COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF KENTUCKY UTILITIES COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC RATES, A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METERING INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE-YEAR SUR-CREDIT	)	**CASE NO. 2020-00349**
ELECTRONIC APPLICATION OF LOUISVILLE GAS AND ELECTRIC COMPANY FOR AN ADJUSTMENT OF ITS ELECTRIC AND GAS RATES, A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DEPLOY ADVANCED METER INFRASTRUCTURE, APPROVAL OF CERTAIN REGULATORY AND ACCOUNTING TREATMENTS, AND ESTABLISHMENT OF A ONE-YEAR SURCREDIT	)	**CASE NO. 2020-00350**

RESPONSE OF
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
KENTUCKY SOLAR INDUSTRIES ASSOCIATION, INC.'S
COMBINED REQUESTS FOR INFORMATION
DATED JULY 22, 2021

FILED: AUGUST 2, 2021

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

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

Elizabeth J. McFarland

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 30th day of July 2021.

Kimberly C Bruce (SEAL)
Notary Public

Notary Public, ID No. KYNP14646

My Commission Expires:

10 16 2020

VERIFICATION

STATE OF NORTH CAROLINA)
)
COUNTY OF BUNCOMBE)

The undersigned, **William Steven Seelye**, being duly sworn, deposes and states that he is a Principal of The Prime Group, LLC, 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.

William Steven Seelye

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 30 day of July 2021.

Adam Curry (SEAL)
Notary Public

Notary Public ID No. 202108500012

My Commission Expires:
03/02/2026

Adam Curry
Notary Public
Buncombe County, NC
Notary ID# 202108500012
Commission Expires: 03/02/2026

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
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

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 2nd day of August 2021.

Notary Public

Notary Public ID No. KYNP32193

My Commission Expires:

06-25-2025

VERIFICATION

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF JEFFERSON)

The undersigned, **John K. Wolfe**, being duly sworn, deposes and says that he is Vice President, Electric Distribution 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.

John K. Wolfe

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 30th day of July 2021.

Notary Public

Notary Public ID No. 603967

My Commission Expires:

July 11, 2022

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 1

Responding Witness: David S. Sinclair

Q-1. Supplemental"), Supplemental Exhibit DSS-2, Table 8 at p. 9.

a. Does each monthly peak hour represented in Table 8 have an equal loss of load expectation?

b. Please explain how the Company considers loss of load expectation in its capacity planning efforts.

c. Please identify, if any, all of the 12 monthly peak hours shown in Table 8 that have a zero loss of load expectation according to the study the Company presented in this proceeding.

A-1.

a. Based on the range of possible weather conditions in the Companies' service territory, the loss of load expectation is similar in summer and winter months. The Companies' calculation of loss of load expectation is lower in the shoulder months but the calculation does not consider the need for planned maintenance. When computing loss of load expectation, planned maintenance is assumed to have no impact on reliability and is therefore not modeled.

b. The upper end of the Companies' target reserve margin range is the reserve margin that reduces the likelihood of a loss-of-load event to one event in 10 years.

c. No monthly peak hours have a zero loss of load expectation.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 2

Responding Witness: David S. Sinclair

Q-2. Please refer to Sinclair Supplemental at p. 10 lines 15-18, stating "While both the Current Market Price and the Levelized Cost of a CT methodologies are fundamentally sound, it is important to keep in mind that the customers that are paying for this capacity would prefer the least-cost option." Please also refer to Supplemental Exhibit DSS-2 in Tables 1, 9, and 14.

a. In Table 14 the recommended capacity prices for wind are higher than they are for either fixed or tracking solar. Yet Table 9 shows that in relation to a combustion turbine, both types of solar resource have a higher annual avoided cost ($/MW) than a wind resource. Please explain why it would be prudent for the Company to enter into a QF contract with a wind resource that provides lower or equivalent capacity benefits at a higher price than the Company would pay for either a tracking or fixed tilt solar resource.

A-2.

a. The Companies are obligated to purchase the output from a QF, and they must distinguish between energy and capacity needs. In market transactions (which represent a free exchange by both parties), solar and wind contracts do not include energy and capacity components. By comparing avoided capacity cost estimates based on the Current Market Price and Levelized Cost of a CT methods, the Companies' methodology tries to mimic a competitive outcome for QFs. For example, the Companies had to demonstrate to the PSC that the Rhudes Creek PPA is prudent for customers. There is no such "after execution" review for a QF because of the Companies' legal obligation to purchase. The implied prudency standard in the technology specific rates is the all-in market price for such contracts.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 3

Responding Witness: David S. Sinclair

Q-3. Please refer to Sinclair Supplemental at p. 10 lines 15-18, stating "While both the Current Market Price and the Levelized Cost of a CT methodologies are fundamentally sound, it is important to keep in mind that the customers that are paying for this capacity would prefer the least-cost option." Please also refer to Supplemental Exhibit DSS-3 containing technology specific recommended SQF and LQF rates.

a. For a fixed tilt solar array under a 20-year contract beginning in 2022, the total sum of energy and capacity rates (for a 2028 capacity need) is $25.77/MWh. If one assumed a "perfect" capacity resource, the capacity payment would increase to $5.90/MWh ($1.70/28.8%) and the total rate to $29.97/MWh. Would it be prudent from a least-cost resource perspective for the Company to make an investment in a natural gas combustion turbine or a natural gas combined cycle unit if the 20-year levelized cost of energy from that unit is higher than $29.97/MWh? Please explain in detail.

b. For an "other" technology that is not solar or wind, which are modeled as a perfect capacity resource, the sum of energy and capacity compensation for a 2028 capacity need is $31.25/MWh. Please explain why it would be reasonable from a least-cost resource perspective to pay an other "other" technology QF this amount when a hypothetical perfect capacity solar or wind resource would receive a different amount, and as reflected in subpart a., a lower amount for a fixed tilt solar array. Please explain in detail.

c. Which "avoided cost" as reflected in the sum of energy and capacity compensation for each technology type should a Company investment be compared to in order to determine whether it is a least-cost resource?

A-3.

a. The avoided capacity and energy prices for solar and wind reflect the actual performance characteristics of the technology based on 100 percent of the market price of a PPA. Simply grossing up the avoided capacity price

component by the annual capacity factor of the technology is not the appropriate way to create a "hypothetical perfect capacity solar or wind resource." For example, in order to create a "hypothetical perfect solar" facility that could generate 1 MW around-the-clock would require (at a minimum) 8.8 MW of nameplate solar panels and battery storage capable of 2.6 MW and 18.4 MWh. According to this simple analysis, the cost of such a system would be $163.45/MWh, far in excess of $5.90/MWh. See attachments being provided in Excel format. Based on data from the Brown solar facility, winter is the most challenging season for solar due to shorter days and more abundant clouds so if the "hypothetical perfect solar" facility is sized for winter solar conditions, it will be more than adequate to be the "hypothetical perfect solar" facility in the summer. Note that the cost estimate for this "hypothetical perfect solar" facility is likely understated by several orders of magnitude for numerous reasons such as i) the assumption that each day has exactly the same cloud pattern (in the real world several extremely cloudy days in a row drives up both the size of the solar array and battery storage) and ii) daily deep cycling of batteries will shorten the life dramatically – driving up system replacement costs. As described in part c. of this response, the Companies' resource decisions are based on a competitive RFP process, not a comparison to a hypothetical avoided cost.

b. See the response to part a. The Companies' recommended approach to determining avoided capacity cost is to first use the market price for each technology. There is no reason to believe that market price quotes for various technologies after adjusting for the Companies' own avoided energy costs will produce a similar implied avoided capacity price. Furthermore, the Companies do not operate in an RTO that attempts to commoditize each technological aspect of a generation technology via a tariff mechanism in order to produce non-discriminatory rates available to all. Rather the Companies operate as vertically integrated utilities with an obligation to serve their customers in a reliable, least-cost manner. To accomplish this, the Companies purposefully assemble a generation portfolio via a competitive solicitation process that evaluates resource cost and reliability implications on a portfolio level, rather than via tariffs that are available to any generator that wants to sign up.

c. Actual investment decisions are based on a competitive RFP process and evaluated in the context of the Companies' generation portfolio – not on hypothetical avoided costs. RFP responses are compared to each other. The Companies avoided cost methodology tries to mimic this process. See the response to Question No. 2.

The attachments are being provided in separate files in Excel format.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 4

Responding Witness: David S. Sinclair

Q-4. Please refer to Sinclair Supplemental at p. 10 lines 12-15, stating "As described in Supplemental Exhibit DSS-2, I recommend using the lowest cost method for each generation technology. Therefore, I recommend using the Current Market Price methodology based on the Companies' PPA data for solar and the LevelTen Energy index for wind."

a. Please confirm that this approach will always produce avoided cost pricing that is not technology neutral. If your response is anything other than an unqualified confirmation, please explain in detail. In particular, please address how the use of different market price benchmarks for different technologies cannot fail to produce a discriminatory outcome.

A-4.

a. The Companies are not sure what is meant by "technology neutral." See the responses to Questions Nos. 2 and 3. Different technologies have different performance characteristics. The Companies evaluate different technologies in the context of their obligation to reliably serve customers at the lowest reasonable cost. Therefore, although the Companies' approach might not result in avoided cost pricing that is "technology neutral," it does ensure that the Companies' avoided cost pricing will be consistent with market prices for each technology and that technology's ability to reliably serve our customers' load.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 5

Responding Witness: David S. Sinclair

Q-5. Please refer to Sinclair Supplemental at p. 6 lines 1-3 explaining the lack of carbon emission costs in the calculated avoided energy costs, stating "As of now, there are no laws or regulations that put a price on CO2 like there are for SO2 and NOx, which is why the latter were included. If there is a price on CO2 in the future, then it will be included in the Companies' next biennial avoided cost filing."

a. Does Mr. Sinclair agree that there is a non-zero chance that laws or regulations which put a price on carbon emissions will be established during the next 20 years? If your response is to not agree, please explain.

b. In Mr. Sinclair's capacity as the Vice President, Energy Supply and Analysis, is it his view that the potential for carbon pricing to be established at some point in the future should be considered as part of the resource planning at present.

A-5.

a. Based on the proposed biennial approach to calculating avoided energy and capacity costs, the fact that no law or regulation exists at this time that puts a price on CO_2, and the compliance timelines typically associated with past attempts to broadly restrict CO_2, there is no chance that a CO_2 price will exist before 2024 when the next proposed biennial updated prices would go into effect. Furthermore, various U.S. administrations have been discussing reducing CO_2 emissions for well over 20 years. For example, the Clinton Administration was discussing CO_2 emission reductions in the 1990s as part of the Kyoto Protocol process yet it never submitted the treaty to the Senate for ratification. If asked in 1998 when the Clinton Administration signed the Kyoto Protocol if there was a "non-zero chance that laws or regulations (would) put a price on carbon emissions…during the next 20 years" most observers would probably have agreed. Yet, 23 years later there is still no national price on carbon emissions. The likelihood that there will be a CO_2 price in the next 20 years is simply not knowable. In fact, much focus recently

has been on addressing CO_2 emissions indirectly via a Clean Energy Standard rather than through a CO_2 price or cap and trade scheme. During the Obama administration, the Clean Power Plan sought to reduce CO_2 emissions via state administered programs that focused on either emission rates or mass reductions rather than through a CO_2 price. Regardless, while there may be a non-zero chance that future laws or regulations put a price on CO_2 emissions, the likelihood is not 100%. Furthermore, because such laws or regulations will almost certainly be promulgated with more than a two-year notice, there is no need to consider a CO_2 price in the current filing.

b. Yes. The Companies' proposed methodology fully accounts for possibility of new laws or regulations to limit CO_2 emissions. If such regulations are promulgated, the full cost of compliance will be reflected in a future biennial filing in the Companies' avoided energy and capacity costs. The Companies have a long history of including CO_2 as part of the risk evaluation for existing and future generation resources. Evaluating the risk still comes back to what, if anything, customers should pay today to reduce a risk in the future.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 6

Responding Witness: David S. Sinclair

Q-6. Please provide workpapers associated with all Figures, Graphs, Tables, and Exhibits associated with the Direct Testimony of Company Witness David S. Sinclair in executable spreadsheet format with all formulas and file linkages intact.

A-6. See the response to PSC 7-43.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 7

Responding Witness: William Steven Seelye

Q-7. Please refer to the Supplemental Testimony of William S. Seelye ("Seelye Supplemental") at p. 9 lines 16-18, stating "Whether a customer generator adds to or decreases line losses on the system depends on a multitude of factors that are ultimately affected by customer specific and locational considerations."

a. Does Mr. Seelye agree that the "multitude of factors" involving "customer specific" and locational considerations" are also factors that would determine the specific losses attributable to individual customer loads? If your response is anything other than an unqualified agreement, please explain in detail.

b. Is it Mr. Seelye's understanding that averaged line losses are commonly used to derive retail rates where such rates are differentiated by the voltage at which a customer receives electric service?

c. Please confirm that the amount of losses avoided by an individual customer generator, after considering the multitude of factors that Mr. Seelye refers to, could be either higher or lower than averaged losses. If your response is anything other than an unqualified confirmation, please explain in detail.

A-7.

a. See the response to PSC 7-9.

b. See the response to PSC 7-9.

c. Individual customer-generators could potentially avoid or create distribution losses. Those losses avoided or created by individual customer-generators will vary from customer to customer and could be different from the average.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 8

Responding Witness: William Steven Seelye

Q-8. Please refer to Seelye Supplemental at p. 10, footnote 6 stating "I2R losses relate to resistance in conductor and transformer windings and are in proportion to the square of the current." Please confirm that because resistive losses increase in proportion to the square of the current, losses are higher during periods of high or peak demand on the associated infrastructure than they are during periods of lower loads.

A-8. Losses would likely be higher on infrastructure during periods of high peak demand as related to specific infrastructure. But it must be emphasized that there is no universal peak time period on distribution lines, transformers, substations, etc. For example, the maximum demand on distribution infrastructure that serves large amounts of electric space heating loads, such as on KU's distribution system, would likely occur during the winter and during the early morning or late evening hours when customer-generators are not supplying energy to the grid. Therefore, for those facilities, the loss factors would almost certainly be lower than the average during the time periods when customer-generators are supplying energy to the grid. Because KU is a winter peaking utility, the annual peak periods for KU's distribution and transmission system would be significantly different than for LG&E, which is a summer peaking utility.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 9

Responding Witness: William Steven Seelye

Q-9. Please refer to Seelye Supplemental at p. 11 lines 8-17 where he discusses his derivation of transmission loss factors, and footnotes 8 and 9 on p. 11.

a. Please identify where in the Company's response to PSC 5-20 each of the individual %'s used in the calculations on footnotes 8 and 9 are located.

b. For the portion of footnotes 8 and 9 located within parentheses please identify what each percentage refers to.

c. Please provide Mr. Seelye's calculation of transmission loss factors for demand losses, as the amounts he relates on p. 11 appear to refer only to energy losses.

A-9.

a. See the response to PSC 7-11.

b. See the response to PSC 7-11.

c. Mr. Seelye has not performed the requested analysis. Furthermore, because none of the charges or compensation proposed by LG&E or any of the parties take the form of a maximum demand charge, such percentage has no relevance. Demand losses are only applicable to a single peak demand during the year and not energy.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 10

Responding Witness: William Steven Seelye

Q-10. Please refer to Seelye Supplemental at p. 30 depicting the summation of his calculations of avoided costs.

a. Are the amounts for avoided generation capacity grossed-up for demand losses? If not, please explain in detail why a loss adder is not appropriate.

b. Are the amounts for avoided transmission capacity grossed-up for demand losses? If not, please explain in detail why a loss adder is not appropriate. If not, please explain in detail why a loss adder is not appropriate.

c. Are the amounts for avoided distribution capacity grossed-up for demand losses?

A-10.

a. No, nor should they be. To be clear, Mr. Seelye recommends that the avoided generation capacity cost of the intermittent energy that NMS-2 customer-generators supply to the grid is zero. To the extent that an avoided generation capacity is attributed then the only cost that a solar net metering customer could reasonably avoid would be at most future solar generation energy purchased or solar facilities installed by the Companies. (The intermittency of solar generation could not avoid a conventional generator.) Any such solar generation possibly avoided by customer-generators would relate to the avoidance of customer-owned facilities throughout the Companies' distribution systems. Therefore, any avoided generation capacity losses would be included in the cost of solar energy or facilities.

b. No, nor should they be. Again, for clarity, Mr. Seelye recommends that the avoided transmission capacity cost of the intermittent energy that NMS-2 customer-generators supply to the grid is zero. Customer-generators would not avoid any more transmission losses than what would be avoided from solar facilities that would be otherwise installed by the Companies, assuming

the Companies' must place greater reliance on renewables resources because of changes in environmental regulations.

c. No, nor should they be. Again, for clarity, Mr. Seelye recommends that the avoided distribution capacity cost of the intermittent energy that NMS-2 customer-generators supply to the grid is zero. Because energy provided by customer-generators must be transmitted across the distribution system, and thereby incur distribution losses, no avoided distribution capacity losses would be anticipated. Furthermore, customer-generators would not avoid any more losses than what would be avoided from solar facilities that would otherwise be installed by the Companies, assuming the Companies' must place greater reliance on renewables resources because of changes in environmental regulations.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 11

Responding Witness: William Steven Seelye

Q-11. Please refer to Seelye Supplemental from p. 22 line 21 through p. 23 line 3, stating "With customer-generators there is no assurance that their solar facilities will be in place over a sufficiently long period of time to allow the Companies to avoid or defer generation capacity."

a. Please identify total number of customer-generators that have ever taken net metering service and the number of customer-generators that once took net metering service but are no longer interconnected to the Company's system. Please provide this information separately for LGE and KU.

b. Please provide all studies, analysis, or reports that Mr. Seelye is aware of where customer-sited generation has been determined to offer no avoided capacity value because there is no "assurance" that the facilities "will be in place over a sufficiently long period of time".

c. Is it Mr. Seelye's opinion that the PJM and ISO-NE are in error in their use of forecasted amounts of behind the meter solar as decrements to forecasted load for the purpose of determining capacity requirements?

d. Does the Company's IRP incorporate demand-side management ("DSM") as a decrement to gross load when determining its capacity position and reserve margin? If so, please identify the "assurance" that the Company is provided in the form of contracts or other legally enforceable commitments that DSM measures will remain in place throughout their useful lives.

A-11.

a. See the responses to PSC 7-6 and MA-KFTC-KSES 2-8.

b. Mr. Seelye has not performed a comprehensive review of studies, analyses and reports in other jurisdictions regarding the avoided capacity value provided by customer-sited generation. However, in Kentucky the Commission has historically approved KU and LG&E's SQF rates which

included no capacity value because of the intermittence and non-firmness of the energy provided by SQF customers. Also, Big Rivers Electric Corporation's cogeneration and small power production rate does not include a capacity value.

In the neighboring state of Indiana, Vectren South (CenterPoint) only provides a capacity payment to qualifying facilities that have entered into long-term contracts to provide firm capacity for a specified term. The Indiana Utility Regulatory Commission (IURC) recently approved a rate for purchases of energy from net metering customers that is based on the marginal energy price that the utility pays for energy at Vectren South SIGE SIGW load node. Based on the formula approved by the IURC, Vectren pays net metering customer-generators a total price of $0.03183 for the energy that net metering customer-generators supply to the grid. The formula multiplies the short-run marginal energy price paid by the utility times a factor of 1.25. Any avoided capacity cost included in this formula would be 25% of the marginal energy price.

c. It is Mr. Seelye's opinion that caution should be exercised with forecasting amounts of behind-the-meter generation for determining capacity requirements for an electric utility system. Mr. Seelye has concerns about using limited amounts of data from behind-the-meter generation to forecast the capacity that would be available from such resources to meet peak demands. As recent experiences with blackouts in California and Texas have demonstrated, extreme weather conditions can result in renewable resources proving inadequate to meet maximum demands on the system. PJM, MISO, and other capacity markets have developed capacity availability forecasts using a limited number of years (3 to 5 years) without considering extreme value conditions. Mr. Seelye has concerns about that approach, especially if behind-the-meter generation ever represents a significant percentage of the capacity relied on by an RTO.

d. Yes. However, KU and LG&E's demand conservation programs bear little or no similarity to net metering. The Companies' demand conservation programs are inapplicable to net metering for comparative purposes for several reasons.

First, the Companies' demand conservation programs are in static mode whereby the Company is no longer adding participants in the programs. As stated in the Commission's Order in Case No. 2017-00441:

> LG&E/KU propose to maintain this program in a maintenance mode, with no new capital being invested and no new load-control devices being deployed. Existing devices will be moved to new customers as current customers exit the program, with

> the program gradually phased out as the devices eventually fail to operate. In addition, the bill credit previously paid for each month from June through September will be replaced with an end-of-cooling-season bill credit if a load-control event is called. (Order in Case No. 2017-00441 at pp. 5-6.)

Second, the Companies' demand conservation programs were determined by the Commission in Case No. 2017-00441 to have "an avoided capacity cost of zero." (*Id*., at p. 26.)

Third, customers that have remained on the Companies' demand conservation program only receive a credit when the Companies have a capacity need and initiate demand control on the system. The Companies have not paid a credit to customers served under the demand conservation programs since January 1, 2019.

Fourth, unlike net metering, the capacity available from the Companies' demand conservation programs is not intermittent and "as-available" like energy supplied by net metering customers. When direct load control is called on by the Companies, the Companies expect to see a demand reduction from the participants in the load control program. In contrast, a customer-generator may or may not be supplying energy to the grid at the time of the Companies' peak.

Fifth, customers taking service under the Companies' demand conservation programs never received compensation that reflected the full avoided capacity cost of the service. Customers only received a portion of the avoided costs created by the program.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 12

Responding Witness: Elizabeth J. McFarland / William Steven Seelye

Q-12. Please refer to Seelye Supplemental Exhibit WSS-1, p. 1.

a. For both LGE and KU separately, please identify the aggregate load carrying capability in kW of the capacity related transmission investments referred to in the accompanying table.

b. Please provide an equivalent table depicting the transmission capital plan inclusive of all transmission investments, not just those that the Company considered to be load-related.

c. Please identify with specificity all categories of investments that the Company has designated as capacity-related and all categories of investments that it has designated as non-capacity related.

A-12.

a. LG&E and KU transmission system capacity is planned for in MVA. The following table summarizes the capacity increases by utility and increases in tie-line capacity between the two utilities in kVA from the investments provided in Seelye Supplemental Exhibit WSS-1, p.1.

Capacity of Related Transmission Investments (kVA)												
Company	Pre Investment				Post Investment				Difference			
	SN	SE	WN	WE	SN	SE	WN	WE	SN	SE	WN	WE
KU	949,000	988,000	1,727,000	1,745,000	1,811,000	2,051,000	2,745,000	2,869,000	862,000	1,063,000	1,018,000	1,124,000
LGE	100,000	100,000	143,000	143,000	104,000	132,000	161,000	178,000	4,000	32,000	18,000	35,000
LGE-KU Tie	127,000	160,000	195,000	215,000	177,000	304,000	272,000	300,000	50,000	144,000	77,000	85,000
Total	1,176,000	1,248,000	2,065,000	2,103,000	2,092,000	2,487,000	3,178,000	3,347,000	916,000	1,239,000	1,113,000	1,244,000

*SN = Summer Normal
*SE = Summer Emergency
*WN = Winter Normal
*WE = Winter Emergency

b. The following table includes all budget categories of transmission investments from 2022-2025. As provided in Seelye Supplemental Exhibit WSS-1, p.1, capacity related transmission investments are planned for in the Transmission Expansion Plan's (TEP) ten-year horizon. However, other investment categories are planned for in the five-year business plan term. The 2021 Business Plan's term is 2021-2025; therefore, the equivalent term with Seelye Supplemental Exhibit WSS-1, p.1 starts with 2022 and is only available through 2025.

Transmission										
2021 Business Plan (000)										
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Compliance	1,687	528	529	528						
Emergency Replacement	2,455	2,539	2,574	2,600						
Native Load	4,381	5,738	2,669	2,465						
Operations Support	314	759	549	1,039						
Proactive Replacement	82,440	89,529	88,816	94,858						
Reliability	4,950	4,596	4,763	4,678						
TEP	15,391	7,190	8,163	97	140	818	6,737	4,202	2,901	1,251
Third Party Requests	3,492	-	-	-						
Other	1,060	-	-	-						

c. Capacity related investments as provided in the Seelye Supplemental Exhibit WSS-1, p. 1 are from the TEP category, plus one project from the Proactive Replacement category which was added to a TEP project in 2022. All other categories are considered to be non-capacity related.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 13

Responding Witness: John K. Wolfe / William Steven Seelye

Q-13. Please refer to Seelye Supplemental Exhibit WSS-2, p. 1.

a. For both LGE and KU separately, please identify the aggregate load carrying capability in kW of the capacity related distribution investments referred to in the accompanying table.

b. Please provide an equivalent table depicting the distribution capital plan inclusive of all distribution investments, not just those that the Company considered to be load-related.

c. Please identify with specificity all categories of investments that the Company has designated as capacity-related and all categories of investments that it has designated as non-capacity related.

A-13.

a. The following capacity related Distribution projects are planned through 2025.

	Capacity of Related Distribution Investments (kW)
KU	158,800
LGE	44,800
Total	203,600

b.

Electric Distribution Operations
Capital Plan - 2021 BP
($ In Thousands)

Sum of total	Column Labels					
Row Labels	2021	2022	2023	2024	2025	Grand Total
DIST OPER-CONNECT NEW CUSTOMER	70,138	69,006	71,023	73,149	75,341	358,657
DIST OPER-ENHANCE THE NETWORK	80,480	61,367	57,586	51,859	46,881	298,174
DIST OPER-MAINTAIN THE NETWORK	95,483	73,063	72,904	71,202	70,033	382,685
DIST OPER-REPAIR THE NETWORK	18,584	19,169	19,430	19,991	20,560	97,734
DIST OPER-MISCELLANEOUS	2,214	1,912	1,535	1,592	1,357	8,611
Grand Total	266,899	224,517	222,478	217,794	214,173	1,145,861

c. A portion of the Enhance the Network category includes capacity related projects for Major Substation and Circuits as identified in the above answer for part “a”. All other categories are considered to be non-capacity related.

KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Kentucky Solar Industries Association, Inc.'s
Combined Request for Information
Dated July 22, 2021

Case No. 2020-00349 / Case No. 2020-00350

Question No. 14

Responding Witness: William Steven Seelye

Q-14. Please provide workpapers associated with all Figures, Graphs, Tables, and Exhibits associated with the Direct Testimony of Company Witness William S. Seelye in executable spreadsheet format with all formulas and file linkages intact.

A-14. See attachments being provided in Excel format. Also see the response to PSC 7-22.

The attachments are being provided in separate files in Excel format.