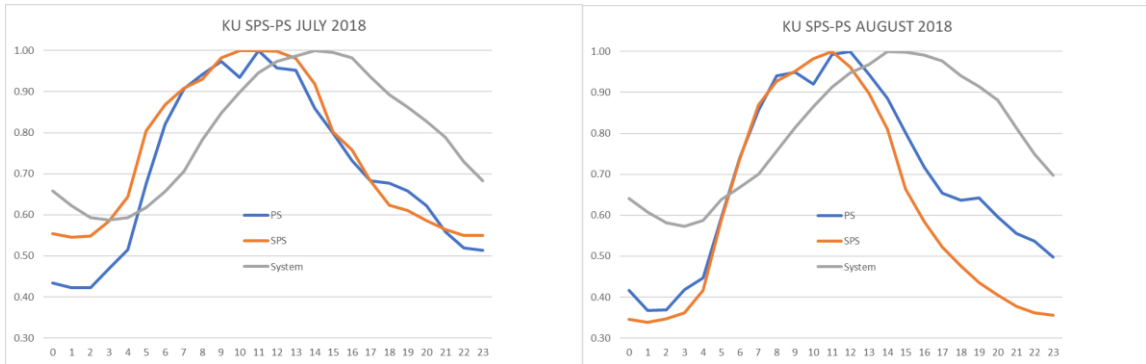
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18 Q. Did you perform additional analysis?

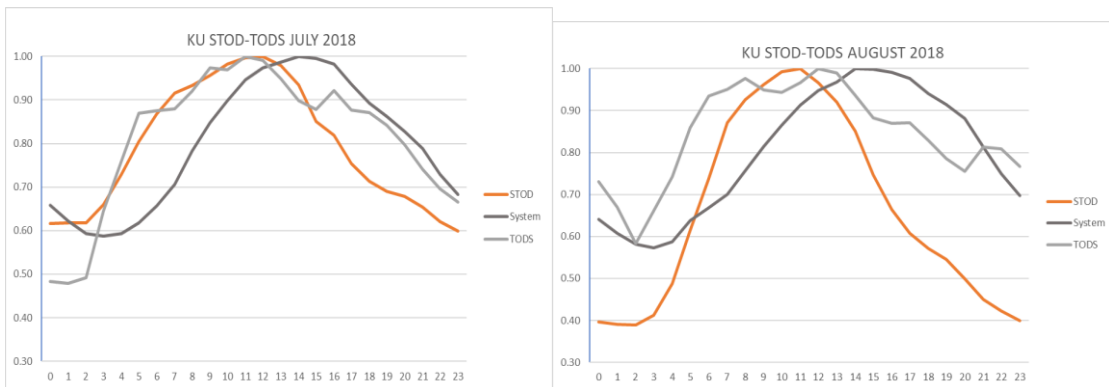
19 A. Yes. I looked deeper into the data and plotted the below system, rate class and pilot 24-
20 hour load profile graphs for system peak days, particularly July and August as the LOLP
21 for the test period Cost of Service Study (COSS) is almost totally dependent on those two
22 months (91.3 % in total or 26.1 % for July and 65.2 % for August). To create comparable

1 24-hour load profiles the data was normalized by dividing each hourly load by the
 2 respective maximum load for that day. As can be observed for KU SPS and PS the
 3 profiles coincide in July peak period hours indicating similar load coincidence. However,
 4 the profiles differ significantly in August during the system peak hours (when hourly
 5 LOLP's are most significant) showing significant dissimilar CP load. For KU STOD and
 6 TODS in July the profiles are partly similar during system peak hours and as SPS/PS
 7 significantly dissimilar in August.

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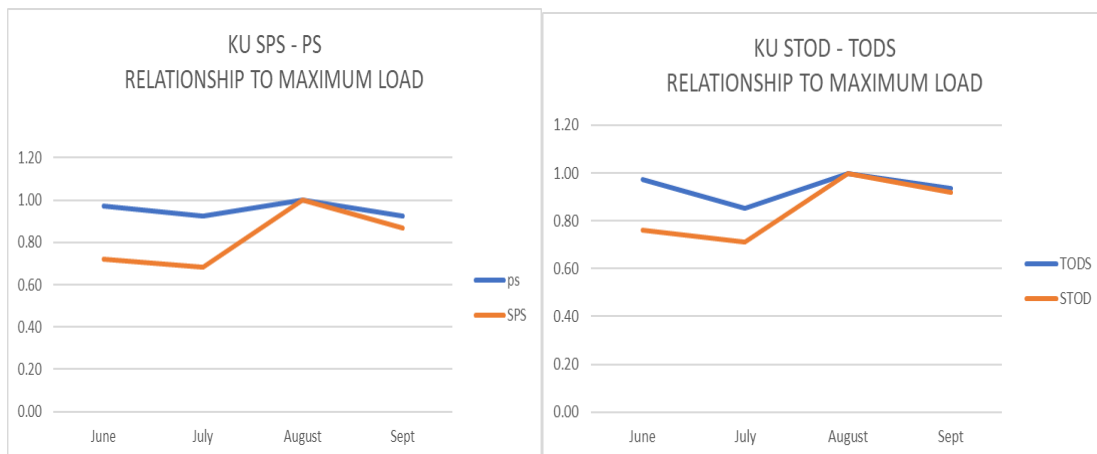


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10 Finally, it is important to recognize that while there is a closer relationship of the pilot
 11 and class load profiles in July, schools loads are significantly less as shown on the below
 12 graphs. This results in a much lesser LOLP weighted effect in July for schools compared
 13 to the PS and TODS classes.

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Q. Please summarize your analysis of the pilot.

A. I found the following:

- Significant difference in company measurement factors: coincidence factors and average coincident and non-coincident peak load factors
- LOLP is an appropriate method for allocating production costs in Cost of Service Study¹
- July and August LOLPs account for 91 percent of probabilities²
- School LOLP per kw varies significantly from otherwise applicable PS and TODS classes LOLP per kw as does class by class comparison³
- Schools have significantly lower peak period coincidence factors than PS and TODS in August and partly for TODS in July
- School and PS class load coincidence more similar in July when schools are out-of-session
- PS and TODS class loads in summer period (June- August) are more consistent in magnitude across period
- School loads in June and July are significantly lower than August maximum load
- While coincidence difference is less in July school loads are significantly less than comparable class load

Q. What do you conclude?

A. Based on the data presented by the Company schools certainly have loads that are sufficiently different from the otherwise available Tariffs PS and TODS. The pilot load data verifies that schools operate different than commercial and industrial customers as while all operate on defined schedules, those schedules are drastically different. Many industries operate 2nd, 3rd and weekend shifts while commercial accounts operate into late afternoon with some operating over extended hours into the evening year-round seven days per week. Schools typically are fully occupied early morning until early afternoon weekdays from early to mid-August through May with numerous shut down periods for breaks throughout the year. Schools continue open beyond instructional periods for extra-curricular activities, but by this time automation systems and set back procedures have begun adjusting temperatures for unoccupied space and lighting and ancillary load have

¹ Weighted class LOLPs determined as product of hourly probability times hourly load
² January accounts for 1.7 percent and June 5.7 percent. Other months are insignificant

³ Report 3 Table at pages 6 and 7

1 significantly decreased. In summer months when schools are out of session they operate
2 in a reduced mode while facilitating some summer programs. In a nutshell school load
3 build up in the warmer months typically begins early morning, peaks by lunch time when
4 kitchen equipment is energized and declines at a significant pace until and after the
5 instructional day ends in early-afternoon. In colder months schools tend to peak across
6 the morning hours and like the warm periods' usage/peak declines quickly after lunch.
7

8 **Q. What do you recommend?**
9

10 A. In order to eliminate the intra class subsidization by public schools currently served on
11 Rates PS-secondary and TODS the SPS and STOD tariffs should be reinstated on a
12 permanent basis without any monetary cap.
13

14 **RATE DESIGN**

15 **Q. Does the design of Rates PS and TODS result in unfair increases for public school**
16 **accounts?**
17

18 A. The Company has purposed recovering most, if not all, of the increase allocated to Rates
19 PS-Sec and TODS through increased demand charges. This further exacerbates the
20 subsidization by schools for others served on those rates. Such an approach is
21 unreasonable and needs correcting. The Company is requesting an increase of 6.61
22 percent for Rate PS, but schools would experience an increase of 7.1 percent. Similarly,
23 for Rate TODS the Company is requesting an increase of 6.11 percent, but schools would
24 experience an increase of 7.0 percent.

25 **Q. What do you propose to mitigate the impact on schools?**

26 A. It is my recommendation that the percentage increase be applied equally to the demand
27 and energy charges. Apportioning the increase in this manner produce a more equitable
28 balance between low and high load factor customers. And fairly recognizes the diversity
29 that exists within the rate class.

30 **PS AND TODS RATE SWITCHING**

31 **Q. Is there an issue regarding accounts being moved back and forth from Rate**
32 **Schedules PS and TODS?**

33 A. When working with the Company in implementing the Pilot School Tariffs it was
34 discovered there were several accounts floating around the 250 kW threshold for TODS
35 service. It doesn't make sense to move a customer back to PS from TODS because of
36 year to year varying weather impact and more importantly a customer's implementation
37 of more efficient equipment. Such action creates a perverse incentive to become more
38 efficient as movement back to PS results in a rate increase due to the demand charge
39 structure difference in the two rate schedules. With time-of-day metering already in place
40 the Company would not incur additional cost to continue service on rate TODS. It is my

1 recommendation that the TODS Tariff be modified to permit an account on rate TODS
2 remain on that rate unless their average monthly demand has dropped below 200 kW.

3
4 **Public School District Energy Management Initiatives**

5 **Q. Please describe energy management activities by K - 12 schools.**

6 **A.** As advised in prior cases local school boards of education are the only entity in Kentucky
7 that are required by statute to develop and implement energy management plans. *“In*
8 *an effort to reduce rising energy costs that are straining school budgets”* the General
9 Assembly in 2008 passed House Bill 2, which became law on July 15, 2008 as KRS
10 160.325. To implement the mandate of the statute boards of education adopted Energy
11 Management Policies and began mandated reporting annually through the Kentucky
12 Pollution Prevention Center (“KPPC”) to the Department for Energy Development and
13 Independence (“DEDI”) and the Legislative Research Commission (“LRC”) on the status
14 of the development of energy management plans by those boards of education and the
15 anticipated savings to be obtained from those plans.

16
17 **Q. What is the status of the LGE/KU School Energy Management Program?**

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19 **A.** The Program⁴, first approved in Case No. 2013-00067 and subsequently extended in Case
20 Nos. 2014-00371, 2017-00372 and 2015-00398, came to an end in June 2018 when the
21 Commission declined to approve a further proposed extension in Case No. 2017-00441
22 approved in the Stipulation and Recommendation in Case Nos. 2016-00370 and 2016-
23 00371. The latest proposal would have extended the Program for two-years from July 1,
24 2018 through June 30, 2020.

25
26 Following the commitment in Case Nos. 2016-00371 and 2016-00372 the Company
27 determined it no longer had avoided capacity cost thus resulting in the Program being
28 unable to pass the appropriate California Tests used by the Commission to evaluate the
29 cost-effectiveness of DSM programs. While KSBA and Kentucky’s public-school
30 districts were disappointed in this outcome they are extremely grateful for the support

⁴ The Program supported the School Energy Managers Project (“SEMP”) which KSBA created and implemented in 2010 as a state-wide school energy management infrastructure to assist public school districts with compliance with the statutory and board policy requirements that direct local boards of education to focus on rising energy costs. SEMP provided matching salary funds to districts to employ an energy manager to identify for Board approval and implementation best energy management practices. In addition, SEMP provided assistance to districts in the employment, coaching, monitoring and evaluation of the energy managers; analytical and engineering support; coordination of professional development opportunities for energy managers; communication of success stories to board members, superintendents, governmental officials and the general public; best practice implementation; monitoring and coordination of utility activities and relations; and development of the annually required Kentucky School Energy Management Report submitted to the Energy and Environment Cabinet and General Assembly.

1 provided by the Company in their compliance efforts with the statutory mandate to
2 address rising energy costs. By fostering intelligent energy choices in new and existing
3 school buildings through implementation of energy efficiency projects Kentucky school
4 districts since July 1, 2010 have captured more than \$200 million in savings/cost
5 avoidance and placed Kentucky schools 3rd in the nation (as a percentage of its K-12
6 schools) with over 30 percent of its' K – 12 schools having achieved the ENERGY
7 STAR certification.

8
9 Results for Company supported districts were provided the Commission on September 4,
10 2018 in Case No. 2015-00398.

11
12 **Q. Does this conclude your testimony?**

13 A. Yes.

14