COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF KENTUCKY UTILITIES	**)**	
COMPANY FOR AN ADJUSTMENT OF ITS	**)**	**CASE NO.**
ELECTRIC RATES AND FOR CERTIFICATES	**)**	**2016-00370**
OF PUBLIC CONVENIENCE AND NECESSITY	**)**	

RESPONSE OF
KENTUCKY UTILITIES COMPANY
TO
SIERRA CLUB'S INITIAL DATA REQUESTS FOR INFORMATION
DATED JANUARY 11, 2017

FILED: JANUARY 25, 2017

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **Lonnie E. Bellar**, being duly sworn, deposes and says that he is Senior Vice President – Operations for Louisville Gas and Electric Company and Kentucky Utilities Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

Lonnie E. Bellar

Lonnie E. Bellar

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 25th day of January 2017.

Judy Schooler
Notary Public (SEAL)

My Commission Expires:

JUDY SCHOOLER
Notary Public, State at Large, KY
~~My commission expires July 11, 2018~~
Notary ID # 512743

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

The undersigned, **Robert M. Conroy**, being duly sworn, deposes and says that he is Vice President – State Regulation and Rates for Louisville Gas and Electric Company and Kentucky Utilities Company, an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

Robt M. Conroy
Robert M. Conroy

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 23rd day of January 2017.

Susan M. Watkins (SEAL)
Notary Public

My Commission Expires:

SUSAN M. WATKINS
Notary Public, State at Large, KY
My Commission Expires Mar. 19, 2017
Notary ID # 485723

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) **SS:**
COUNTY OF JEFFERSON)

The undersigned, **John P. Malloy**, being duly sworn, deposes and says that he is Vice President – Gas Distribution for Louisville Gas and Electric Company and Kentucky Utilities Company, an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

John P. Malloy

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 25th day of January 2017.

Judy Schooler (SEAL)
Notary Public

My Commission Expires:
JUDY SCHOOLER
Notary Public, State at Large, KY
My commission expires July 11, 2018
Notary ID # 512743

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **William Steven Seelye**, being duly sworn, deposes and states that he is a Principal of The Prime Group, LLC, that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

W. Seelye

William Steven Seelye

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 20th day of January 2017.

Judy Schooler (SEAL)
Notary Public

My Commission Expires:

JUDY SCHOOLER
Notary Public, State at Large, KY
My commission expires July 11, 2018
Notary ID # 512743

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **David S. Sinclair**, being duly sworn, deposes and says that he is Vice President, Energy Supply and Analysis for Kentucky Utilities Company and Louisville Gas and Electric Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the responses for which he is identified as the witness, and the answers contained therein are true and correct to the best of his information, knowledge and belief.

David S. Sinclair

David S. Sinclair

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 25th day of January 2017.

Judy Schooler (SEAL)

Notary Public

My Commission Expires:

JUDY SCHOOLER
Notary Public, State at Large, KY
~~My commission expires July 11, 2018~~
Notary ID # 512743

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 1

Responding Witness: David S. Sinclair / Robert M. Conroy / William S. Seelye

Q-1. Reference Robert M. Conroy, p. 12, ll. 19-21.

a) Once the Company determines the appropriate capacity for a generation asset "based on customers' demands on the total system," please explain how the Company determines whether that generation asset should be a baseload, cycling, or peaking plant.

b) Is Mr. Conroy's contention that generation and distribution assets are sized based on the same measure of customer demand (e.g., system coincident peak)? If not, please describe in detail the different measures of customer demand that are relied on to size generation and distribution assets.

A-1.

a) The Companies have an obligation to reliably and economically meet their customers' instantaneous energy needs throughout the course of the year. Because generating technologies have different physical operating parameters (e.g., ramp rate, minimum and maximum loads, startup times, heat rates, emissions profiles), the Companies must consider all of these in the context of the operating parameters of the existing generating fleet when considering a new unit's ability to reliably and economically meet their customers' energy needs. See the Companies' 2014 Integrated Resource Plan ("IRP"), Volume III, "2014 Resource Assessment."

See also the response to AG 1-279.

b) No. Generation resources are planned to meet the Companies' combined system peak demand while distribution facilities are sized to meet the localized demands (non-coincident demands) of individual customers. In the Company's BIP cost of service study, peak and intermediate demand-related production costs are allocated on the basis of coincident peak demands. Demand-related distribution costs are allocated on the basis of non-coincident peak demands.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 2

Responding Witness: Robert M. Conroy

Q-2. Reference Robert M. Conroy, p. 15, ll. 11-14.

a) Is it Mr. Conroy's contention that recovering so-called demand-variant fixed costs through volumetric energy rates can lead to "unintended but unavoidable" intra-class subsidies? If so, please describe in detail the nature of such intra-class subsidies.

b) In Mr. Conroy's opinion, would it be reasonable to assume that customers with relatively high energy usage would also have relatively high demands? Please explain.

A-2.

a) Yes. As stated in Mr. Conroy's testimony, customers with higher than average usage pay more in fixed-cost recovery, which likely subsidizes customers with lower than average usage. See also the testimony of Mr. Seelye at pages 22 and 23.

b) No. The relationship between energy consumption and demand is dependent upon the load profile of the customer. A customer with a low load factor could have a high demand and low energy consumption. Likewise a customer with a high load factor could have high energy consumption but a relatively low demand.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 3

Responding Witness: John P. Malloy

Q-3. Reference William Steven Seelye, at p.2, ll 19-22.

a) Please describe the degree to which the Company is experiencing competitive pressure from distributed generation.

b) Please state the number of distributed generation systems currently installed by customers on the Company's system, their aggregate capacity, and the percentage of those systems powered by wind, solar, natural gas, or other resources.

c) Please provide any forecasts prepared by or for the Company regarding distributed generation growth in its territory.

d) Please provide the average monthly energy usage for all distributed generation customers, by class, for the latest 12 months for which such data are available.

A-3.

a) Distributed generation continues to increase within LG&E and KU's service areas. However, the amount of connected generation remains relatively low compared to system requirements. (See the response to AG 1-296a for connected amount of solar generation.)

b) See the response to PSC 2-79a for the number of customers and the response to AG 1-296a for the capacity.

c) The Companies do not have any forecasts of distributed generation growth for their service areas.

d) See table below for average monthly energy consumption provided to Distributed Generation customers by customer class.

Average Monthly Energy Usage in KWh by Customer Class 2016 for KU Distributed Generation Customers	
Residential	966
Commercial	10,445
Public Authority	74,225
Industrial	84,442

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 4

Responding Witness: William S. Seelye

Q-4. Reference William Steven Seelye, at p. 3, ll. 1-2.

a) Is the Company experiencing "steep declines in their sales per customer"?

A-4. The Company has not experienced steep declines in its sales per customer at this time. However, electric utilities in other jurisdictions have experienced steep declines in their sales per customer.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 5

Responding Witness: Robert M. Conroy / William S. Seelye

Q-5. Reference William Steven Seelye, p. 10, ll. 5-6.

a) What RS energy charge would the Company propose in this case if the Basic Service Charge remained at $10.75 per month?

b) Please provide in an electronic spreadsheet, with all cell formulas and file linkages intact, the calculation of the RS energy charge that the Company would propose in this case if the Basic Service Charge remained at $10.75 per month.

A-5.

a) The Company does not agree with the hypothetical scenario of leaving the basic service charge at its present level. The Company is proposing basic service charges and volumetric rates consistent with its cost of service studies. With that said, using the spreadsheets provided in response to PSC 1-53, for a residential electric customer, if the basic service charge remained at $10.75, the energy charge would need to be $0.09477 per kWh in order to collect the same allocated revenue requirement.

b) See the spreadsheet provided in response to PSC 1-53. The rate design in the spreadsheet can be adjusted for the values in part a.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 6

Responding Witness: William S. Seelye / Robert M. Conroy / Counsel

Q-6. Reference William Steven Seelye, p. 10, ll. 4-5.

a) Please provide copies of all e-mail communications, internal memoranda, reports, or other documentation of Mr. Seelye's or the Company's consideration of the amount to increase the Basic Service Charge and of the decision to increase the Basic Service Charge to $22.00 per month.

b) Please provide copies of all presentations to Company management or the Company's Board of Directors regarding consideration of the amount to increase the Basic Service Charge and of the decision to increase the Basic Service Charge to $22.00 per month.

A-6.

a) See the Company's objection filed on January 20, 2017. The Company has not identified any non-privileged documents that are not already in the record. The Basic Service Charge is discussed in the testimonies of William S. Seelye and Robert M. Conroy.

b) The Company did not make any presentations to management or the Board of Directors on the decision to increase the Basic Service Charge (BSC). The Company's rate design philosophy is to develop rates that reflect the cost of providing service whereby fixed costs are recovered through fixed charges and variable costs are recovered through variable charges. The decision to increase the BSC to $22.00 was based on this principle.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 7

Responding Witness: William S. Seelye

Q-7. Reference William Steven Seelye, p. 10, ll. 11-12.

a) Please provide an electronic spreadsheet, with all cell formulas and file linkages intact, that shows the calculation of the proposed rates for the Variable Energy Charge and the Infrastructure Energy Charge.

b) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas and file linkages intact, relied on to derive the proposed rates for the Variable Energy Charge and the Infrastructure Energy Charge.

A-7. See the response to PSC 2-98(b).

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 8

Responding Witness: William S. Seelye

Q-8. Reference William Steven Seelye, p. 11, ll. 4-6.

a) By "fixed costs associated with poles, transformers, conductors," is Mr. Seelye referring to just the customer-related portion of those costs or both the customer-related and demand-related portions? Please explain.

b) By "fixed costs associated with … power plants," is Mr. Seelye referring to the demand-related portions of power plant costs? Please explain.

c) Please explain what Mr. Seelye means when he states that fixed costs would not be "automatically" reduced with reductions in energy usage. Could reductions in energy usage lead to reductions in such fixed costs in some other fashion?

d) Is it Mr. Seelye's contention that the "fixed costs associated with poles, transformers, conductors" would not be "automatically reduced" with reductions in customer peak demands? Please explain.

e) Is it Mr. Seelye's contention that the "fixed costs associated with … power plants" would not be "automatically reduced" with reductions in customer peak demands? Please explain.

A-8.

a) In the referenced lines of his testimony, Mr. Seelye is referring to both the demand- and customer-related portions of the Company's fixed costs. For example, once transformer capacity is installed to serve a residential customer, the fixed costs associated with the transformers are not reduced if the customer reduces its energy consumption.

b) Yes.

c) No. See the response to part a.

d) Yes. See response to part a.

e) Mr. Seelye's statement did not address reductions in peak demands. However, once a power plant is installed and operational, the fixed costs of the plant are not automatically reduced by reductions in a customer's peak demand. Reductions in peak demands may impact the planning and installation of generation capacity within a utility's planning horizon.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information Dated January 11, 2017

Question No. 9

Responding Witness: William S. Seelye

Q-9. Reference William Steven Seelye, p. 11, Table 3.

a) Please provide an electronic spreadsheet version of Table 3, with all cell formulas and file linkages intact. Please provide copies of all linked electronic spreadsheet files.

b) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas and file linkages intact, relied on to derive Table 3.

A-9.

a-b) There is no electronic spreadsheet version of Table 3. The percentages were manually calculated from Exhibit WSS-2. The electronic spreadsheet was provided in response to PSC 1-53 (Res Unit Costs tab of Att_KU_PSC_1-53_KUElecCossA.xlsx).

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 10

Responding Witness: William S. Seelye

Q-10. Reference William Steven Seelye, p. 13, Table 4.

a) Please provide an electronic spreadsheet version of Table 4, with all cell formulas and file linkages intact. Please provide copies of all linked electronic spreadsheet files.

b) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas and file linkages intact, relied on to derive Table 4.

A-10.

a-b) There is no electronic spreadsheet version of Table 4. The percentages were manually calculated from Exhibit WSS-2 and Schedule M-2.3. The electronic spreadsheet was provided in response to PSC 1-53 (Res Unit Costs tab of Att_KU_PSC_1-53_KUElecCossA.xlsx and Sch M-2.3 pgs 3-15 tab of Att_KU_PSC_1-53_ElecScheduleM_Forecasted.xlsx).

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 11

Responding Witness: William S. Seelye

Q-11. Reference William Steven Seelye, p. 15, ll. 7-8.

a) If distributed generation allowed the Company to reduce spending in the future on generation, transmission, or distribution capacity, would Mr. Seelye agree that all customers, and not just those who installed the distributed generation, would benefit from such a reduction in spending? Please explain.

b) If distributed generation allowed the Company to reduce spending in the future on generation, transmission, or distribution capacity, would Mr. Seelye agree that customers who installed the distributed generation would be subsidizing those customers who had not? Please explain.

A-11.

a) No. It would depend on the rate design approved by the Commission. An improperly designed rate that does not appropriately reflect costs might shift costs to customers that do not install distributed generation.

The question presupposes that distributed generation would result in a situation where a customer would require less generation, transmission, and distribution capacity from the utility. Unless the customer would not require the utility to standby to serve its load when its generation is not producing power, then no such savings would occur. In any case, in the short term, rates would certainly increase for all customers because any reduced spending would not immediately occur but would occur in the longer term. Furthermore, for all customers to benefit, the reduction in spending would have to be of a greater percentage than the reduction in demand cost recovery. There is no guarantee that this would be the case.

b) No. See response to part a.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 12

Responding Witness: William S. Seelye

Q-12. Reference William Steven Seelye at p. 15, ll. 15-17.

a) Please define "short term" in this context.

A-12. In this context, "short term" refers to the time horizon in which the applicable infrastructure is fixed.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 13

Responding Witness: William S. Seelye

Q-13. Reference William Steven Seelye at p. 15, ll. 2-5.

a) Please describe the rate design proposed in the New Mexico proceeding in which you were a witness, and provide the docket number for this proceeding.

A-13. In Case No. 15-00375-UT, the New Mexico Public Regulation Commission's Staff witness stated as follows:

> A good rate design is necessary for both [utility] revenues and for the continued growth of distributed generation. Rate design in this area is complicated and needs to be addressed. If rate design is based more towards volumetric charges, [the utility's] will continue to have revenue deficiencies with their net metering accounts because these customers have much or all of these charges "netted out", and thus the Company receives reduced revenues. This is especially a concern as the growth in distribution generation continues in the [utility's] service territory. Conversely, if rates lean more towards fixed charges, incentives are reduced for customers considering renewable technologies, [the utility's] current rate design for these accounts appears to subsidize the net metering accounts. (Prepared Direct Testimony of Milo Chavez, filed June 20, 2016, p. 4.)

The Commission Staff witness went on to recommend one of two alternative rate designs. Under the first rate design, which was a straight fixed variable (SFV) rate design, all fixed distribution and production costs (both demand-related and customer-related fixed costs) would be recovered through a flat $58.37 monthly customer charge for customers with distributed generation. Under the second rate design, which was a three-part rate design, customer-related costs would be recovered through a flat $20.50/customer basic service charge ("customer charge") and demand-related distribution and production demand-related costs would be recovered through a $24.17/kW/month demand charge.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 14

Responding Witness: William S. Seelye

Q-14. Reference William Steven Seelye at p. 16, ll. 5-7.

a) Please identify the other utilities "considering the implementation of three- and multi-part rates for residential and small commercial customers," and indicate whether these utilities have actually filed proceedings seeking approval for such rate designs and provide the associated docket numbers.

A-14. See the response to PSC 2-81.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 15

Responding Witness: William S. Seelye

Q-15. Reference William Steven Seelye, at p. 16, ll. 16-18.

a) Please identify the other utilities "considering the use of straight-fixed variable ('SFV') rate designs," and indicate whether these utilities have actually filed proceedings seeking approval for such rate designs and provide the associated docket numbers.

A-15. Mr. Seelye has not prepared a comprehensive list. However, some of Mr. Seelye's clients and utilities at conferences that Mr. Seelye and employees of his consulting firm have attended have indicated that they are considering the implementation of straight-fixed variable (SFV) rate designs. Note that the first rate alternative proposed by the Commission Staff witness in New Mexico, as referenced in Question No. 13, is a form of a SFV rate design.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

**Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017**

Question No. 16

Responding Witness: William S. Seelye

Q-16. Reference William Steven Seelye, p. 20, ll. 5-11.

a) Please clarify whether Mr. Seelye believes that all costs associated with the "service drop from the transformer" are customer-related. If so, please provide citations to the NARUC Electric Utility Cost Allocation Manual that form the basis for Mr. Seelye's belief.

b) Please clarify whether Mr. Seelye recommends that all transformer costs, or just the customer-related portion of transformer costs, be recovered through the Basic Service Charge.

c) If Mr. Seelye recommends that all transformer costs be recovered through the Basic Service Charge, please explain why he believes that demand-related transformer costs should be recovered through the Basic Service Charge.

A-16.

a) Service drops from the transformer to the customer are installed to serve individual customers and are therefore customer-related. Page 20 of the NARUC Electric Utility Cost Allocation Manual states: "The customer service and facilities function includes the plant and expenses that are associated with providing the service drop and meter, meter reading, billing and collection, and customer information and services. These investments and expenses are generally considered to be made and incurred on a basis related to the number of customers (by class) and are, therefore, of a fixed overhead nature." Page 22 also indicates that service drops are allocated on the basis of the number of customers.

b) In this proceeding, Mr. Seelye is recommending that only the customer-related portion of transformer costs be recovered through the Basic Service Charge.

c) See the response to part b.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information Dated January 11, 2017

Question No. 17

Responding Witness: William S. Seelye

Q-17. Reference William Steven Seelye, p. 22, ll. 20-22.

a) Please explain why the Company believes that intra-class subsidies should be avoided. Please cite to all relevant economic literature relied on as the basis for this belief.

b) Is Mr. Seelye aware of any economic rationale or ratemaking principle for maintaining intra-class subsidies? Please explain.

c) Please cite to all relevant economic literature relied on as the basis for the assertion that the "rate making principle" for avoiding intra-class subsidies is the recovery of "fixed costs" through fixed charges

d) Is it Mr. Seelye's contention that demand-related generation, transmission, and distribution costs are "fixed costs"? If so, does Mr. Seelye believe that recovering such demand-related fixed costs through energy charges would create intra-class subsidies? Please explain.

e) Under the Company's current rate design for residential customers, does Mr. Seelye believe that demand-related generation, transmission, and distribution costs are, and should be, recovered through the Basic Service Charge or through the energy charge? Please explain.

A-17.

a) The Company believes that it is good business practice to avoid intra-class subsidies. Individual customers should not be subsidized by other customers.

The rationale for eliminating intra-class subsidies is the same as for eliminating inter-class subsidies. Section 278.030(1) of the Kentucky Revised Statutes requires regulated utilities to charge fair, just, and reasonable rates for all rate payers. Inter-class subsidies are readily determined from a cost of service study through the calculation of class rates of return. The rate of return calculation demonstrates whether a class's revenue is sufficient to cover the cost of providing service, including financing costs. In theory, each class's rate of return would be the same with perfectly fair, just, and reasonable rates. It is common in the utility industry to reduce subsidies with each rate increase and move each class rate of return toward an equalized rate of return. Classes with rates of return above the overall company rate of return are said to be paying a subsidy, while classes with rates of return below the overall rate of return are said to be receiving a subsidy.

Intra-class subsidies are no different. They are simply subsidies that occur between customers in a class rather than between different classes. Accepting the principle that it is important to correct subsidies between classes in order to have fair, just, and reasonable rates, it necessarily follows that it is also important to correct intra-class subsidies.

Intra-class subsidies cannot be readily determined from a class cost of service study. However, the rate factors that cause intra-class subsidies are well understood. Intra-class subsidies are caused when the rate components fail to match the cost-based components derived from a cost of service study. It is typically caused by recovering fixed costs through variable rate components. This creates a situation where a portion of the fixed costs are collected from the wrong customers. For example, if the basic service charge is too low, and those costs are recovered through the energy/commodity charge, then customers who purchase more than the average amount of energy/commodity will pay more than their fair share of those fixed costs. Customers that purchased less than the average amount of energy/commodity will pay less than their fair share of those fixed customer costs. This creates a subsidy where high-use customers subsidize low-use customers. The actual rate design compared to a cost based rate design determines the direction of the subsidy within each class of service.

b) No.

c) Mr. Seelye's conclusion is based on his experience. See response to part a.

d) Yes. Demand related generation, transmission, and distribution costs are all fixed. The best method for recovering these costs is through some form of a demand charge because the costs are driven by the demand customers place on the system. Recovering these costs through an energy charge creates intra-class subsidies.

For example, consider distribution demand related costs, which are the costs related to transformer and conductor capacity on the system to serve customers' maximum demands. For example, two customers with the same maximum demand would require the same distribution capacity to serve their loads. If those fixed capacity costs are recovered through a demand charge, then both customers will pay the same amount for the capacity installed to serve them.

However, if the costs are recovered through an energy charge, then each customer's energy usage will determine what each customer pays even though the same facilities are required for both customers. If one customer has an 80% load factor and the other a 40% load factor, the two customers will pay dramatically different amounts for the same level of capacity. The customer who buys more energy (the 80% load-factor customer) will pay considerably more for the capacity than the customer who buys a lot less energy (the 40% load-factor customer). Recovering the distribution capacity costs through an energy charge in this case creates a subsidy paid by high load-factor customers and provides a subsidy to low load-factor customers.

e) *The Company is not proposing to recover generation, transmission and distribution demand-related costs through the Basic Service Charge.* For Residential Service Rates RS and other two-part rates, the Company is proposing to recover these costs through the energy charge, which the Company proposes to break out for informational purposes into a Variable Energy Charge (which recovers energy-related costs) and an Infrastructure Energy Charge (which recovers demand-related fixed costs).

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 18

Responding Witness: William S. Seelye

Q-18. Reference William Steven Seelye, p. 23, ll. 1-6.

a) Is it Mr. Seelye's contention that the fixed costs to serve residential customers with above-average energy usage are equal to the fixed costs to serve customers with below-average energy usage? Please explain.

b) Please provide copies of all analyses conducted by Mr. Seelye or the Company relied on as the basis for Mr. Seelye's assertion that residential customers with above-average energy usage are "paying more than their fair share of the utility's fixed costs" under current rates.

A-18.

a) No. The demand-related costs for serving individual customers depend on the relationship between the customer demand and energy usage. The customer-related fixed costs do not vary with customer usage; therefore, customer-related fixed costs for residential customers with above-average energy usage are equal to the fixed costs to serve customers with below-average usage.

b) Under the Company's current rate structure, the customer charge is significantly below a cost-based charge. Therefore, residential customers with above-average energy usage would on average pay more than their fair share of the utility's fixed costs. As explained in Mr. Seelye's direct testimony, when customer-related fixed costs are recovered through the Energy Charge instead of the Basic Service Charge, about 1.1 cents per kWh of non-volumetric fixed cost are collected through the Energy Charge (calculated as $68,108,441/ 6,091,291,833 kWh = $0.011/kWh). Thus, the current Basic Service Charge is $13.18 per customer per month too low, and the Energy Charge is 1.1 cents per kWh too high based on data from the cost of service study. This results in customers with above-average energy usage subsidizing customers with below-average energy usage.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 19

Responding Witness: William S. Seelye

Q-19. Reference William Steven Seelye, p. 24, ll. 6-9.

a) Has the Company undertaken any form of study of customer response to the RTOD-Demand rate option to determine why no customers have chosen to take service under this option? If so, please provide copies of any memoranda, reports, or other documentation of such studies.

b) Please explain why the current structure of the RTOD-Demand rate does not "accurately reflect costs."

A-19.

a) The Company performed ad hoc calculations on a small number of customers who were interested in the rate, but determined that the customers would have difficulty realizing cost savings under the current RTOD-Demand rate. Consequently, the Company is proposing changes in this proceeding to make the rate more acceptable to potential customers.

b) A determination was made that the on-peak demand charge was overstated. The proposed rates in this proceeding are designed to reflect costs from the Company's cost of service study.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 20

Responding Witness: William S. Seelye / Robert M. Conroy / John P. Malloy / Counsel

Q-20. Reference William Steven Seelye at p. 24, ll. 20-21.

a) Please provide the basis for your assessment that the demand charge structure currently in use for the Company's large customers "seems to operate effectively," including an explanation of what constitutes "effective" operation in this context.

b) Please provide copies of any internal memoranda, reports, or other documents in the Company's possession that indicate that the demand charge structure currently in use for the Company's large customers would "operate effectively" for residential customers.

A-20.

a) The demand charge structure currently in use for the Company's large customers has been in place for many years. It has been the subject of review in every rate case since the early 1990s. The Company's largest customers have been very active in those rate cases, expressing any concerns they have regarding the demand charge structure in use for Rates TODS, TODP, RTS and FLS.

b) See the Company's objection filed on January 20, 2017. The Company has not identified any non-privileged documents.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 21

Responding Witness: William S. Seelye

Q-21. Reference William Steven Seelye, p. 25, ll. 3-6.

a) Please provide an electronic spreadsheet, with all cell formulas and file linkages intact, that shows the calculation of the proposed rates for the base and on-peak demand charges.

b) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas and file linkages intact, relied on to derive the proposed rates for the base and on-peak demand charges.

A-21.

a) See the response to PSC 1-53.

b) See part a.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 22

Responding Witness: William S. Seelye

Q-22. Reference William Steven Seelye, p. 72, ll. 11-13.

a) Did the Company estimate the customer component of pole costs separately from that for overhead conductors? If so, please explain how the customer component of pole costs was derived and provide the results of that analysis.

b) Did the Company estimate the customer component of underground conduit costs separately from that for underground conductors? If so, please explain how the customer component of underground conduit costs was derived and provide the results of that analysis.

A-22.

a) No.

b) No.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 23

Responding Witness: William S. Seelye

Q-23. Reference Exhibit WSS-2.

a) Please specify whether the results shown in Exhibit WSS-2 are based on the BIP or the LOLP cost of service study.

b) Please provide an electronic spreadsheet version, with all cell formulas and file linkages intact, of the cost of service spreadsheet model relied on to generate the results shown in Exhibit WSS-2.

c) Please provide an electronic spreadsheet version, with all cell formulas and file linkages intact, of Exhibit WSS-2. Please provide copies of all linked spreadsheet files.

d) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas and file linkages intact, relied on to derive Exhibit WSS-2.

e) Please provide a revised electronic spreadsheet version (with all cell formulas and file linkages intact) of Exhibit WSS-2 that is derived from the results of a cost of service study which classifies 100% of pole, conduit, conductor, and line transformer costs as demand-related.

   i) Please provide an electronic spreadsheet version, with all cell formulas and file linkages intact, of the cost of service spreadsheet model relied on to generate the results for this revised version of Exhibit WSS-2.

A-23.

a) The results shown in Exhibit WSS-2 are based on the BIP cost of service study.

b) See the response to PSC 1-53.

c) See part b.

d) See part b.

e) The Company has not performed the requested analysis. The Excel spreadsheet for the cost of service study was provided in PSC 1-53.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 24

Responding Witness: William S. Seelye

Q-24. Reference Exhibits WSS-13, WSS-14, and WSS-15.

a) Please provide electronic spreadsheet versions, with all cell formulas and file linkages intact, of these exhibits.

b) Please provide electronic versions, with all cell formulas and file linkages intact, of all linked spreadsheet files.

c) Please provide copies of all workpapers, including electronic spreadsheets with cell formulas and file linkages intact, relied on to derive these exhibits.

A-24. See the response to PSC 1-54.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 25

Responding Witness: William S. Seelye

Q-25. Reference William Steven Seelye, generally.

a) Please compare the proposed Basic Service Charges for all rate classes to the full customer-related cost identified for those classes in the cost of service study.

A-25. For a comparison, see the customer unit costs provided in the response to PSC 2-98(b) and (c) and the proposed rates for each rate schedule filed in Tab 4 of the filing requirements.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 26

Responding Witness: Lonnie E. Bellar

Q-26. Reference Paul W. Thompson, p. 10, ll. 2-7.

a) Please identify and describe all expenditures during the test year relating to the Company's plans to comply with the Effluent Limitation Guidelines (ELGs). To the extent applicable, please indicate the generation plant(s) with which these expenditures are associated.

b) Please identify and describe all expenditures during the test year relating to the Company's plans to comply with the Coal Combustion Residuals (CCR) rule. To the extent applicable, please indicate the generation plant(s) with which these expenditures are associated.

c) Please identify and describe all expenditures during the test year relating to the Company's plans to comply with the tightening of NOx emission standards. To the extent applicable, please indicate the generation plant(s) with which these expenditures are associated.

A-26.

a) During the test year, KU will be completing the pilot test demonstration at Trimble County, finalizing the test reports, and beginning to incorporate the pilot test findings into the early stages of engineering for the future ELG projects. Projected capital cost in the test year are $45,000 for Ghent, $45,000 for E.W. Brown and approximately $1,413,000 for KU's prorated portion of the Trimble County pilot testing.

b) See response to AG 1-234 for the cost estimate approved during the 2016 ECR filing.

c) KU's budgets have expenditures related to compliance with existing air emission standards; however, there are no incremental capital expenditures during the test year related to KU's plans to comply with the tightening of NOx emission standards. While not significant, KU does expect to spend incremental O&M associated with increased anhydrous ammonia usage due to the increased utilization of generating units that have SCRs. The Company continues to perform prudent analysis regarding compliance with current and potential NOx emission standards, which may affect future expenditures.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 27

Responding Witness: Lonnie E. Bellar

Q-27. Reference Paul W. Thompson, p. 51, ll. 5-8.

a) Please explain what is meant in this context by "a lesser standard."

A-27.

a) During development of the E.W. Brown Universal Solar project, LG&E and KU visited four (4) solar installations. The four (4) sites visited consisted of two (2) sites owned by Independent Power Producers (IPP's), and two (2) Utility owned sites. During the site visits, LG&E and KU identified several differences between the two types of installations. In general, the installation at the Utility owned sites were designed more robust for long-term dependability than the IPP sites. Some of the primary differences identified by LG&E and KU during the site visits are listed below:

1) The below ground to above ground transition of Direct Current (DC) wiring from the Photovoltaic (PV) modules to the combiner boxes was in rigid aluminum conduit at the Utility owned sites compared to PVC conduit or no conduit at the IPP's sites.

2) The inverters and electrical distribution centers were placed on concrete foundations at grade at the Utility owned sites compared to skid mounted and placed on elevated drilled piers at the IPP's sites.

3) The Utility owned sites utilized suppliers for PV modules, inverters, and combiner boxes considered in the industry to have better quality, dependability or experience ratings, while the IPP sites in some instances utilized suppliers for the same equipment that did not have the same ratings or experience levels in the industry.

Based on the information gained during the four (4) site visits, LG&E and KU decided to apply the lessons learned from the Utility owned sites to the E.W. Brown Universal Solar Project. In addition to the information gained from the site tours listed above, LG&E and KU implemented the following based on conversations with the Utility and IPP owned sites as well as our design engineer.

1) General practice in the solar industry is to use aluminum conductor for all Alternating Current (AC) and DC wiring. However, it is standard practice to utilize copper conductor for all AC and DC wiring at utility grade power generating facilities. In an effort to minimize cost while following typical power generation construction methods, LG&E and KU installed aluminum conductor for DC wiring and copper conductor for AC wiring.

2) General practice in the solar industry is to direct bury all wiring. However, it is standard practice to place all wiring in concrete duct banks at utility grade power generation facilities. In an effort to minimize cost while following typical power generation construction methods, LG&E and KU direct buried the DC wiring and placed the AC wiring and control cable in concrete duct banks.

3) General practice in the solar industry is to install the PV module as close to the ground as possible to minimize the cost of the support structure. Typical clearance between the lower PV module and the ground was approximately twelve (12) inches at the solar facilities visited in arid climates in the west. The climate in Kentucky promotes vegetation growth when compared to arid climates and, as a result, the clearance between the lower PV module and the ground was increased to a minimum of thirty-six (36) inches to account for ongoing vegetation/grass management.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 28

Responding Witness: Robert M. Conroy / John P. Malloy

Q-28. Reference John P. Malloy, at p. 22, ll. 16-23.

a) Please describe what means other than AMS are available to detect theft, meter configuration errors, and meter malfunctioning, as well as the cost of such measures.

b) Please confirm that the AMS-associated benefit of recovery on non-technical losses does not reduce overall system costs but rather changes the way in which those costs are recovered.

A-28.

a) The Company currently detects the majority of theft occurrences, meter configuration errors, and meter malfunctions via:

1. Customer system, auto-generation of cases for review of consumption outside of defined tolerances based on regular meter readings,
2. Evidence discovered during routine meter reading stops,
3. Evidence discovered during routine service order field stops, and
4. Evidence discovered during field testing of meters or standard testing of meters as directed by regulations.

The Company approximates that $485,000 was spent in 2016 for the burdened labor, materials, and transportation for activities devoted to tampering investigations by Revenue Protection and Field Services.

Without AMS, the Company has not had the tools to adequately identify and proactively address the problems associated with non-technical losses. Instead, all Kentucky customers have subsidized these losses as part of their rates. But through certain identification algorithms associated with AMS, it will now be possible to take steps to reduce these losses by attributing a portion of them directly to their cause.

b) It is correct that the AMS-associated benefit of recovery of non-technical losses does not reduce overall system costs. But it does change who bears the cost of what would otherwise be non-technical losses, namely the cost-causers rather than other customers.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 29

Responding Witness: John P. Malloy

Q-29. Reference John P. Malloy, at p. 25, ll. 2-3.

a) Is the AMS technology proposed by the Company necessary for the imposition of demand charges on residential customers, or is less expensive metering technology available that could likewise provide demand readings?

A-29.

a) AMS technology is not required for capturing demand readings but the installation of a demand style meter would be required. Significant increases to meter reading operations cost would also be expected to capture the demand readings from demand-style meters. If customers are billed on demand charges, AMS technology offers a lower cost alternative to manual reads. Additionally, AMS enables customers to better monitor their usage and take action to meet their overall energy management needs.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information Dated January 11, 2017

Question No. 30

Responding Witness: John P. Malloy

Q-30. Reference John P. Malloy, at p. 25, ll. 14-22.

a) Would AMS also enable faster disconnection of customers for non-payment?

b) Would the Company consider consumer protections to mitigate the harms associated with accelerated disconnections for non-payment, such as disconnect notification by mail, extension to the time period allowed under the FLEX program, advance home visits to ensure that disconnection will not result in a health or safety issue, the availability of payment plan options for customers unable to pay their bill, or other such measures?

A-30.

a) Faster disconnections is not a goal of the AMS Program, but quicker reconnections is a goal. Moreover, there are a number of protections in place and which must be met before a customer can be disconnected for non-payment. All of these protections remain in place with the AMS Program. These protections include customers' receiving disconnection notices by mail and having the ability to arrange an installment plan with the Company to avoid disconnection. There were 217,849 installment plans granted in 2016.

b) Because all current protections will remain in place for disconnections, the Company does not see the need for additional consumer protections.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 31

Responding Witness: John P. Malloy

Q-31. Reference John P. Malloy, at Exhibit JPM-1 pp. 22-23.

a) Is AMS a prerequisite to the implementation of Volt/VAR optimization?

b) Please describe any ongoing efforts by the Company to evaluate the potential for, and benefits of, Volt/VAR optimization on the Company's systems.

A-31.

a) No, AMS is not a prerequisite for the implementation of Volt/VAR optimization.

b) The Company is conducting a pilot project at a substation on one transformer with two distribution circuits located in the LG&E service territory. The pilot project will be conducted through the end of 2017. The purpose of the pilot project is to gather data and evaluate the impacts to energy (kWh) and demand (kW) on the transformer and circuits, as well as impacts to day-to-day operations.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 32

Responding Witness: John P. Malloy

Q-32. Reference John P. Malloy, at Exhibit JPM-1 p. 32.

a) Please provide further information regarding how the Company estimated the level of savings that will occur as a result of customers using energy more efficiently once AMS is installed. Specifically, does the Company assume that all residential customers will reduce their usage by 3%? If not, what percentage of customers does the Company assume will be "active users"?

b) What assumptions does the Company's estimate of savings associated with "customer empowerment" make regarding the timing of usage reductions (i.e., on-peak versus off-peak usage)?

c) Do these estimated savings depend on rate design changes utilizing the AMS infrastructure?

A-32.

a) The Company estimates that 17 percent of residential customers will be "active users" with average energy savings of 3 percent. The Company developed the savings estimates based on results of their AMS Opt-In Program and a review of industry literature. Among customers receiving AMS, 48 percent accessed their usage in MyMeter, the branded ePortal web information interface. Based on MyMeter reporting data through August 12, 2016, 36 percent of the ePortal enrollees had six or more login events following deployment. This was interpreted as a level of active engagement among AMS Opt-In participants, making the participant pool sufficiently engaged to achieve energy savings. Based on the Smart Grid Consumer Collaborative (SGCC) referenced report showing between five percent and fifteen percent energy savings and a desire to remain conservative in its approach, the Company then estimated that actively engaged participants will achieve an average of three percent energy savings.

In the Company's extrapolation of these savings to the total set of AMS Opt-In participants, their assumptions yielded an overall savings rate of 0.5 percent savings across all customers receiving AMS (0.48 * 0.36 * 0.03 = 0.005). For the purposes of estimating an overall benefit of the equipment, this logic was applied only to residential customers' consumption. Thus, while AMS is planned for most customers to receive advanced meters, the aggregate consumption benefit was limited to 0.5 percent of residential consumption. Any possible additional energy consumption reduction by other customer classes was not counted in Company's analysis.

b) The Company does not make any assumptions as to timing of the usage reductions.

c) No.

KENTUCKY UTILITIES COMPANY

CASE NO. 2016-00370

Response to Sierra Club's Initial Data Requests for Information
Dated January 11, 2017

Question No. 33

Responding Witness: John P. Malloy

Q-33. Reference John P. Malloy, at Exhibit JPM-1 p. 34.

a) How many full-time and part-time positions does the Company anticipate terminating as a result of reduced staffing needs for meter-reading and ad hoc field services? What is the anticipated timing of such terminations?

b) Please describe any efforts the Company will make to retain staff previously tasked with meter reading and ad hoc field services in other positions.

A-33.

a) The Company does not anticipate terminating any Company staff positions. Meter reading and field services are largely facilitated by a third-party contracted workforce. Contractor usage is anticipated to decline beginning in late 2018.

b) See the response to part a.